Capital Nature

A history of French municipal museums of natural history, 1795-1870

Déborah S. Dubald

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of History and Civilization
of the European University Institute

Florence, 29 November 2019

European University Institute
Department of History and Civilization

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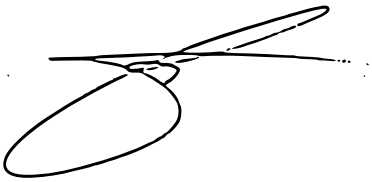

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Abstract

The purpose of this study of three municipal museums of natural history in Nantes, Lyon and Toulouse, from ca. 1800 to 1870, is to offer a history of museums which values the situational configurations, whether social, spatial, and also environmental. Rooted in a social history of scientific practices, this enquiry reveals the plurality and the contextual plasticity of natural history museums.

The soaring of collecting activities in the nineteenth century and the accumulation of collection objects may have been enough to explain the changing figure of museums. But the many transfers of collections to new locales or to the owning hands of the municipality, as well as failed projects, cast light on museums which were constantly re-composed when not de-composing. The unstable nature of the nineteenth-century municipal museum of natural history certainly contrasts with representations of immutable science inscribed in neutralised places.

This is not the history of a proto-museum of natural history which eventually came into final form after 1870. Rather, the focus is set on a particular moment of their longer history which seeks to highlight their fluidity, unfinishedness and peculiarities in contrast with narratives of model institutions and perfection. Through this lens of the everyday, the dissertation shows how the history of the construction of the geographical and social spaces of the museums resulted from the gaining, maintaining, and fitting it into the space of the city. Far from being a container of objects and knowledge cut off from the society, practices of natural history at the museum and the construction of natural knowledge as capital also entailed field practice and interactions with manifold actors, naturalists and non. The museum, consequently, emerged as a place of knowledge which extended well beyond the museum building.

By decentring the gaze and considering the provincial space from there rather than with incomparable centres, the dissertation examines the modalities of the local construction of scientific authority and how it was manoeuvred through the scientific and administrative hierarchies. Observation of the keeping of natural knowledge and objects at municipal museums of natural history shows how local norms and frames of reference were produced which neighboured and made us of, rather than neglected, universal scales of scientific knowledge, and illuminates the changing contours of natural knowledge in relation to place.

Table of contents

ABSTRACT **7**

TABLE OF CONTENTS **9**

ABBREVIATIONS **15**

TRANSCRIPTIONS AND EQUIVALENCES **17**

LIST OF FIGURES **19**

LIST OF TABLES **21**

ACKNOWLEDGEMENTS **23**

INTRODUCTION: LOCATING THE NATURAL HISTORY MUSEUM **27**

1. THE STORY OF WHERE TO PUT THE DEAD ELEPHANT **27**

2. FOR A SITUATED HISTORY OF THE NATURAL HISTORY MUSEUM **30**

A. Plural museums 30
B. Museums and natural history 34
C. Placing history 39
D. City of science, science of the city 41
E. For locality 47

3. A STUDY FOR THREE LOCALITIES **52**

A. Lyon, Nantes, Toulouse 52
B. Local temporalities 55
C. Museums of paper 56

CHAPTER 1 ASSEMBLING THE MUSEUM **59**

1. THE OPPORTUNITY OF THE MUSEUM: THE CREATION OF THE LYON, NANTES AND TOULOUSE MUSEUMS **61**

A. Seizing the opportunity: the translation of national regulations locally in Toulouse 61
B. A localist response to the museum opportunity 66
a. Lyon and the Conservatoire des Arts: supporting the industry *68*
b. Toulouse and the École Spéciale des Arts et des Sciences: compensating the wronged capital city of Languedoc *69*
C. Localisation of collections: the transfer to the municipality 72

2. LOCAL COLLECTIONS AND COLLECTIVE MUSEUM **75**

A. Confiscated nature: a symbolic importance in the history of the museum 76
B. Donors of collections and the collective collection 79
a. Presentation of the sample *80*
b. The nature of the proposal *81*
c. Donating for free? Afterlife strategies and civic pride *84*
d. The mechanism of reception and the protagonists *90*
e. Triggering problems of storage *94*
f. The museum as the collective place of gathering of individual nature-based symbolic capital *100*

3. COLLECTING FOR THE CITY, COLLECTING FOR THEMSELVES: THE PROFESSIONALISATION OF MUSEUM DIRECTORS **101**

A. A MUNICIPAL NATURALIST WITHOUT A MUNICIPAL COLLECTION: THE STRANGE CASE OF LAPEYROUSE 103
B. MEET THE MUSEUM DIRECTOR 105
a. In Nantes: the weight of collecting skills *106*
b. In Lyon, the necessity of applied knowledge *111*
C. CONNECTING DIRECTORS ? 119
D. WERE THERE DIRECTOR COLLECTORS? 120

CONCLUSIONS **121**

CHAPTER 2 BUREAUCRACY OF NATURE **123**

1. OF PAPER AND LESSONS LEARNT: GOVERNING THE MUSEUM **126**

A. THE OMNIPRESENT FIGURE OF THE MAYOR 127
B. REGULATING THE MUSEUM 131
a. Nantes: a museum for three players *131*
b. Lyon: museum and power games *134*
C. THE PREFECT: THE SHADOW PLAYER OF THE MUSEUM? 135
a. The unwanted museum *136*
b. Polite exertion of authority *137*
D. PAPER AS A GOVERNING INSTRUMENT 142
a. Crafting the museum authority of the mayor *143*
b. Lines of demarcation *145*
c. Mediating the museum *146*
d. Horizontal collaborations: mayor vs mayor; prefect vs prefect *148*
e. Constructing the defiance *150*

2. ADMINISTRATIVE GRIP AND COLLECTING **154**

A. TRAVELLING AND MAPPING: AN ADMINISTRATIVE APPROACH TO DATA COLLECTION 154
B. TRAVELLING BY DUTY 158

3. THE ELABORATION OF A DISCOURSE OF THE TERRITORY **160**

A. THE PARTICULAR CASE OF MINERALOGY AND GEOLOGY 160
B. INTRODUCTORY COUNTERPOINT: TOULOUSE AND SANSAN 163
C. INVENTORYING THE RHONE: THIRTY YEARS OF HARVESTING FOSSILS FOR THE LYON MUSEUM 163
a. Documenting the scientific trips: the Journal d'Entrées *164*
b. Funding for the inventory of the Rhone: collecting under control *170*
c. The reports on the exploration of the Rhone: strategies to overcome clashing categories *175*

CONCLUSIONS: ADMINISTRATING NATURE **184**

CHAPTER 3 FITTING THE MUSEUM IN THE CITY **187**

1. IN THE INTERSTICES OF THE CITY **189**

A. THE CHANGING LOCATIONS OF COLLECTIONS 189
a. Nantes and the clasped museum *189*
b. Toulouse: the ghost of the museum at the botanical garden *192*
c. Lyon: from Les Terreaux to La Déserte and back *194*
B. CHANGE OF LOCATION, CHANGE OF MEANING 197

2. IN THE DEEPNESS OF THE CITY: ENVIRONMENT, MUSEUM AND ADAPTATIONS **200**

A. MATTERS OF SITE 201
B. MATTERS OF HUMIDITY 203
C. THE MUSEUM AS A COMPONENT OF THE CITY 208
MUSEUM AND THE PRODUCTION OF URBAN SPACE 212

3. IN THE FUTURE OF THE CITY: THE IMAGINED MUSEUM 213

A. MATTERS OF ADAPTATION 214
a. Adapting the architecture to a new function 214
b. Adapting and up-keeping the interiors 217
B. PROJECTS AND PROCESSES: BUILDING THE NEW MUSEUM OF NANTES 220
a. Finding inspirations and models 220
b. Processes of project selection 223
C. PROJECTS 225
a. Considering practice 225
b. Considering impact 229

4. IN THE SOCIAL SPACE OF THE CITY 233

A. ADVERTISING FOR THE MUSEUM 235
B. WELCOMING THE PUBLIC 236
C. HUBS OF SCIENCE: HUBS FOR THE NOTABILITIES 240
a. The place of the museum in gentrifying cities. 240
b. The birth of districts of science ? 242

CONCLUSIONS: IN THE LIVED SPACE OF THE CITY 245

CHAPTER 4 THE INSIDE-OUT MUSEUM: COLLECTING, FIELD EXPERIENCE AND PLACE MAKING 247

Beyond cabinet and field science: the museum as a scientific continuum 249
Mapping the inside-out museum: a method 252

1. A VISIT TO THE MASTERS? TRAVELLING TO LONDON, PARIS AND ROME 253

A. LONDON AND LIVERPOOL: A STORY OF ALTERITY AND OPPORTUNITIES 255
B. THE NECESSITY OF THE PARISIAN STOP-OVER: OPPORTUNITIES AND COMPLEMENTARITY 261
a. Parisian shops and dealers of nature 261
b. Sociabilities of silent conversations 264
c. Studying Paris 267
C. UNEARTHING ROME 268
a. A geology of the interstices 268
b. Distance, shipping and trust: dealing with being unknown 273

2. TO THE MOUNTAINS 275

A. MISSED OPPORTUNITIES 276
B. LOOPING BACK TO LYON: PATTERNS OF MOBILITY IN THE MOUNTAINS 279
C. TAKING THE MUSEUM UP THE FOOTPATHS: THE PHYSICAL ENGAGEMENT OF COLLECTING 282

3. THE CLOSE-BY: THE CONSTRUCTION OF A SCIENTIFIC HINTERLAND 284

A. A SCIENTIFIC HINTERLAND STRUCTURED BY ACCESSIBILITY 285
B. THE MAKING OF A SCIENTIFIC SITE: CERIN 287
C. MAKING TOULOUSE THE SCIENTIFIC CENTRE OF THE PYRENEES 296
a. The Toulouse exploratory base for the Pyrenees 298
b. Knitting the Pyrenees into the Toulouse collections 300
c. Toulouse, the Pyrenees and the touristic guide 302

4. MUSEUMS AS FOREMEN: FIELD, LABOUR AND NATURAL KNOWLEDGE 309

A. DIGGING DOWN THE CITY 310
B. HEROES AND HELPERS: FIELDWORK HIERARCHIES 314
a. Helpers 316
b. Heroes 319
C. HIERARCHIES OF KNOWLEDGE? 321

CONCLUSIONS **324**

CHAPTER 5 IN PLACE: WORKING OUT THE MUNICIPAL COLLECTION **327**

SPECIALISATION OF COLLECTIONS 328

1. LISTS OF THINGS: FRAMING OBJECTS IN INVENTORIES AND CATALOGUES **330**

A. MUSEUM ADMINISTRATION AND PRODUCTION OF LISTS 332
B. AN INSTRUMENT FOR ADMINISTRATIVE CONTROL 336
C. AN INSTRUMENT FOR LOGISTICS OF OBJECTS 340
D. THE BURDEN OF KEEPING THE INVENTORY 343

2. SCALING CLASSIFICATION TO THE LOCAL **345**

A. CLASSIFICATION AND MUSEUM AUTHORITY 346
B. DIVERSE AND OVERLAPPING CLASSIFICATIONS 347
a. The Lyon collection in 1814: hotchpotch collections *349*
b. The example of Nantes: classifying nature locally *352*
c. Classification according to local mineralogy *353*
d. "Le guide des entrepreneurs!": industry and classification *357*
C. THE LOCAL AND THE REST 360
D. THE CHALLENGE OF PLACING ETHNOGRAPHY 368

3. A SKELETON IN THE CUPBOARD: MAKING AND PLACING THE SPECIMENS **372**

A. "*LES FAIRE RESPIRER APRÈS LEUR MORT*": THE AFTERLIFE OF ANIMALS 372
B. MYRIADS OF OPERATORS 379
C. CONCLUSION: TRYING THE UNIVERSAL WITH THE LOCAL 384

4. THE MUSEUM AS A DATABASE: TEACHING AND PUBLISHING **385**

A. TEACHING 385
a. Teaching with a collection: inherited practices *385*
b. Handling the breakable: the management of municipal collections for teaching *392*
B. MUSEUM IN PRINT: PUBLISHING PRACTICES 397
a. The publishing record of museum directors *397*
b. Jourdan's sonderweg or the failed publication *398*
c. Of colour pencils and legends: the museum in a map *407*

CONCLUSIONS **410**

CONCLUSION THE IMAGINED, THE CELEBRATED AND THE SHABBY **411**

Cultural capital *413*
Political capital *414*
Threatened capital *415*
Field capital *416*
Local capital *416*

APPENDICES **421**

APPENDIX A: GENERAL CHRONOLOGY OF THE THREE MUSEUMS 422
APPENDIX B: LOCATION OF MAIN SITES OF LYON 425
APPENDIX C: LOCATION OF MAIN SITES OF NANTES 429
APPENDIX D: LOCATION OF MAIN SITES OF TOULOUSE 432
APPENDIX E: CHRONOLOGY OF MAYORS OF LYON, NANTES & TOULOUSE 435
APPENDIX F: DONORS OF COLLECTIONS IN TOULOUSE, 1819-1868 437
APPENDIX G: PROJECTS FOR THE NEW BUILDING OF THE MUSEUM OF NATURAL HISTORY OF NANTES 441
APPENDIX H: OVERVIEW OF JOURDAN'S SCIENTIFIC TRIPS 445

REFERENCES **455**
ARCHIVAL MATERIAL **457**
PRINT SOURCES **469**
BIBLIOGRAPHY **483**

Abbreviations

BUT: Bibliothèques des Universités de Toulouse (Tolosana)

ETHZ: Swiss Federal Institute of Technology Library, Zurich

CCEC: Centre de Conservation et d'Etude des Collections, Musée des Confluences de Lyon

ADHG: Archives Départementales de la Haute-Garonne

ADLA: Archives Départementales de la Loire-Atlantique

ADHA: Archives Départementale des Hautes-Alpes

ADR: Archives départementales du Rhône

AMN: Archives Municipales de Nantes

AMT: Archives Municipales de Toulouse

AN: Archives Nationales

BMT: Bibliothèque Municipale de Toulouse

MNHN: Bibliothèque Centrale du Muséum National d'Histoire Naturelle de Paris

MHNN: Muséum d'Histoire Naturelle de Nantes

MHNT: Muséum d'Histoire Naturelle de Toulouse

ff.: Francs (currency)

fo.: folio

ibid.: Refers to quoted work cited immediately before

it.: item

ms: manuscript

n.d.: undated

op. cit: Refers to quoted work cited previously. Short title is provided

p.: page

Transcriptions and equivalences

Transcriptions of French text are as faithful as possible to the original version. Sign "[...]" indicates truncation in text. Spelling and grammar mistakes have been reproduced and are indicated by signs "(sic.)". Punctuation was sometimes adapted when necessary for understanding.

All translations from French are the author's own.

Working on French sources entailed using a terminology foreign to English. Comfort and fluidity of reading has presided over the translation choices made in the manuscript.

The name of the Muséum d'Histoire Naturelle in Lyon, Nantes and Toulouse has been translated to "Museum of Natural History".

Names of schools and academic institutions, when referring to the generic term, have been translated, e.g.: faculty of science for faculté des sciences, academy for *académie*. Exception was made with *école centrale*, which was kept in French for matters of disambiguation.

Names of places or sites have been left in French. e.g. La Croix-Rousse, Place de la Monnaie, La Déserte etc. In the case of geographical entities like river names, the English version was opted for when available: e.g. the Pyrenees, the Alps, the Rhine. River Rhone is spelt without an accent with the exception of term used in the context of a French expression (like a publication's title), designation of a locality or *département* (e.g.: Bouches-du-Rhône, Rhône)

Names of academic or museal institutions were not translated and appear as non-italicised, like place names. e.g.: Société Académique de Nantes, Muséum National d'Histoire Naturelle, École Centrale when referring to a specific one.

Regarding administrative institutions or positions, most terms were translated into English equivalents. To avoid any possible ambiguity, a glossary of specific terms has been inserted in the appendices.

Administration Centrale du Département: Central Administration

Architecte de la Ville: Head Architect

Comité or Commission de surveillance du Musée: Supervising committee

Conseil Municipal: Municipal Council

Conseiller Municipal: Municipal Councillor

Directeur (du musée): (Museum) Director

Départemental (relative to the *département*): departmental

Maire: Mayor

Ministère de l'Intérieur: Ministry of the Interior

Préfet: Prefect

Préfectoral (relative to the *Préfecture*): prefectoral

Préfecture: prefecture

An exception was made for the following terms:

Conservateur: French word used

Département: French word used

List of figures

Figure 1 - Official announcement of the opening of Toulouse's Musée National in 1795. AMT. 63
Figure 2 - Printed advertisement for the sale of the Maureau natural history cabinet, 1836. AMT. 83
Figure 3 - Architectural plan of the cabinets for the Galerie Rocquemaurel at the Musée in Toulouse, 1855. AMT 96
Figure 4 - Architectural plans of the Galerie Rocquemaurel at the Musée in Toulouse, 1855. AMT 96
Figure 5 - Cost estimate for the transformation of a gallery of the Musée in Toulouse in view of the Galerie Rocquemaurel, 1854, AMT. 97
Figure 6 - Nose flute, Figi Islands. Rocquemaurel collection, [1837-1840]. MHNT 99
Figure 7 - Manuscript notes of Cailliaud, undated. Muséum d'Histoire Naturelle de Nantes. 110
Figure 8 - Claim for payment of Guérin, janitor at the Nantes museum, 1839. AMN 143
Figure 9 - Journal d'entrées before 1852. CCEC 167
Figure 10 - Journal d'entrées p. 111, 1862. CCEC 168
Figure 11 - Journal d'entrées p. 63, 1859. CCEC 169
Figure 12 - Receipt of the shipping company Hummel, Strasbourg,1836. AML 171
Figure 13 - Bill of purchase for boxes, emitted by Souchier in Paris, 1833. AML 172
Figure 14 -Mastodon dissimilis, plate published in Archives Du Muséum d'Histoire Naturelle de Lyon, 1878. . 180
Figure 15 - Architectural plan of the circular room of the Nantes museum, 1812. AMN 190
Figure 16 - Plan of the School of Surgeons, formerly in the location of the Nantes museum, undated. AMN 190
Figure 17 - Layout of the Nantes museum, 1841. AMN 191
Figure 18 - The neighbourhood of the Nantes museum. Plan général de Ville de Nantes, Peccot, 1818. AMN. 203
Figure 19 - Detail of a general map of Place des Terreaux. Elevations of Hotel de Ville and Palais Saint-Pierre, 1845. AML 208
Figure 20 - Detail of a receipt of purchase emitted by Termet, undated. AMN 211
Figure 21 - Detail of a bill of purchase emitted by Avinaud, 1840. AMN 211
Figure 22 - Architectural plan of a new room at the Nantes museum, 1810. AMN 216
Figure 24 - Architectural plan of projected new cabinets in a room of the Nantes museum, 1812. AMN 218
Figure 23 - Architectural plan of a vestibules at the Nantes museum, 1812. AMN 218
Figure 25 - Elevation of a projected cabinet for the circular room of the Nantes Museum, 1812. AMN 219
Figure 26 - Description of the possible use of Hotel Chardonneau by Dubuisson in [1827?]. AMN 221
Figure 27 - [Place de la Monnaie B] Projection of a new museum building on Place de la Monnaie, undated, unsigned. AMN 226
Figure 28 - [Place de la Monnaie C] Projection of a new museum building on Place de la Monnaie, [1864?], Bourgerel. AMN. 227
Figure 29 - [Place de la Monnaie D] Projection of a new museum building on Place de la Monnaie, [after 1864], Bourgerel. AMN 228
Figure 30 - [Place de la Monnaie F] Projection of a new museum building on Place de la Monnaie, undated, Bourgerel. AMN. 229
Figure 31 - Photograph of the Nantes museum, late 1870s. AMN 231
Figure 32 - Projected garden facing the entrance of the Nantes museum, on Place de la Monnaie, 1872. AMN 232
Figure 34 - Newspaper annoucement of the opening of the Zoology Gallery, 8 March 1837. Le Censeur, BML. 234
Figure 33 - Public announcement of the opening of the Nantes museum in 1810. AMN. 234
Figure 35 - View of the Zoology Gallery of the Lyon Museum, 1837. [Dardel ?] CCEC 237
Figure 36 - An entry card for the Nantes museum, undated. MHNN 240
Figure 37 - Manuscript notes of Jourdan, [1835?]. CCEC 257

Figure 38 - Transcription of the "History of the ornithoryncus". CCEC 258
Figure 39 - "The history of the ornithorhyncus". Notebook of Jourdan. CCEC 259
Figure 40 - Journal d'entrées, entry n°304, 12 May 1866: travel to Rome. Centre de Conservation et d'Étude des Collections, Lyon. 270
Figure 41 - Journal d'entrées, entry n°304, 12 May 1866: travel to Rome. Centre de Conservation et d'Étude des Collections, Lyon. 271
Figure 42 - Map of 1857 trip to the Swiss Alps. 279
Figure 43 - Overall destinations of Jourdan during his directorship. 285
Figure 44 - Cut of Bugey, in Thiollière, Description des poissons fossiles provenant des gisements coralliens du Jura dans le Bugey, 1854-1873. 287
Figure 45 - Plates of fossilised Caturus furcatus,Caturus elongatus, Caturus latus compared with Agassiz's descriptions, in Thiollière Description des poissons fossiles provenant des gisements coralliens du Jura dans le Bugey, 1854-1876. 288
Figure 46 - Specimen of fossilised Gyrodus sp. from Cerin, Collection Thiollière or Jourdan, CCEC 291
Figure 47 - Map of a trip to Cerin in 1861, including other stops. 295
Figure 48 - Charpentier's sketch of the Pyrenean mounstainscape, taken from the observatory of Toulouse, in Picot de Lapeyrouse, Histoire abrégée des plantes des Pyrénées, 1813. 298
Figure 49 - Plate of Allée Saint-Michel in Toulouse, showing the entrance gate to the botanical garden, in Cayla and Paul, Toulouse monumentale et pittoresque, 1842. BUT - Tolosana 303
Figure 50 - Map of Toulouse, 1815. AMT. 307
Figure 51 - Notes of Jourdan, separate sheet in notebook. CCEC 311
Figure 52 - Notes of Jourdan, separate sheet in notebook (second page). CCEC 312
Figure 53 - Journal d'entrées, p.90, entry n° 47, 20 April 1886. CCEC 315
Figure 54 - Dubuisson, "Catalogue de la collection minéralogique, géognostique et minéralurgique du département de la Loire-Inférieure (...)" Vol. 1, 1830. Muséum d'Histoire Naturelle de Nantes. 333
Figure 55 - Cover of the print version of Dubuisson's Catalogue de la collection minéralogique de la Loire Inférieure, 1830. Jubilothèque - Bibliothèques UPMC. 334
Figure 56 - Detail of a print transcript for Herbignac, in Dubuisson, Catalogue de la collection minéralogique (...). Muséum d'Histoire Naturelle de Nantes - Jubilothèque (Bibliothèque UPMC) 335
Figure 57 - Registers and stubs used to keep the record of purchase at the Lyon museum (1858-1860). AML .. 339
Figure 58 - Journal d'entrées, p. 97-98, 1861. CCEC 342
Figure 59 - Schematic representation of days of inventory and content of cabinet at La Déserte in 1814. 350
Figure 61 - Detail of Catalogue des terrains de Paris, undated. MHNN 355
Figure 60 - Detail of the Dubuisson collection catalogue of 1822. MHNN 355
Figure 63 - "Mammouth de Choulans" as it was exhibited at the Lyon museum in Palais Saint-Pierre after 1872, CCEC 370
Figure 62 - "Mammouth de Choulans" discovered by Jourdan (1858) and mounted by Lortet (1873), CCEC ... 371
Figure 64 - Taxidermied birds "en vol", by Mouton-Fontenille, Musée départemental de Gap / François Dusoulier. 375
Figure 65 - Proof of plate for Cailliaud's research on pholadidae, ca.1855. MHNN 378
Figure 66 - Architectural plan of projected southern extension of Palais Saint-Pierre to host the Faculty of Science, 1864. AML 390
Figure 67 - Content of the course of applied anatomy to the students of the School of Arts, 1868-1869. CCEC 395
Figure 68 - Proof of plate annotated by Jourdan. CCEC 402
Figure 69 - Proof of plate identical to fig. 68 and sent to the prefect, undated. ADR 403
Figure 70 - Proof of plate sent to the prefect, undated. ADR 404
Figure 71 - Labels of specimens re-used in view of drawing the mineralogical map, [1862?]. MHNN 409
Figure 72 - Proof of plate annotated by Jourdan with engravings of specimens formerly in the collections of Monconys-Pestalozzi, Magneval, Abbé Rosier and one more recent piece collected by Jourdan. CCEC . 419
Figure 73 - Plan géométral de la ville de Lyon, assujetti aux nouveaux alignements, augmenté des quartiers neufs et enrichi des bâtiments principaux (extract), 1801. BNF 426
Figure 74 - Plan de Lyon, de ses environs et des forts (extract), by Le Dignoscyo, 1844. BNF 427
Figure 75 - Plan de Lyon, 1856-1870. BNF 428
Figure 76 - Plan de Nantes, by Sébire, 1825. Bibliothèque Nationale de France. 430

Figure 77 - Plan de Nantes, by Jouanne, 1871. BNF 431
Figure 78 - Plan de la ville et faubourgs de Toulouse (extract), by Vitry, 1815. AMT 433
Figure 79 - Plan de la Ville de Toulouse, ca.1868. AMT 434

List of tables

Table 1 - Acquisitions in Lyon —1845-1849 sample 363
Table 2 - Acquisitions in Lyon —1859-1861 sample 364
Table 3 - Acquisitions in Nantes —1845-1849 sample 365
Table 4 - Overall expenses in Nantes —1858-1865 sample 365

Acknowledgements

This page stands at an odd intersection: where the thesis starts and where I finish writing it. Typing out those very last words certainly comes with tweaking nostalgia and resurfacing images of early morning *espressi* or after-lunch *capuccini* on that stone bench outside Villa Salviati. Those hours-long discussion about that incredibly witted new idea we had. The doubts and perspectives and the awkwardness of sitting, back again, in the seminar room after years playing teacher. Hours composing tables, arranging data, flicking through thousands of digitised pages, arranging sentences which could make sense of it all. Accepting to not quite making sense of it all. And eventually the pride of delivering.

There were difficult moments, and there were even "*catastrophes*". But I have utterly enjoyed those years of research on "*les animaux empaillés*" as I would jokingly summarise it. I like to snobbishly believe that this thesis, more than any other, is the result of the incredible support I was offered throughout by people surrounding me. To *everyone* I have encountered, and exchanged with in the course of the work, anonymous and non, I wish to express my deepest and sincerest gratitude.

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À Martin, ma lumière.
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Introduction: Locating the natural history museum

1. The Story of where to put the dead elephant

In the spring of 1822, a peculiar matter occupied a handful of members of the Toulouse elite: Victoire Padovani, the owner of a travelling menagerie, required payment for a dead elephant that had just been incorporated into the Toulouse natural history collections.[1] That Victoire Padovani, a mother of nine, should claim payment for her property was not surprising. What was more unexpected was the fate of that dead elephant, the carcass of which underwent a series of adventures before being turned into one of the specimens of the Toulouse museum.[2]

Baba, for such was the name of the elephant, had made its entry to Toulouse in the summer of 1815. Sadly, the beast collapsed in the middle of the same route which the Princess of Angoulême was to follow the next day. The princess, who was the daughter of the late Louis XVI and Marie-Antoinette and the niece of King Louis XVIII, was the most distinguished member of the royal family freshly back on the throne. It was therefore most urgent to remove the unfortunate elephant, all the more so as the weather was blazing hot and its flesh was rapidly decomposing. The dead

[1] AMT - 3D132, Victoire Padouvany [Padovani] to the Mayor of Toulouse, 14 February 1822.
Various spellings existed for the widow's name. "Padovani" was retained as it was the most frequently used.
[2] AMT - 1D38, p. 160, Délibérations du conseil municipal 3 mars 1821 - 29 décembre 1823, 15 April 1822.
On merchants selling animals from menageries, see Christopher Plumb, 'Bird Sellers and Animal Merchants', in *Worlds of Natural History*, ed. Helen A. Curry et al. (Cambridge; New York: University of Cambridge, 2018), 255–70.

Baba had become a matter of public health. The following night, he was grossly "stripped from [his] flesh" and disposed of.[3]

It took the determination of Gabriel-Délie Béguillet, the director of the École Spéciale des Arts et des Sciences, to turn the carcass of the elephant into the celebrated mounted skeleton subsequently displayed at the veterinary school and, decades later, at the museum of natural history. The elephant was first ripped apart with the help of a trainee surgeon, following which his skeleton underwent a long process of preparation under the supervision of Béguillet, the naturalist Isidore Picot de Lapeyrouse, the trainee surgeon Bullion and the Head Gardener Ferrière.[4] The men organised the recovery of the bones from the municipal rubbish tip. They had to be very careful to retrieve every piece, including the smaller ones, for fear that the skeleton would lose all scientific value. They opted for the Jardin des Plantes as the most convenient location to bury the remains of the elephant so as to allow for natural decomposition and cleaning of the bones. Unfortunately, as the process took too long, dogs began to dig out the fragments of the skeleton and cause damage, not to mention the filthy odours subsequently emanating from the cavity. It was decided that the process should be quickened by immersing the skeleton into a wide basin filled with water, again in the garden.

Only then, after a couple of years spent in the subterranean levels of the botanical garden, were the bones ready for mounting. The bones were removed from water and assembled on the garden's lawns. It had taken Bullion every effort to overcome his disgust, as a challenging smell still rose from the corpse of the animal. Mounting the skeleton would also take a lot of ingenuity. The remains had been substantially damaged, but what did it matter: feet could be rearranged with buffalo skin and missing floating ribs may as well be replaced with some from a cow.

The proud group of Toulouse savants, possessors of "an object which exist[ed] in no other provincial museum", had never expected that the widow who originally owned the elephant would persist in her claim.[5] Béguillet, in 1822, was asked to provide a detailed report about what exactly had happened.[6] Widow Padovani had petitioned the mayor of Toulouse directly and still sought payment for the deal she claimed had been settled between her and Béguillet back in 1815. Unfortunately for her, and despite the intervention in her favour of Villèle, former mayor of Toulouse and Minister of Finance, the municipal council ruled against her claim and she was

[3] AMT - 3D132, "Copie de la lettre par Mr. Béguillet adressée à Mr. le Maire de Toulouse", 27 February 1822.
[4] AMT - 3D132, "Copie de la lettre par Mr. Béguillet", ibid. See also the claim for payment made by Bullion: AMT - 3D132, Bullion to the Mayor of Toulouse, 14 May 1817.
[5] AMT - 3D132, "Copie de la lettre par Mr. Béguillet", ibid.
AMT - 1D38, p. 160, op. cit.
[6] Ibid.

left empty-handed.[7] Béguillet declared that the widow had not been trustworthy, leading him to believe that she had in fact abandoned the animal in Toulouse. A woman demanding a Christian burial for an animal whose bones she thought were entirely made of ivory, and who on top of that showed unpredictable ill-temper, was certainly not fit for making decisions relevant to the development of science, Béguillet explained. In the end, the appropriation of the dead body of Baba the elephant had been profitable. And without a document proving the arrangement she had presumably made with Béguillet, Widow Padovani had no chance of obtaining compensation.

Beyond the story of Béguillet who, quite blatantly, tricked a miserable woman in order to secure possession of the elephant skeleton, lies the story of the appropriation of natural history objects and collections by municipalities. Such appropriation was central to the making of the *municipal* natural history museums which this dissertation proposes to explore. The elephant affair indeed raises several questions. A traditionally prized diplomatic gift to princes and a symbol of regions still hardly known about, the elephant was an exceptional piece, a potentially once-in-a-lifetime opportunity. Baba became a museum specimen, but the vicissitudes around its body show above all how specimens were made rather than found and how an "exotic" animal was fashioned into a local mount. The modalities of its acquisition interrogate the circulations of natural objects in provincial France, stressing how hard and inaccessible the largest terrestrial mammals were. They were usually only accessible to the Parisian places of scientific knowledge which magnetised the most resources. Regardless of Villèle's intervention, the municipality turned down the claim of Widow Padovani: administrative regulations were the only lever for local authorities against the central government. In that very case, the Toulouse authorities had been able to use them to their advantage and escape payment of 3,000 francs while at the same time acquiring a precious specimen. The Baba affair indeed also symbolised a political show of strength between different tiers of administration.

Perhaps most interestingly, one fundamental question is *where* should the elephant have been put? It had to be removed from the middle of the way. Then it had to be removed from the rubbish pit to be preserved, and therefore it was buried in the botanical garden. It was presumably mounted at the *Musée* in Toulouse before it was later stored in a room of the veterinary school. Then again, in the 1860s, the elephant mount had to be moved out to allow for building works. Toulouse, until 1865, did not have a natural history museum, and there was no dedicated place to

[7] AMT - 3D132, Victoire Padouvany (sic.) to the Mayor of Toulouse, 14 February 1822: the letter bears a short note from Villèle on the left-hand margin.

prepare, store and exhibit the elephant, causing his skeleton to be moved across the city several times. The example of Toulouse raises with acute significance the fact that a natural history museum did not emerge from scratch but was instead the result of accidents, local ingenuity and a great deal of improvisation. The very idea of establishing such an institution, contrasting with tales of grand openings and inaugurations, matured, developed and became a scientific necessity once the city it was growing into had appropriated the idea of it. The natural history museum of provincial cities of 1800-1870 was a museum solidly knitted into the urban fabric, a place of local knowledge.

2. FOR A SITUATED HISTORY OF THE NATURAL HISTORY MUSEUM

This dissertation proposes to write the history of three museums, in Nantes, Lyon and Toulouse, from ca. 1800 to 1870. Scholarship on museums is abundant and publications about some of the selected museums already stand on the bookshelves of specialised libraries. The following section will show, nevertheless, that there is no up-to-date history of the natural history museums of France, especially for cases outside Paris, in spite of some exceptions. This addition to the history of natural places of knowledge will be guided by the necessity of offering a history of the museum which values their situational configurations, whether social, spatial, or environmental. A situated perspective will not only serve the objective of withdrawing non-Parisian museums from ineffective comparative frames of reference, but also to underline the contextual plasticity of the museums, in the plural form.

A. Plural museums

The nineteenth-century museum is traditionally described as a private cabinet being turned into a public museum, thereby emphasising the transfer of property for a more democratised access to collections.[8] Other works outline changes from romantic bric-a-brac and the visual pleasure of a stockpiled chaos of objects to a more orderly gallery-style organisation.[9] Another trend analyses the evolution of the

[8] Marco Beretta, *From Private to Public: Natural Collections and Museums* (Sagamore Beach: Science History Publications, 2005).

[9] Stéphane Van Damme, *Métropoles de papier: naissance de l'archéologie urbaine à Paris et à Londres, XVIIe-XXe siècle* (Paris: les Belles lettres, 2012), 223–27. See also Tom Stammers, 'The Bric-a-Brac of the Old Regime:

museum into a place where visible, public collections become separated from invisible, scientific collections, as a reflection of the rise of experimental sciences.[10] If the first early modern museums to be opened were often courtly or princely foundations, interest in collecting, displaying and possessing nature in home cabinets expanded within social groups with the necessary capital, with a tendency for amateurs of natural history to specialise their collections around *naturalia*. At the outbreak of the French Revolution, the density of natural history cabinets was indeed significant.[11]

Explaining what the museum was and how it could be defined is, ultimately, one the purposes of this study. The success of the museal form across the world has made its definition a regular nomenclatural challenge for the International Council of Museums (ICOM). Their plurality makes the proposal of a single and all-encompassing description for all existing establishments extremely complex. Nonetheless, it is important to underline at this stage how the experiences of the directors of Parisian national museums such as Georges Salles or Georges-Henri Rivière influenced the work of the ICOM, at least in its beginnings in the 1940s.[12] Additionally, the development of contemporary standards has greatly influenced traditional narratives about museums, which are all too often insufficiently historicised.

Meaningful scholarship about museums in France has been developed above all around the theme of historical and cultural representations of museums, emphasising the role of arts and historic collections, and more recently about museums of ethnography. While this scholarship has echoed and nourished societal debates around the place of art in society, it has also helped to highlight the constructed nature of museums and to spread the notion of their evolution, as much as their role within society, as places of discussion and shared elaboration of knowledge and values.[13]

Matters of nationalism have deeply structured studies of museums and spaces of display since the beginning of the 2000s, in line with a general reflection on the uses of historical narratives elaborated in museums, whether by communities, political

Collecting and Cultural History in Post-Revolutionary France', *French History* 22, no. 3 (2008): 295–315, https://doi.org/doi:10.1093/fh/crn026.

[10] The validity of this division is discussed below. See infra p. 35.

[11] About the successes of natural history in the late eighteenth century in France and counts of natural history cabinets, see: Pierre-Yves Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)* (Paris: Publications scientifiques du Muséum national d'histoire naturelle, 2014), 14–19.

[12] André Desvallées and François Mairesse, 'L'organisation des musées: une évolution difficile', *Hermès, La Revue*, no. 61 (2011): 30–37; Dominique Poulot, *Musée et muséologie* (Paris: La Découverte, 2005), 4–7.

[13] Dominique Poulot, *Surveiller et s'instruire: la Révolution française et l'intelligence de l'héritage historique* (Oxford: Voltaire foundation, 1996); Dominique Poulot, *Musée, nation, patrimoine: 1789-1815* (Paris: Gallimard, 1997); Dominique Poulot, *Une histoire des musées de France: XVIIIe-XXe siècle* (Paris: La Découverte, 2005); Benoit de L'Estoile, *Le goût des autres: de l'exposition coloniale aux arts premiers* (Paris: Flammarion, 2007).

authorities or dominating groups.[14] This trend has fed largely upon the important work of the 1990s, especially that which considered museums as non-neutral, under the influence and still unfaltering pull of Foucaldian interpretations of the museum as an instrument of mass control.[15] This strong tradition of critical studies of museums still underpins most of the current debates on accessibility, voices, and inclusiveness in museums today.[16] Not the least of these developments has been to question the place of European collections in the global space, including a reflection about their inscription in the colonial past following moves towards policies of restitution.[17]

The history of museums of natural history has followed a path of its own with regards to arts or history museums. In the historiography of French nineteenth-century museums, natural history collections are the odd one out. The history of museums of natural history has been enriched by critical perspectives developed within the field of museum studies but has largely, until recently, remained an object of study for those historians of science with an approach to the study of the past which is distant, when not ignorant, of the social sciences. The histories of the museums of natural history of Lyon, Nantes and Toulouse were all written well before this doctoral research was even started by STEM (Science, Technology, Engineering, and Mathematics) professors usually with a personal or professional relationship to the designated museum.[18] In spite of the growing discrepancy between those monographs and present-day problematics of research interested in a social and situated history of science, their erudite work provided invaluable help in mapping the shortcomings of the field together with useful directions for archival material.

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[14] Simon J. Knell et al., eds., *National Museums: New Studies from around the World* (New York: Routledge, 2011); Sharon Macdonald, *Memorylands: Heritage and Identity in Europe Today* (London ; New York: Routledge, 2013); Peggy Levitt, *Artifacts and Allegiances: How Museums Put the Nation and the World on Display* (Oakland, California: University of California Press, 2015); Simon J. Knell, *National Galleries: The Art of Making Nations* (New York: Routledge, 2016). Those questions mobilised a cross-European research programme, EuNaMus, from 2010 to 2013. Their main findings are available from 'EuNaMus - European National Museums', 2013 2010, http://www.ep.liu.se/eunamus/project/project.html.

[15] Tony Bennett, *The birth of the museum: history, theory, politics* (London, 1995); Eilean Hooper-Greenhill, *Museums and the Shaping of Knowledge* (London; New York: Routledge, 1992).

[16] See for instance Richard Sandell, ed., *Museums, Society, Inequality* (London ; New York: Routledge, 2003). A hard-line appeal for an increased museum role in the tackling of issues of sustainability, see Robert R. Janes and Richard Sandell, eds., *Museum Activism* (Abingdon ; New York: Routledge, 2019).

[17] Felwine Sarr and Bénédicte Savoy, 'Rapport sur la restitution du patrimoine culturel africain. Vers une nouvelle éthique relationnelle' (Paris: Ministère de la Culture, France, 2018).

[18] Gaston Astre, *Le Muséum d'histoire naturelle de Toulouse: Son histoire* (Toulouse: Muséum d'histoire naturelle de Toulouse, 1949), http://numerique.bibliotheque.toulouse.fr/ark:/36254/B315555103_D575; Gaston Astre, *Le Muséum d'histoire naturelle de Toulouse: ses galeries* (Toulouse: Muséum d'histoire naturelle, 1950), http://numerique.bibliotheque.toulouse.fr/ark:/36254/B315555103_D643; Jean Dhombres, *Un Musée dans sa ville: le Muséum d'histoire naturelle* (Nantes: Ouest Éditions, 1990); Louis David, *Histoire du muséum de Lyon* (Lyon: ARPPAM : Muséum de Lyon, 1998). Besides these monographs, the collection of conference papers about the history of the Lyon collections offered sometimes excellent insights: Michel Côté, ed., *La passion de la collecte: aux origines du Musée des Confluences: XVIIe-XIXe siècles* (Lyon: Musée des Confluences, 2008).

Attention to natural history museums has been flourishing and countless monographs have been published. Within French studies, they are often area-based: museums of Rennes, Grenoble, Rouen, Strasbourg, La Rochelle, Perpignan have all had their histories written.[19] The methodologies of these works and the quality of their historical analysis vary greatly, but they altogether supply interesting points of comparison. The patchwork landscape of museum scholarship they provide still seems to unite around a more or less conscious comparison drawn with "models" of museums in capital cities, and to be fair, mostly with studies of Parisian places of knowledge.

Indeed, "big picture" analyses, even if hoped for by a share of historians of science, bear the shortcoming that the indispensable frame of reference applied to them are often those which depart from Paris or capital cities.[20] In spite of warnings against the erroneous conflation of being *unlike* Paris with being *not as good as* Paris, the task is more easily said than done.[21] These works tend to establish a norm based on discourses elaborated in central places of natural history, which are then opposed to the provincial reality. Conclusions are rarely fully convincing, and they do not take analysis further than pointing to differences, when not to backwardness.

Paris was undoubtedly a powerful centre for political decisions and scientific ruling, at both a national and European level. The point of this work is not to embark upon questioning aspects of the Parisian influence which have been solidly deconstructed and analysed for the history of science. Remarkable analyses have illuminated the mechanisms of the Parisian centre of calculation.[22] If measuring their influence is important, the history of Parisian places of knowledge should however be read as site-specific and certainly not as providing a paradigm for understanding what was going on elsewhere, not even in other capital cities of Europe.[23]

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[19] Constant Houlbert, *Le Musée d'histoire naturelle de la ville de Rennes: guide historique et descriptif. Origines et accroissement des principales collections (1794-1928)* (Rennes: Impr. de Oberthur, 1933); Joëlle Rochas, *Muséum de Grenoble: une histoire naturelle* (Grenoble: Éditions du Muséum de Grenoble, 2008); Dorothée Rusque, 'Le Dialogue des objets. Fabrique et circulation des savoirs naturalistes : le cas des collections de Jean Hermann (1738-1800)' (Doctoral thesis, Université de Strasbourg, 2018); Bénédicte Percheron, *Les sciences naturelles à Rouen au XIXe siècle: muséographie, vulgarisation et réseaux scientifiques* (Paris: Ed. Matériologiques, 2017); Christian Moreau, *Histoire du Muséum d'histoire naturelle de La Rochelle* (Paris: Les Indes Savantes Editions, 2013); Robert Bourgat, 'Perpignan Museum: From Natural History Cabinet to Municipal Institution', *Journal of the History of Collections* 7, no. 1 (1995): 73–80, https://doi.org/10.1093/jhc/7.1.73; Sylviane Boutte-Selles, 'Le Muséum d'histoire naturelle de Perpignan et ses collections' (Masters Thesis, Université de Montpellier, 1991).

[20] James A. Secord, 'The Big Picture: Introduction', *The British Journal for the History of Science* 26, no. 4 (1993): 387–89.

[21] Christophe Charle, ed., *Le temps des capitales culturelles: XVIIIe-XXe siècles* (Seyssel: Champ Vallon, 2009), 18.

[22] Lacour, La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804); Volny Fages, Savantes nébuleuses: l'origine du monde entre marginalité et autorité scientifique (1860-1920) (Paris: Éditions EHESS, 2018).

[23] Christophe Charle, 'Introduction. Pour une histoire culturelle et symbolique des capitales européennes', in *Capitales culturelles, capitales symboliques: Paris et les expériences européennes (XVIIIe-XXe siècles)*, ed. Daniel Roche and

This study about museums seeks to grapple with precisely that tendency of taking the museum for granted, reading its history through models in different political, socio-scientific contexts that are not always comparable. The specificity of the site, of the context, of the temporality of the museums is at the heart of my approach. Equipped with the conceptual and methodological apparatus developed in the last two decades around notions of place and knowledge, this dissertation seeks to show that an alternative history of the natural history museum is not simply possible, but also necessary.

I believe the study of the natural history museum is precisely still necessary, not in order to add another erudite layer to knowledge of natural history, but rather to offer a methodological experiment for how to observe science in context, from the very ground up: a sort of low-angle view onto natural history, from the bottom of the museum and filming dynamically through all its forms and operations. In times of invitations by historians for increased contact with objects and materiality, in times of the three-dimensional digitisation of collections, it is possible to envisage the history of the museum in ways other than still lives and steady photographs and perspectives, adding depth of field and movement.[24]

B. Museums and natural history

The clear-sighted introduction to the recent *Worlds of natural history* made no mistake about the study of natural history museums: it will continue to be crucial to the history of natural history for the interest in heritage to continue to grow. The growing awareness and concern about scientific collections and heritage has given a second wind to associations of university museums and collections such as UMAC, the ICOM's committee for university museums and collections, or Universeum, the European network of university collections.[25]

Museums are interesting because they offer a multitude of viewpoints: looking from outside to the architecture, or inside, on top of or underneath the cupboards,

Christophe Charle (Paris: Éditions de la Sorbonne, 2002), para. 2, http://books.openedition.org/psorbonne/868.

[24] The work of Manuel Charpy on questions related to the digitisation of collection objects is essential. Among his many publications, see: Manuel Charpy, 'Le théâtre des objets. Espaces privés, culture matérielle et identité sociale. Paris, 1830-1914.' (Thèse de doctorat, Université de Tours, 2010), http://sso.scd.univ-tours.fr/record=b1498089~S1*frf. For a reflection about historians and material culture, see Lorraine J. Daston, *Things that talk: object lessons from art and science* (New York: Zone books, 2004); Giorgio Riello, 'Things That Shape History: Material Culture and Historical Narratives', in *History and Material Culture*, ed. Karen Harvey (New York: Routledge, 2009); Anne Gerritsen and Giorgio Riello, eds., *Writing Material Culture History* (London; New Delhi; New York; Sydney: Bloomsbury, 2014).

[25] Nicholas Jardine and Emma C. Spary, 'Worlds of History. Introduction', in *Worlds of Natural History*, ed. Helen A. Curry et al. (Cambridge; New York: University of Cambridge, 2018), 3–13.

examining registers stored on the office cabinet: museums present many keyholes to observe the daily happenings that offer a crucial viewpoint on what scientific practices meant in the nineteenth century.[26] The "protean-like nature" of museums was highlighted as largely based on *practices* inside and outside the museum. This powerful analytical grid was elaborated by Sam Alberti in particular.[27]

The museum is the "home of natural history".[28] Numerous works have consistently illuminated the connections between the material organisation of naturalist work and the field of natural history itself.[29] Although they focus largely on the eighteenth century, they are helpful guides for nineteenth-century material elaborations. In contrast with the swollen production about eighteenth-century science, the shrinking of studies about natural history in the nineteenth century is certainly worth noting. In a century perceived as the age of revolutions and modernity, natural history generally becomes obscured by the scientific disciplines into which it broke down, such as geology, biology, anthropology and so on. As natural history was meant to become "more scientific" and to metamorphose into the natural *sciences*, the main twist was generally analysed as a shift to experimental sciences. But then the existence of natural history poses a striking historical and scientific problem: why would there be such a surge of institutions named after a discipline which was already considered to be outdated? The development of museums of natural history in fact brings to light the paradox of the encyclopaedic effort to gather materials and resources for naturalists in times of specialisation.

The sixth volume of the *Cambridge History of Science*, a volume on the modern times, provides no entry under the expression of "natural history". Rather than sheer disappearance, this state of fact may also reveal some level of effacement of natural history, contrasting with its effective permanence.[30] "Big picture" scholarship for

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[26] Michel Foucault, 'Of Other Spaces, Heterotopias', *Architecture, Mouvement, Continuité* 5 (1984): 46–49.

[27] Samuel J. M. M. Alberti, *Nature and Culture: Objects, Disciplines, and the Manchester Museum* (Manchester: Manchester University Press, 2009); Samuel J. M. M. Alberti, 'The Status of Museums: Authority, Identity and Material Culture', in *Geographies of Nineteenth-Century Science*, ed. David N. Livingstone and Charles W. J. Withers (Chicago: Chicago University Press, 2011), 51–72.

[28] Bruno J. Strasser, 'Collecting Nature: Practices, Styles, and Narratives', *Osiris* 27, no. 1 (2012): 305, https://doi.org/10.1086/667832.

[29] Anne Secord, 'Containers and Collections', in *Worlds of Natural History*, ed. Helen A. Curry et al. (Cambridge; New York: University of Cambridge, 2018), 289–303; Staffan Müller-Wille, 'Linnaeus' Herbarium Cabinet: A Piece of Furniture and Its Function', *Endeavour* 30, no. 2 (2006): 60–64, https://doi.org/10.1016/j.endeavour.2006.03.001; Anke te Heesen, *The World in a Box: The Story of an Eighteenth-Century Picture Encyclopedia*, trans. Ann M. Hentschel (Chicago: University of Chicago Press, 2002).
An informative and ingenious approach to the correspondence between the mind and infrastructure through the study of early-modern metaphors of cognitive models can be found in Sean Silver, *The Mind Is a Collection: Case Studies in Eighteenth-Century Thought*, 2015. See also: Sean Silver, 'The Mind Is a Collection. Digital Museum', 2015, http://www.mindisacollection.org/.

[30] Roy Porter and John V. Pickstone, eds., *The Modern Biological and Earth Sciences*, The Cambridge History of Science 6 (Cambridge: Cambridge University Press, 2003).

nineteenth-century natural history is dated and usually underlines how physiology and biology gained importance over natural history.[31] Jim Secord raised this problem in 1993 for the history of natural history in general, when he rightly pointed to the reasons for the observed deficiency, namely the break operated by historians of science from the trend of monographs on the history of progress of science. General resources about nineteenth-century natural history and later are still lacking and what is too often ranked as non-professional science is consequently dismissed.[32]

Yet this dual vision opposing natural history and biology, and the narrative of empirical practice being superseded by a more rational experimental discipline have both been challenged.[33] To start with, nineteenth-century practitioners of science continued to collect and order nature using techniques passed on from the eighteenth century. With what Paul Farber framed as "the acceleration of information accession", naturalists were faced with the difficulty of describing and placing each one of the new species into classificatory systems and altogether realised that writing a complete natural history was no longer an achievable plan.[34] Besides the question of species which had disappeared, problems around the definition of the species category aligned with the controversy around *transformisme* or *fixisme*, before the publication of the *Origins of the species* further rendered more complex the riddle of making sense of living beings.[35] For François Dagognet, classification even became very successful because taxonomy, especially the Linnaean classification, had evolved into a system which did not frame life and lock it up in the golden cage of nomenclature, but could reveal and magnify the riches and infinite diversity of life.[36]

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[31] Paul Farber had already noticed that a history of natural history was yet to be written and that natutal history had not completely atrophied through the century: 'Discussion Paper: The Transformation of Natural History in the Nineteenth Century', *Journal of the History of Biology* 15, no. 1 (1982): 145–52.
Joseph Schiller, *La notion d'organisation dans l'histoire de la biologie* (Paris: Maloine, 1978); Joseph Schiller, *Physiology and Classification: Historical Relations* (Paris: Maloine, 1980); Charles Coulston Gillispie, 'De l'histoire naturelle à la biologie: relations entre les programmes de recherche de Cuvier, Lamarck et Geoffroy Saint-Hilaire', in *Le Muséum au premier siècle de son histoire: [colloque international, Paris, juin 1993]*, ed. Claude Blanckaert et al. (Paris: Éd. du Muséum national d'histoire naturelle, 1997), 229–40; Pascal Duris and Gabriel Gohau, *Histoire des sciences de la vie* (Paris: Belin, 2011); Lynn K. Nyhart, *Biology Takes Form: Animal Morphology and the German Universities, 1800-1900*, Science and Its Conceptual Foundations (Chicago: University of Chicago Press, 1995); William Coleman, *Biology in the Nineteenth Century: Problems of Form, Function, and Transformation* (New York: Wiley, 1971), 2–3; Dominique Guillo, *Les figures de l'organisation: sciences de la vie et sciences sociales au XIXe siècle* (Paris: Presses Universitaires de France, 2003), 52–59.
[32] The British initiative for such enterprise does not, it is worth noting, have an entry on natural history: Porter and Pickstone, *The Modern Biological and Earth Sciences*.
[33] Strasser, 'Collecting Nature'.
[34] Farber, 'Discussion Paper', 148.
[35] About this debate in France, see Duris and Gohau, *Histoire des sciences de la vie*, esp. chapter 3; Corsi, Pietro. *The Age of Lamarck: Evolutionary Theories in France, 1790-1830*. Berkeley: University of California Press, 1988. See also Charles Darwin, *Evolutionary Writings*, ed. James A. Secord (Oxford; New York: Oxford University Press, 2008).
[36] François Dagognet, *Le catalogue de la vie: étude méthodologique sur la taxinomie* (Paris: Presses universitaires de France, 2004).

Behind the familiar face of "science" lies a whole range of changes of categories, perspectives, and techniques which require to be historicised and contextualised while also escaping the temptation of teleological hierarchies and schematic tales of (r)evolutions. John Pickstone provided one solution by elaborating a frame of reference based on several "ways of knowing" which, he explained, characterised a prominent approach to knowing and knowledge production in certain periods of times of the past, but were by no means exclusive of one another: they formed layers rather than one succeeding to one another.[37]

Pickstone's "ways of knowing" provide the conceptual instruments for thinking about the permanence of natural history by developing a somewhat layered approach to science, which is a way of escaping tales of the replacement and disappearance of natural history. Considering natural history as a "way of knowing" helps to change perspective, to question temporality and discipline boundaries. "Ways of knowing" is not another name for styles of reasoning: as Bruno Strasser explained, the great advantage of this analytical reading is to overcome problems of strict periodisation with beginning and end. Additionally, it has provided a functional tool to think outside the box of disciplines, highlight similarities between them and analyse the scientific practices through their cognitive and material components.[38]

Pickstone's contribution has indeed powerfully endowed the historian of science with tools to historicise modes of knowledge production: in addition to emphasising their layered nature, it brings out their fluidity in time. The idea of multiple temporalities is related to Pickstone's attention to material seen as more than an instrument, in continuity with the anthropology of knowledge.[39] His approach goes beyond the opposition between or complementarity of the mind and the hand: it takes the tension on board and prolongs it, casting light on interactions and catalysing effects between human actors and bodies of material.

In the typology of these "socio-cognitive" types of knowing, Pickstone retained the "museological/analytical". Noting the bustling of the development of institutionalised collections in Paris in the 1790s, Pickstone invited scholars to think about the institutionalisation of science and the cognitive change it derived from and resulted in. His reflection helps establish the close relations between the collecting of objects, their sorting and organisation in collections and displays *and* the analytical work associated with this. Collections were not just a preliminary to *real* knowledge but *part* of the processes of knowing. This in-depth reworking of the separation of

[37] Strasser, 'Collecting Nature', 310.
[38] Ibid., 308–9.
[39] Nicolas Adell-Gombert, *Anthropologie des savoirs* (Paris: Armand Colin, 2011); Christian Jacob, ed., *Lieux de savoir. Les mains de l'intellect*, vol. 2 (Paris: Albin Michel, 2010).

natural history and the experimental sciences, or in other words the presumed succession of events in which the description of the world gave way to analysis in the supposedly neutral environment of laboratories, does not withstand the cognitive dimension of collecting, and ignores the reality of practices which, even for the later twentieth century, have been contested.[40] Neither museums of natural history, nor natural history itself, were outdated.

One of the central arguments of this thesis is for the permanence and continuity of natural history throughout the nineteenth century. I also claim that natural history collections cannot be interpreted as having simply lain there, as unspecific, encyclopaedic inheritance from the revolutionary years and before, and that local museums would content themselves with them because that was all they had access to. My claim is, furthermore, that there was something different about nineteenth-century local natural history; that it was soaked in local context issues, together with the influence of bigger picture outcomes. Possible declinations of natural history cannot be understood if approached as a monolithic monument of established theories and normalised techniques. More than a discipline for the brain, natural history was a fluid notion articulated onto practices which themselves depended on the context in which they took place.

Understanding natural history requires us to see how the notion is not just a discursive container with which to designate bodies of objects and a disciplinary field, but also a frame of reference, a cognitive means to frame the knowledge. As such the development of natural history in the nineteenth century is indissociable from the development of museums. Museums of natural history were not replications of a single model. In spite of their frequent revolutionary beginnings, natural history museums developed as peculiar to and rooted in specific urban, social and scientific contexts. Under a similar name, ranging from "cabinet of natural history" (at least until the 1830s) to "museums of natural history" (which was the name of the Nantes museum from the start), individual situations could vary and obviously, the rhetoric of official statements must be confronted with the practices of making the museum in order to reveal its asperities.

[40] For a renewed discussion of the relationship between field and laboratory spaces see Raf De Bont, *Stations in the Field: A History of Place-Based Animal Research, 1870 - 1930* (Chicago, Ill.: Univ. of Chicago Press, 2015); Robert E. Kohler, *Landscapes & labscapes: exploring the lab-field border in biology* (Chicago: University of Chicago Press, 2002).

C. Placing history

While there has been some resistance, including from geographers, the use of spatial analysis has encountered a fruitful reception in historical scholarship.[41] Geographical terms have flourished in publication titles: "space", "place", "mapping", "atlas" are no strange terms in the wider field of social sciences, and in history in particular.[42] As Edward Soja noted, the use of the spatial lexicon proves a degree of familiarity with spatiality and it demonstrates a growing awareness which is a significant first step towards spatial thinking in the social sciences.[43] But as Barney Warf and Santa Arias also signal, there is more to the spatial turn than a shift in terminology, that is to say the reworking of the very notion of space and significance of spatiality.[44] The distanced perspective of the spatial turn when applied to historical studies is very rich.

To begin with, disambiguation between "space" and "place" is not an easy task. However, in general terms, "space" is commonly understood as a portion of the Earth where movement and circulation can take place; by comparison, "place" is normally comprehended as a more stable fixed point on the terrestrial surface. Tim Cresswell introduces his reflection on "Place" by saying that "space" and "place" are often used interchangeably, but to him, "place" is a narrower type of space, though all in all they seem to carry the same features. Cresswell especially built on John Agnew's threefold deconstruction of place, namely a fixed or moving location, a material locale for social relations and altogether the product of an emotional and subjective "sense of place".[45] What however shows through, is that it is now widely accepted that space is a social construct.

Understanding of space cannot be fulfilled without landscape, which puts emphasis on the visual nature of space, adds verticality to spatial analysis and therefore finalises a sort of tridimensional approach. Historian Angelo Torre followed in the footsteps of cultural geographer Denis Cosgrove and highlighted the necessity of the inclusion of landscape in the understanding of space. In doing so, they aimed at finding a suitable concept to uncover the movement of space itself. Angelo Torre notably argued that space was not continuous, nor was it a still life. To them, landscape renders

[41] Interestingly, the spatial turn first flourished outside of geography, and was even ill-received by geographers who felt criticised in their approach: Jacques Lévy, *Le tournant géographique: penser l'espace pour lire le monde* (Paris: Belin, 1999), 22–24.
[42] As an example, the collection of historical atlases published by Autrement, in France, is a popular teaching and studying tool and has reached over 80 thematic volumes to-date.
[43] Edward Soja, 'Taking Space Personally', in *The Spatial Turn: Interdisciplinary Perspectives*, ed. Barney Warf and Santa Arias (Abingdon: Routledge, 2008), 25.
[44] Barney Warf and Santa Arias, 'Introduction: The Reinsertion of Space into the Social Sciences and Humanities', in *The Spatial Turn: Interdisciplinary Perspectives* (Abingdon: Routledge, 2008), 1.
[45] Tim Cresswell, *Place: A Short Introduction* (Wiley, 2004), 7.

spatial movement because it is simultaneously a natural and a cultural space and therefore creates a better interface between geography and history.[46] Besides, David Livingstone has also argued in his way for the importance of a multidimensional reflection about space. He used the example of conventional designation of what is "normal" and what is "bizarre", therefore, the familiarity with the *local* customs of a considered site, to show how communication and more widely social interactions are affected by the place and location, concluding that "space is far from being a neutral 'container' in which social life is transacted".[47]

Spatial analysis is not just about the cosmetic use of geographical terminological apparatus. A geographical way of thinking about the past was appropriated by some scholars and opened the gateway to extremely fruitful conceptual developments which go beyond locating. For instance, Lévy expressed his doubt regarding how concepts can be borrowed from other disciplines without actually knowing them as if they were "wrapped gifts" (*paquets-cadeaux*). He goes even further by deprecating this type of practice which leads to what he calls "aestheticisation of social sciences".[48]

Spatial analysis thus introduced new notions into the historian's toolbox: Jean-Marc Besse underlined that the spatial turn has brought to light and put into question a whole new range of spatial objects like centres and peripheries, circuits, discontinuities, scale, borders as well as the slightly less abstract café, museum, library, garden, markets or nations.[49] More generally, attention has been drawn to place and placing. As Christian Jacob summarised, the spatial turn has altered the perspective of the historian in two ways: on the one hand, "spatial configurations", for instance circulations, connexions, centralisations, delineations have been more specifically examined. On the other, historians, following Foucault's model with the prison or asylum, are invited to use and assess the spatial metaphor as a principle which structures their thought.[50] This resulted in the raising of a set of new questions: by modifying questions starting with "who?" or "why?" to "where?", historians like Charles Withers seek to *place* the past in order to demonstrate that ideas and sociability do not "float free" from the ground. One should however not yield to such blind ardour as not to see the many criticisms, some of them quite severe, addressed to some projects individually, or to the whole enterprise of spatial analysis in the social sciences.

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[46] Angelo Torre, 'Un « tournant spatial » en histoire ?', *Annales. Histoire, Sciences Sociales* 63e année, no. 5 (2008): 11–28.
[47] David N. Livingstone, *Putting science in its place: geographies of scientific knowledge* (Chicago: University of Chicago Press, 2003), 6.
[48] Lévy, *Le tournant géographique*, 25–39, esp. 30.
[49] Jean-Marc Besse, 'Approches spatiales dans l'histoire des sciences et des arts', *L'Espace géographique* 39, no. 3 (2010): 213,215.
[50] Christian Jacob, *Qu'est-ce qu'un lieu de savoir?* (Marseille: OpenEdition Press, 2014), 43–44, https://doi.org/10.4000/books.oep.423.

A very interesting reworking of space is found in the work of Angelo Torre. Drawing on Arjun Appadurai's idea of the "production of locality", he paid particular attention to the connection with the sources: localities (*località*) are produced by a context of interrelation and negotiation within the society which is materialised in sources.[51] Sources would not only mirror the locality, they have also contributed to shaping it. The intrinsic link between the making of locality and the making of archival material is a cornerstone of Angelo Torre's original reflection about space. His attempt to develop a discipline of "topographic history" reveals the very rich and interesting developments reached by the spatial turn. To the risk of fragmentation of the research on spatiality by means of a juxtaposition of sources and places, he opposed the necessity of carrying out a proper "archaeology" of the local in a literary sense of the term, to dig into its several layers in order to reconstruct its complexity and escape the classificatory pitfall.[52]

The main difficulty of spatial analysis today is more related to the multiplicity of approaches and conceptual developments which blur what could have been the easy contours of a spatial approach. In fact, thinking spatially about the past may translate into practice in many different ways: complex historical mapping programmes neighbour environmental history, which also sneaks into the toolbox of geographical concepts.[53]

D. City of science, science of the city

The conceptual and analytical frame of reference developed above is particularly useful for the study of knowledge, its production and circulation. It has been used to decipher the changes in the practices of science and to historicise knowledge, in an effort to deconstruct timeless universal representations of it.[54] Historians have looked at science in cabinets, science in the workshop, science in the field, science in the home, science at a distance, science on the stage and science in those different spatial types all at once.[55] In particular, the practice of natural history

[51] Angelo Torre refers to Arjun Appadurai: 'La produzione storica dei luoghi', *Quaderni storici* 37, no. 2 (2002): 448; Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis: University of Minnesota Press, 1996), chap. 9 "The Production of locality".
[52] Torre, 'La produzione storica dei luoghi'.
[53] Miles Ogborn, *Spaces of Modernity: London's Geographies, 1680-1780* (New York: Guilford Press, 1998); Elsa Devienne, 'Des plages dans la ville: une histoire sociale et environnementale du littoral de Los Angeles (1920-1972)' (EHESS, 2014), http://www.theses.fr/s31924.
[54] Adi Ophir and Steven Shapin, 'The Place of Knowledge A Methodological Survey', *Science in Context* 4, no. 1 (1991): 3–21; Charles W. J. Withers, 'Place and the "Spatial Turn" in Geography and in History', *Journal of the History of Ideas* 70, no. 4 (2009): 637–58, https://doi.org/10.1353/jhi.0.0054.
[55] What follows is a selection from readings which inspired this dissertation: Giuseppe Olmi, *L'inventario del mondo: catalogazione della natura e luoghi del sapere nella prima età moderna* (Bologna: Il Mulino, 1992); Valentina Pugliano,

is tightly related to collecting and the frequentation of the outdoors, aspects of place, travelling, distance and overcoming it, empires and localness: all have deeply structured studies of natural history.[56]

Turning more specifically to natural history museums, scholarship has emphasised, precisely, the formation of a bounded and closed object encircled with sets of regulations, body discipline and dominating bodies of knowledge: in short, a place which magnified socio-political power plays, whether it was imagined as an apparatus of social control, or as an apparatus for the promotion and diffusion of national dominance.[57] Studies of the spatial organisation of the museum have been quite preoccupied with the opposition of display and storage areas which developed as a model. This vision tends to attribute strictly delineated functions to museum spaces: display for seeing and learning, and perhaps for leisure; storage and office spaces, closed spaces, where the actual work would take place.[58] Tracing the delineation of museum activities following an architectural blueprint may indeed provide some hint about the organisation, or at least a foreseen, imagined or hoped for ideal situation, but it fails to reveal the locational complexity of the museum as place.

Natural history museums were composed of very intricate spatialities: they are essentially urban, yet they are concerned with nature and thus invalidate the classic separations of the country and the city.[59] They were demarcated containers for the conservation and stabilisation of natural knowledge, as much as the span of their collecting space could go well beyond the limits of the closed temple of science they were meant to represent.[60] They were places of natural knowledge in the city, and

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'Specimen Lists: Artisanal Writing or Natural Historical Paperwork?', *Isis* 103, no. 4 (2012): 716–26, https://doi.org/10.1086/669049; Marie-Noëlle Bourguet, Christian Licoppe, and Heinz Otto Sibum, eds., *Instruments, Travel, and Science: Itineraries of Precision from the Seventeenth to the Twentieth Century* (London; New York: Routledge, 2002); Robert E. Kohler, 'Lab History: Reflections', *Isis* 99, no. 4 (2008): 761–68, https://doi.org/10.1086/595769; Paola Bertucci, 'Designing the House of Knowledge in Eighteenth-Century Naples: The Ephemeral Museum of Ferdinando Spinelli, Prince of Tarsia', in *Cabinets of Experimental Philosophy in Eighteenth-Century Europe*, ed. Jim A. Bennett and Sofia Talas (Leiden: Brill, 2013), 119–36; Donald L. Opitz, Staffan Bergwik, and Brigitte Van Tiggelen, eds., *Domesticity in the Making of Modern Science* (Basingstoke: Palgrave Macmillan, 2016); Simon Schaffer, 'Newton on the Beach: The Information Order of Principia Mathematica', *History of Science* 47, no. 3 (2009): 243–76.

[56] Hanna Hodacs, 'Linnaean Outdoors: The Transformative Role of Studying Nature "on the Move" and Outside', *The British Journal for the History of Science* 44, no. 2 (2011): 183–209, https://doi.org/10.1017/S0007087410000750; Marianne Klemun and Ulrike Spring, eds., *Expeditions as experiments: practising observation and documentation* (London: Palgrave Macmillan, 2016); Marie-Noëlle Bourguet, *Le monde dans un carnet: Alexander von Humboldt en Italie (1805)* (Paris: Le Félin, 2017); Roy MacLeod, ed., *Nature and empire: science and the colonial enterprise* (Chicago: University of Chicago press, 2001).

[57] Appadurai, *Modernity at Large*, Chapter 9 'The Production of locality', esp. 183.

[58] Sophie Forgan, 'Building the Museum: Knowledge, Conflict, and the Power of Place', *Isis* 96, no. 4 (2005): 572–85, https://doi.org/10.1086/498594.

[59] Raymond Williams, *The Country and the City* (New York: Oxford University Press, 1975).

[60] Titles of publications evoke the space of the museum as a sanctuary: Jesús Pedro Lorente, *Cathedrals of Urban Modernity: The First Museums of Contemporary Art, 1800-1930* (Aldershot: Ashgate, 1998); Susan Sheets-Pyenson,

more importantly they were places of knowledge *about* the city, which granted each and every museum a particular, situated body of knowledge.

The question of the *where* of the natural history museum indeed takes us to the history of urban centres, to which museums were intrinsically related.[61] Thinking about capital in the framework of urban studies has contributed to highlighting processes of accumulations, hierarchies, fragmentation and how all these prompt criticism of the presumed modernity of urban spaces.[62] Looking at patterns of development of innovation, and thereby pointing to urban spaces as the characteristic site for their development, some historians have also highlighted the importance of considering the urban space as an interconnected entity, especially to other cities. Adding another layer of critical reading of the relationship between cities and innovations, Bernard Lepetit and Jochen Hoock insisted innovation could not be assumed in positivistic terms and that all forms of innovation could not be assumed as devoid of constraint.[63] Taking into account the system of power relation it implied, they advocated for an approach of reading cities through their relational patterns of hierarchies.[64]

Attempts to surpass an instrumental understanding of the city as the tool to implement rules and discipline of the social body on the one hand, and to pursue an ongoing reflection over the capital of cities on the other, have led to the important development of the notion of *capitale culturelle* by a collective of historians conducted by Christophe Charle and Daniel Roche.[65] A conceptual category elaborated to help describe and analyse circumstances of innovation and diffusion of culture, the French homophony allows for a fruitfully convenient ambiguity of *capital* ("capital" as the sociological category) and *capitale* ("capital" as the geographical category of capital cities) which both point to the processes of concentration and their situation. The objective of the programme was to draw attention onto cultural processes in cities since, the authors argued, cultural phenomena had turned out to be the poor relative

Cathedrals of Science: The Development of Colonial Natural History Museums during the Late Nineteenth Century (Kingston: McGill-Queen's University Press, 1988).

[61] Daniel J. Sherman, *Worthy monuments: art museums and the politics of culture in nineteenth-century France* (Cambridge: Harvard University Press, 1989), 8.

[62] David Harvey, *The Urbanization of Capital: Studies in the History and Theory of Capitalist Urbanization* (Baltimore: John Hopkins University Press, 1985); David Harvey, *Paris, Capital of Modernity* (New York: Routledge, 2003).

[63] Bernard Lepetit and Jochen Hoock, *La ville et l'innovation: relais et réseaux de diffusion en Europe, XIVe-XIXe siècles* (Paris: Éditions EHESS, 1987), 15–19.

[64] Ibid., 13–15.

[65] Bernard Lepetit, 'La ville: cadre, objet, sujet. Vingt ans de recherches françaises en histoire urbaine', *Enquête. Archives de la revue Enquête*, no. 4 (1996): para. 18 esp., https://doi.org/10.4000/enquete.663. The following two publications help follow the collective development of the concept from conference papers to formalisation: Christophe Charle and Daniel Roche, eds., *Capitales culturelles, capitales symboliques: Paris et les expériences européennes (XVIIIe-XXe siècles)* (Paris: Éditions de la Sorbonne, 2002), https://doi.org/10.4000/books.psorbonne.868; Charle, *Le temps des capitales culturelles*.

of urban history, leaving the cultural to an illustrative status which failed to underline its central role in understanding urbanity.[66] In contrast with a fiction of the urban emphasising a material and territorialised place, "cultural capitals" allow us to think about cities in terms of their specific social and spatial morphologies.

The historiography of cities has been quite appropriately concerned with the shortcomings of boundary, an issue which resonated with problems raised more generally by geographers of place and territory.[67] Thinking about urban spaces in terms of metropolis allows us to take account of the extension of urban centres, to change scale and to address cities through their interconnectedness, materially and socially. Rethinking, for instance, the classic city/country division in terms of natural *continuum* offered rich ways in which to conceive of relations between some scientific institutions and their field outposts without strictly bounding each other in bounded places only connected by a transportation flow.[68] "Metropolis", Stéphane Van Damme signified, is all too often used in deterministic ways which assign the city with compulsory patterns of internationalism and misleadingly guides towards a rigid reading of cities through cosmopolitanism.[69] The category, still, remains useful for interrogating the piecemeal nature of cities, which include a complex assemblage of objects brought together by a peculiar socio-spatial organisation.

The articulations of this body of objects are sewn through the elaboration of specifically urban knowledge. The urban space is inhabited by knowledge more than it provides a spatial backdrop for it: not only an anchoring point for knowledge, but also a place of elaboration of specifically urban knowledge, which in fact *composes* the city.

Cities are a "fragile" milieu, Jean-Luc Pinol explained.[70] In the beginning of the nineteenth century, cities were faced with a certain number of challenges which made them the primary site of experimentation for risk management and the prevention of epidemics, but also social care and charity, educational infrastructure, hygiene and the general policing of public spaces.[71] The range of municipal action developed staggeringly, a process which accompanied growing urbanisation, however limited

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[66] Charle, *Le temps des capitales culturelles*, 11.

[67] John A. Agnew, *Place and Politics: The Geographical Mediation of State and Society*, 2015; Cresswell, *Place*; Neil Brenner and Stuart Elden, 'Henri Lefebvre on State, Space, Territory', *International Political Sociology* 3, no. 4 (2009): 353–77, https://doi.org/10.1111/j.1749-5687.2009.00081.x; Ignacio Farías and Thomas Bender, eds., *Urban Assemblages: How Actor-Network Theory Changes Urban Studies* (New York: Routledge, 2012).

[68] See William. Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W.W. Norton, 1991). See also Chapter 4, 3. The close-by: the construction of a scientific hinterland, p. 284.

[69] Van Damme, *Métropoles de papier*, 13–14.

[70] Jean-Luc Pinol and François Walter, *La ville contemporaine jusqu'à la Seconde Guerre mondiale*, Histoire de l'Europe urbaine 4 (Paris: Éd. du Seuil, 2012), 246.

[71] Ibid.; Sven Dierig, Jens Lachmund, and J. Andrew Mendelsohn, 'Introduction: Toward an Urban History of Science', *Osiris* 18 (2003): 6.

until the 1870s.[72] Plans for urban transformation in the long-term or problems occurring periodically in the urban space, were concomitant with the development of professional groups of engineers. The engineers of the *Ponts-et-Chaussées* ("Bridges-and-Roads") for instance, a corps created by the central government in the midst of the eighteenth century and which reported to the Ministry of the Interior, provided the trained human resources to analyse issues and propose solutions.[73] Engineers positioned in cities, together with the presence of city-appointed *architectes-voyers* (municipal or head architects), but also doctors or specialists of such and such an area, were called together on a regular basis, in committees or not, in order to determine a solution for the problem submitted to them. The inflation of *rapports* (reports) in municipal document production confirms the construction of the figure of the expert. Against all appearances, the work of "experts", documentation reveals, was not so much about the rational measurement of a bounded urban object. Rather, the urban reality was produced by the discursive confrontations of ideas and viewpoints shared by the various participants in a given situation, of which examples are plentiful, be it the construction of a canal, a hospital, or a museum.[74]

Urban growth did not solely concern population and infrastructure. It also saw the rise of increasingly powerful municipal governments, run by an educated and wealthy elite who constantly negotiated their grip over political power.[75] The phenomenon characterised most cities in Europe, and the actual power of French municipalities was, in contrast, limited and under strict control by the central executive power. Enacting this was the 1789 bill which instituted the *communes*. The new legislation homogenised the local political and administrative landscape across the country, but the change of terminology also placed cities into administrative, rather than institutional, categories looking upwards to the higher tiers of hierarchy.[76] With the Municipal Act of 1831 and the census suffrage for the election of the municipal council, which provided the pool of candidates for appointment to

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[72] Peter Clark, *European Cities and Towns: 400-2000* (Oxford: Oxford University Press, 2009), 223–29.

[73] Anne Vauthier-Vézier studied the action of Ponts-et-Chaussées engineers in Nantes, and paid particular attention to their treatment of the humid environment of the city : *L'estuaire et le port. L'identité maritime de Nantes au XIXe siècle*, Histoire (Rennes: Presses universitaires de Rennes, 2007), https://doi.org/10.4000/books.pur.5984. For a general history of the School of Ponts-et-Chaussées, see Antoine Picon, *L'invention de l'ingénieur moderne: l'École des Ponts et Chaussées, 1747-1851* (Paris: Presses de l'École nationale des ponts et chaussées, 1992).

[74] Alice Ingold, 'Expertiser la ville?', *Histoire urbaine* 14, no. 3 (2005): 29–46, https://doi.org/10.3917/rhu.014.0029.

[75] For a comparative overview on the matter of urban government, see Robert Beachy and Ralf Roth, eds., *Who Ran the Cities? City Elites and Urban Power Structures in Europe and North America, 1750-1940*, Historical Urban Studies Series (Aldershot; Burlington: Ashgate, 2007), i–xxiii.

[76] Alice Ingold described this process for change of Italian *città* to *commune*: 'Savoirs urbains et construction nationale. La ville, au delà de l'État-nation?', *Revue d'Histoire des Sciences Humaines* 12, no. 1 (2005): 72, https://doi.org/10.3917/rhsh.012.0055.

mayorship, and with equal male suffrage in 1848, cities became primary sites of local political debate.[77] Municipal power was certainly not invented with the start of the nineteenth century, and quite on the contrary, it was inherited from a longstanding European tradition. What did change, however, was the strengthening of the city's identity or sense of locality against the national context.[78]

The sliding, or even the emancipation, of cultural functions from court to cities in the eighteenth century led to the extension of urban cultural places and sociabilities, with the development of learned societies, libraries, salons, gardens, cabinets, cafés and clubs, theatres, markets, schools and so on.[79] Cities were not only a stage for those places to be pinned onto, they were also laboratories of knowledge about the city. This knowledge took the form of idealised discourses and, occasionally, palatial establishments. Just as the reality of the urban was co-produced through the interplay of a pool of actors (among whom, the engineer), urban knowledge was tinkered together through a bric-a-brac of items and a myriad little gestures: writings, collections of objects and so on.[80] The outcome of this was of course not achieved without conscious choice: the "grandeur" of their city could be a concern for a community of inhabitants, and therefore mobilised groups in ways they could contribute.[81] Knowledge could be "urban" and a common denominator to cities, but the bodies of knowledge resulting from the accumulation of the urban society's experience with the urban reality was one claimed to be the product of locality, and therefore, a form of science *from* and *about* that specific city.

The natural history museum was woven into the fabric of the city. Mainly initiated during the revolutionary period, the process of their opening and identification was far from being memorial accounts of foundational moments: there was considerable hesitation and randomness in the making of what became municipal museums of natural history. Placing the museum in the city required us to also see that this place may have been unimportant or unidentified. By all means, there was an interchange between city and museum which was considerably more erratic during the period extending from 1800 to 1870 than traditiona interpretations would have it. Natural knowledge was objectivated from collected material, fixated and transmitted

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[77] Pinol and Walter, *La ville contemporaine jusqu'à la Seconde Guerre mondiale*, 235–42.

[78] About "context" and "locality", see Appadurai, *Modernity at Large*, chap. 9 "The production of locality". For Lyon, see Pierre-Yves Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale* (Paris: CNRS Éditions, 1995). For the paradoxical case of the essentialisation of cities as centres of political life as they were precisely dispossessed from institutional authority, see Ingold, 'Savoirs urbains et construction nationale. La ville, au delà de l'État-nation?'

[79] Stéphane Van Damme, 'Sociabilité et culture urbaines', *Histoire de l'éducation*, no. 90 (2001): para. 39, https://doi.org/10.4000/histoire-education.831; Charle, *Le temps des capitales culturelles*, 17.

[80] Van Damme, *Métropoles de papier*.

[81] Stéphane Van Damme, 'La grandeur d'Édimbourg', *Revue d'histoire moderne et contemporaine* 55, no. 2 (2008): 174, https://doi.org/10.3917/rhmc.552.0152.

by and from the museum, a place of knowledge which also bridged different spaces. A bounded category, however thin or porous its limits may become, the place of knowledge is operatory to inspect the modalities of knowledge production on the city and on (its) nature. An all-encompassing category, this concept elaborated by Christian Jacob helps in elucidating the very complex cycle of knowledge-making, commensurable by placing into a site, in the case of this dissertation, the municipal natural history museum.[82] "Place of knowledge" is also useful for finding out about the modalities of transformation of urban knowledge into science in a particular city. In other words, how a standardised and normative body of knowledge on the city and its locality became accommodated and placed in a definite material apparatus, the museum, and how it was organised and validated by scholarly sociabilities revolving around this particular establishment.

The study of museums through their urban locality seeks to pursue a programme of the situated history of science, which analyses the interactions with the socio-spatial context of the museum and the knowledge produced there. Historians have come to be more aware of the peripheries that very centre-obsessed history of science contributed to design.[83] Thus, beyond scientific contents and instruments, the purpose of the study is to interrogate the dimensions and scales of sciences to illuminate, without ever dismissing it, what may have appeared as grassroots science. Municipal natural history museums help us to understand the dialectics between the local rooting of science and universalist horizons, and thereby override the traditional border between what is scientific and what is not.[84]

E. For locality

The work presented here was not framed as a study of three museums in three different cities from the start. Rather it evolved into a history of three cities after it was initially started as a programme on the "natural history collections of the provinces". This latter term, which translates into singular "*province*" in French, immediately made the use of "provinces" or "provincial" dissatisfying.

The "Paris/Province" dichotomy is so deeply rooted in French cultural representations of the national space that it was inaugurated as a *lieu de mémoire*, a

[82] See the two collective volumes which marked the achievement of this ambitious programme: Christian Jacob, ed., *Lieux de savoir. Espaces et Communautés*, vol. 1 (Paris: Albin Michel, 2007); Jacob, *Lieux de savoir. Les mains de l'intellect*. For a synthetic presentation of the concept see Jacob, *Qu'est-ce qu'un lieu de savoir?*

[83] Antonella Romano, *Impressions de Chine: l'Europe et l'englobement du monde, XVIe-XVIIe siècle* (Paris: Fayard, 2016), 22–26.

[84] Stéphane Van Damme and Antonella Romano, 'Sciences et villes-mondes, XVIe - XVIIe siècles', *Revue d'histoire moderne et contemporaine* 55–2, no. 2 (2008): 7–18.

"place of memory", designating in the work directed by Pierre Nora a place constitutive of a shared identity and collective mythology.[85] The expression typically categorises the French cultural space according to a Manichean divide between the capital city and the "French desert".[86] And yet, the provincial museum seems to have been a category in itself. It was established in the present day as a *lieu de mémoire*. Additionally, as much as it appeared self-explanatory in numerous publication titles in the late nineteenth and early twentieth centuries, it remains a point of interest in French museum studies.[87] And yet, use of the term "province" often fails to be properly defined. Is there a way to define "province" at all? Is it right to use or not use it?

Calling something or someone "provincial" is associated with backwardness. When applied to the scientific landscape, it is often perceived as derogatory.[88] In attempts to cast light on peripheral realities and to unpick the usual patterns of national power plays, many historians have conducted abundant research about the provinces, an effort which was conducted, in parallel, by British historians in a country also marked by heavy political and cultural centralisation. It was a battle against "whiggish" history for Morrell, a call for the "awakening" of the provinces by Rebérioux.[89] These works could take the form of impressive surveys covering the whole country.[90] There was also a succession of monographs, bringing to the fore

[85] Alain Corbin, 'Paris-Province', in *Les Lieux de Mémoire*, ed. Pierre Nora, vol. 2, 3 vols (Paris: Gallimard, 1984), 2851–88. Christian Jacob, 'Lieux de mémoire, lieux de savoir', in *Qu'est-ce qu'un lieu de savoir?* (Marseille: OpenEdition Press, 2014), para. 2, http://books.openedition.org/oep/423.

[86] Jean-Fraçois Gravier's formulation has gone down in history: *Paris et le désert français: décentralisation, équipement, population* (Paris: Le Portulan, 1947).

[87] Edouard Pommier, 'Naissance des musées de province', in *Les lieux de mémoire*, ed. Pierre Nora, vol. 2, 3 vols (Paris: Gallimard, 1986), 1471–1513. For examples of publications, see Louis Torterat Clément de Ris, *Les Musées de province. I: Musée de Strasbourg* (Paris: Renouard, 1859); Robert Régnier, *Les grands musées d'histoire naturelle de province: le muséum de Rouen*, 1933. For recent studies, see Camille Doutrémépuich, 'L'appropriation du modèle du Louvre par les musées de province au tournant du XIXe siècle', *Les Cahiers de l'École du Louvre. Recherches en histoire de l'art, histoire des civilisations, archéologie, anthropologie et muséologie*, no. 11 (2017), https://doi.org/10.4000/cel.794; Géraldine Masson, 'Le conservateur de musée de province de la IIIe République: vers une professionnalisation ?', *In Situ. Revue des patrimoines*, no. 30 (2016), https://doi.org/10.4000/insitu.13594.

[88] Jean-Pierre Chaline, 'Parisianisme ou provincialisme culturel? Les sociétés savantes et la capitale dans la France du XIXe siècle', in *Capitales culturelles, capitales symboliques: Paris et les expériences européennes (XVIIIe-XXe siècles)*, ed. Daniel Roche and Christophe Charle (Paris: Éditions de la Sorbonne, 2002), 273–79, http://books.openedition.org/psorbonne/868.

[89] J. B. Morrell, 'Wissenschaft in Worstedopolis: Public Science in Bradford, 1800–1850', *The British Journal for the History of Science* 18, no. 1 (1985): 1, https://doi.org/10.1017/S0007087400021671; Madeleine Rebérioux, 'La capitale et le "réveil des provinces"', *Le Mouvement Social* 160, no. 3 (1992): 3–10, https://gallica.bnf.fr/ark:/12148/bpt6k5620998t.

[90] See for instance the masterful work of Daniel Roche, *Le siècle des Lumières en province: académies et académiciens provinciaux, 1680-1789* (Paris: Mouton, 1978). Among other publications see Mary Jo Nye, *Science in the provinces: scientific communities and provincial leadership in France, 1860-1930* (Berkeley, Etats-Unis, 1986); John M. Burney, *Training the bourgeoisie: the University of Toulouse in the nineteenth century: faculties and students in provincial France* (New York: Garland Pub., 1987); Samuel J. M. M. Alberti, 'Placing Nature: Natural History Collections and Their

masses of archival material and statistics across centuries to collectively build the instruments of "*pesée globale*" (all-encompassing measurement of the demographic and social structures), in line with the plans of quantitative history of the 1960s and 1970s, which could precisely not limit itself to Paris.[91]

Cities have often been used as entry points to study the "provincial", a trend visible in the British scholarship of urban history.[92] In France, the famed book series on "*Histoire des Villes*" ("History of Cities") published by Privat attests for twin interests.[93] The association of the provincial with urban studies has the merit of enlightening realities which often remain understudied, also because less accessible from major university and research centres. Reversely, urban history has also helped to provincialise approaches to capital cities. Miles Ogborn's historical geography of London, for instance, has uncovered the plurality of modernities in London, in an effort to deconstruct the totalising readings of the capital city as the unquestioned capital of modernity.[94] Paris, London's stereotypical twin, was scrutinised by Stéphane Van Damme to unbury the foundational narratives from the stockpiles of paper and objects, and from openings into the Parisian underground.[95] Both works are exemplary of how to apply a localist reading to places considered, unduly, universal. Capital cities like London and Paris, but also Rome, do not wield their influence as the result of accumulations of capital: their capacity to elaborate a representational discourse to support their prevailing symbolic functions certainly contributed to it. In other words, the "capital effect" does not solely proceed from accidental accumulation: the spatial imprint of cities is also the product of discourses and sociabilities.[96]

Owners in Nineteenth-Century Provincial England', *The British Journal for the History of Science* 35, no. 3 (2002): 291–311, https://doi.org/10.1017/S0007087402004727.

[91] Claire Lemercier and Claire Zalc, *Méthodes quantitatives pour l'historien* (Paris: La Découverte, 2008), 8–18. Among the examples of those monographs of the school of historical demography, see Pierre Goubert, *Beauvais et le Beauvaisis de 1600 à 1730: contribution à l'histoire sociale de la France du XVII*e *siècle*, 2 vols (Paris: S.E.V.P.E.N, 1960); Alain Croix, *Nantes et le pays nantais au XVI*e *siècle: étude démographique* (Paris: S. E. V. P. E. N., 1974); Jean-Michel Boehler, *Une société rurale en milieu rhénan: la paysannerie de la plaine d'Alsace (1648-1789)*, 2 ed., 3 vols (Strasbourg: Presses Universitaires de Strasbourg, 1993).

[92] Peter Clark, *The Transformation of English Provincial Towns, 1600-1800* (London: Hutchinson, 1984); Peter Borsay, 'The London Connection: Cultural Diffusion and the Eighteenth-Century Provincial Town', *The London Journal* 19, no. 1 (1994): 21–35, https://doi.org/10.1179/ldn.1994.19.1.21; Rosemary Sweet, 'Urban Identity and Provinciality', in *The Writing of Urban Histories in Eighteenth-Century England* (Oxford University Press, 1997), 236–76.

[93] Philippe Wolff, ed., *Histoire de Toulouse* (Toulouse: Privat, 1974); Paul Bois, ed., *Histoire de Nantes* (Toulouse: Privat, 1984); André Latreille, ed., *Histoire de Lyon et du Lyonnais* (Toulouse: Privat, 1988).

[94] Ogborn, *Spaces of Modernity*.

[95] Van Damme, *Métropoles de papier*.

[96] Maria Pia Donato, Antoine Lilti, and Stéphane Van Damme, 'La sociabilité culturelle des capitales à l'âge moderne: Paris, Londres, Rome (1650-1820)', in *Le temps des capitales culturelles: XVIII*e*-XX*e *siècles*, ed. Christophe Charle and Daniel Roche (Seyssel: Champ Vallon, 2009), 28.

The spatial turn has brought about numerous notions and concepts to *place* past processes. Attention to cities, in particular, has been very fruitful. This approach is particularly useful for withstanding teleological narratives. Subaltern and global studies have contributed to decentring perspectives on the history of science, even if results are not always up to expectations.[97] Taking into account the constructions of peripheries, Oliver Hochadel and Agustì Nieto-Galan have proposed to write collectively about cities of the European periphery, namely, excluding France, Britain and Germany. Their book was titled after a conscious decision to rule out "in the periphery of Europe".[98] If ignoring the terminological instruments of unwanted provincialisation might appear a possible solution, it still, in the case of the French *province* leaves us with an existing category the society relates and used to relate to. Beyond the terminology, interrogating the provincial in France comes down to a more significant question which is to unpick representations of necessary subjection to a Parisian model. This study does not ignore the term provincial, though I used it sparingly. "Local" was favoured because it is less politically loaded. Additionally, examining the local and locality reveals more about the plurality of the provinces, in an effort to understand their complex relations with Paris, and also how dim a silhouette it could appear in local realities.

Choosing the local over other categories with which to read the history of museums may appear challenging given its indistinct nature. What exactly is covered by a dot or a small-sized item on the map may appear hopeless. But looking at the detail is also a flexible and powerful instrument to observe and grasp the detail of happenings on the field: practices, movement, experience, but also the writing hand moving over the page, the shoes covering the feet going up the mountain slope, the body language of inventory makers counting up pieces of rock. Used as a heuristic tool, looking at the local or the micro has been established by historians associated with microhistory. If microhistory has never been a historical school, nor did its historians have such a programme, a common inspiration has been to write a social history which could illuminate practices and experiences which would deeply question "macro-phenomena" and undermine tales of far-reaching machines of power.[99]

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[97] Helen A. Curry et al., eds., *Worlds of Natural History* (Cambridge; New York: University of Cambridge, 2018); Kapil Raj, H. Otto Sibum, and Dominique Pestre, eds., *Histoire des sciences et des savoirs. Modernité et globalisation*, vol. 2 (Paris: Éd. du Seuil, 2015). Antonella Romano pointed to the dissatisfactions of a globalising approach and the limits of decentering in studying peripheries in Romano, *Impressions de Chine*, 17–21.

[98] Oliver Hochadel and Agustí Nieto-Galan, eds., *Urban Histories of Science: Making Knowledge in the City, 1820-1940* (New York: Routledge, 2019), 1.

[99] Carlo Ginzburg, *Le fromage et les vers: l'univers d'un meunier du XVIe siècle* (Paris: Flammarion, 2019), XVI–XVII; Jacques Revel, ed., 'Micro-analyse et construction du social', in *Jeux d'échelles: la micro-analyse à l'expérience* (Paris: Gallimard, 1996), 15–36; Christian Jacob, '*Spatial turn*', in *Qu'est-ce qu'un lieu de savoir?* (Marseille: OpenEdition Press, 2014), para. 5, https://books.openedition.org/oep/654.

Applied to present-day problematics of the history of science, such an approach helps interrogate the practical workings and machinery of power plays in the context of knowledge production from below.

Besides matters of scale and the flexibility of scalar analysis, the local also refers to locality, which conveys a sense of belonging. As such, it opens interesting leads as well. Localism and forms of political attachment to the local have given way to studies which uncover the modalities of those constructions.[100] The French nineteenth century appeared in many ways as a moment of countering responses of locality in the form of regionalism.[101] These studies find their rationale in a history of the political which is informed by cultural and emotional practices.[102] This recent renewal of the political historiography of the nineteenth century contrasts considerably with a history organised around revolutionary episodes and the republican conquest of French souls.

Creations of museums and "museumising", that is the aestheticisation of outdoor archaeological remains and landscapes for political purposes, has already been pointed to as a powerful tool of a colonial machine.[103] Some ethnographic accounts of peoples within the metropolitan space, for instance, provide a feel for colonial field experience and inventories of humans and criticise colonial-like policies.[104] Such positions appear unsustainable when applied to the French provinces. And by all means, the purpose of this study is not to have those places enter big narratives of colonialism, but to observe the locality. The increasingly powerful nation-states, controlled from urban centres distant from scattered societies, did generate resistance. Studies may focus on the role of cities specifically, of locality or "neighbourhoods" more generally, on how they were built *against* national or colonial dominating attempts. But what those histories are particularly interesting for, rather

[100] Marie-Vic Ozouf-Marignier, *La formation des départements: la représentation du territoire français à la fin du XVIIIe siècle* (Paris: Éditions EHESS, 1989); Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale*.

[101] Olivier Pétré-Grenouilleau, *Nos petites patries: identités régionales et État central, en France, des origines à nos jours* (Paris: Gallimard, 2019).

[102] Emmanuel Fureix, *La France des larmes: deuils politiques à l'âge romantique (1814-1840)* (Champ Vallon, 2009); *L'œil blessé: politiques de l'iconoclasme après la Révolution française* (Ceyzérieu: Champ Vallon, 2019).

[103] Benedict R. Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London; New York: Verso, 2006), 178–85; Appadurai, *Modernity at Large*, 189; James Edward McClellan and François Regourd, *The colonial machine: French science and overseas expansion in the Old Regime* (Turhout: Brepols, 2011).

[104] Vivien Greene, 'The "Other" Africa: Giuseppe Pitrè's Mostra Etnografica Siciliana (1891–2)', *Journal of Modern Italian Studies* 17, no. 3 (June 2012): 288–309, https://doi.org/10.1080/1354571X.2012.667224. The photographic collection of Eugène Trutat, a photographer and former director of the Natural History Museum in Toulouse, has not been thoroughly investigated yet, from the perspective of naturalist knowledge. See Anaïs Meleiro, 'La diffusion de la photographie à Toulouse au XIXe siècle: le rôle d'Eugène Trutat, 1840-1910' (Toulouse II, 2011); François Bordes and Marie-Dominique Labails, eds., *Eugène Trutat: savant et photographe* (Toulouse: Éd. du Muséum de Toulouse, 2011).McClellan and Regourd, *The colonial machine*.

than discourses, is how they enounce the modalities of production of space, of *their local* space.[105]

3. A STUDY FOR THREE LOCALITIES

A. Lyon, Nantes, Toulouse

Scattered on three of six sides of the French hexagonal metropolitan territory, the cities of Lyon, Nantes and Toulouse had in common the fact of being regional urban centres. Key regional administrative functions for Toulouse or commercial functions for Nantes and Lyon allowed the three cities to derive at least a regional influence. All three of them were central enough to be designated capital of their *département* in 1790 and thereafter hosted a city hall and a mayor, a prefect and a prefecture. In ca. 1800, all three of them were identified as accommodating an important collection of natural history which was, at least retroactively, designated as being foundational to the natural history museum. This is mostly where the list of common denominators stops. The history of their museums certainly went their separate ways and developed in contexts which were significantly different, which makes them a compelling sample to evidence the plurality of museum models.

In spite of the fact that they were among the largest cities in France, their respective populations varied in separate ways. In 1793, Lyon, Nantes and Toulouse counted 102,000, 80,000 and 52,600 inhabitants respectively. From the beginning of the period of study, the three cities did not share a comparable demographical situation. In 1872, the census counted respectively 323,400 inhabitants in Lyon, 118,500 in Nantes and 124,800 in Toulouse; by the end of the period, Nantes and Toulouse had reached similar sizes while Lyon continued to stand out as the second-largest French city, exceptionally large in the situation of urban macrocephaly.[106]

The development of state administration during the revolution and Napoleon's empire homogenised power structures, and this caused a lot of nostalgia. Toulouse lost its *Parlement* and the municipal government of *Capitoulat*. Historical accounts of the nineteenth century liked to laud the lost grandeur of Toulouse as the capital city of

[105] Ingold, 'Savoirs urbains et construction nationale. La ville, au delà de l'État-nation?'; Appadurai, *Modernity at Large*, 188–99.

[106] Des villages Cassini aux communes d'aujourd'hui. 'Base Cassini (EHESS)', 2007. http://cassini.ehess.fr/cassini/fr/html/index.htm.

Languedoc.[107] This is in fact a common trend to the three cities, and beyond: a practice of collecting and describing the past in order to deliver monumental historical publications or object collections as part of a remembrance project, but also as a way to incarnate the essence of a local character.[108] In Lyon, Pierre-Yves Saunier uncovered, those historical collections began to be composed of local items exclusively towards 1830-1840.[109] Rooted in specific sociabilities, especially around learned societies, this served as a way to resist uniformisation coming from above.[110] Not only a social fact, these discourses resulted in the production of an imagined discursive territory as a way to affirm local specificities.[111]

The local territory was upheld by a fabric of local savant institutions which were visually and physically apprehended in the space of the city. The map of these institutions varied greatly from one place to another as their configurations depended on circumstances, interpersonal relations and political opportunities. The history of the learned societies of the nineteenth century has been generally overlooked. The sheer mass of the archival material available may be off-putting. But more generally, they have been regarded as provincial and unworthy of study.[112] Recent works on local scientific and intellectual life have revealed how pivotal those places of knowledge had been in the construction of a local territorial discourse. A trend which, in fact, had been part of the essence of provincial academies since the creation of the first round of them in the eighteenth century.[113]

The landscape of such places of knowledge in the beginning of the nineteenth century varied greatly from one case to another. In Nantes, the suppression of the academies during the French Revolution did little harm, since no academies seem to have existed. The revolutionary years gave some impetus though, with the short lived

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[107] Alexandre Du Mège, *Histoire des institutions religieuses, politiques, judiciaires et littéraires de la Ville de Toulouse*, 4 vols (Toulouse: Laurent Chapelle, 1844), https://tolosana.univ-toulouse.fr/fr/notice/045861110.

[108] Ibid.; Alexandre. Perthuis and Stéphane Paul de. La Nicolliere-Teijero, *Le Livre Doré de l'Hotel de Ville de Nantes avec les armoiries et les jetons des maires*, 2 vols (Nantes: J. Grinsard, 1873), https://hdl.handle.net/2027/nyp.33433081847604; Pierre Clerjon, *Histoire de Lyon, depuis sa fondation jusqu'à nos jours*, 6 vols (Lyon: Théodore Laurent éditeur, 1829). For an analytical perspective on those practices, see Van Damme, *Métropoles de papier*; Tom Stammers, 'The Refuse of the Revolution: Autograph Collecting in France 1789-1860', in *Historicising the French Revolution*, ed. Carolina Armenteros (Newcastle upon Tyne: Cambridge Scholars, 2008), 39–63; Stammers, 'The Bric-a-Brac of the Old Regime: Collecting and Cultural History in Post-Revolutionary France'.

[109] Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale*, 146.

[110] Ibid., 170. This tendency of the construction of territorial attachement was analysed by Marie-Vic Ozouf-Marignier for the revolutionary period: Ozouf-Marignier, *La formation des départements: la représentation du territoire français à la fin du XVIIIe siècle*. For a more longue-furée approach, see Pétré-Grenouilleau, *Nos petites patries: identités régionales et État central, en France, des origines à nos jours*.

[111] Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale*, 178.

[112] Chaline, 'Parisianisme ou provincialisme culturel? Les sociétés savantes et la capitale dans la France du XIXe siècle'; Jean-Pierre Chaline, *Sociabilité et érudition: les sociétés savantes en France, XIXe-XXe siècles* (Paris: Editions du C.T.H.S, 1995).

[113] Roche, *Le siècle des lumières en province*, 19.

Société de Commerce, Agriculture et Arts, created in 1791. It was replaced in 1798 by the Institut Départemental des Sciences et des Arts, which after years of twists and turns around 1815, became the Société Académique de Loire-Inférieure in 1817 and the Société Académique de Nantes et de Loire-Inférieure in 1831. Towards the middle of the century the Société d'Histoire et d'Archéologie (1845) and the Société Industrielle (1851) contributed to developing the intellectual offerings of Nantes. Academies of Toulouse had relied on a longer tradition, ancient even: the very long-established Académie des Jeux-Floraux, created in 1694, organised its renowned poetry prize, a medieval tradition, it was said. The Académie des Sciences, Inscription et Belles-Lettres was one of the oldest in France and was founded in 1640. The academy was suppressed, reinstated in 1797 as the Lycée, then Athénée before it became the Académie again in 1807. This deeply-rooted academic tradition translated into new foundations in the nineteenth century, namely the Société de Médecine, the dynamic Société d'Archéologie du Midi de la France (1831) conducted amongst others by Alexandre Dumège, the Société d'Horticulture (1853), and the Société d'Histoire Naturelle, which coincided with the opening of the Museum of Natural History the year before. In Lyon too, the academic tradition was long-standing, with the Académie des Sciences, Belles-Lettres et Arts, founded in 1700, and the Société d'Agriculture, founded in 1761 and renamed the Société d'Agriculture, Histoire Naturelle et Arts Utiles. Two new foundations had been made by 1870, the Société de Médecine (1849) and the Société Littéraire (1858).

In the absence of a uniform higher education system, learned societies were often the designated place for courses and could act as substitutes for the teaching of some disciplines, like the Société de Médecine did in Toulouse to compensate for a missing Faculty of Medicine.[114] The Cabinet of Natural History of Lyon was one of the places, together with the Académie, for teaching botany and zoology. In Nantes, the museum held natural history courses because no faculty nor schools organised them. More generally, the heterogeneous structure of higher education led to the very local distribution of responsibilities in terms of the production and circulation of scientific knowledge. Museums were one peculiar piece in this urban scientific landscape where the porosity and fluidity of functions crossed walls. Just as much as patterns of the distribution of faculties or learned societies varied, museums of natural history did as well. In ways that are uncovered in this study, there was no model of a museum; rather, there were as many types of museums as there were cities. Whether an independent institution, as in Nantes, or one piece of a compound museal structure,

[114] Caroline Barrera, 'Les sociétés savantes et les facultés toulousaines (1797-1870)', *Annales du Midi: revue archéologique, historique et philologique de la France méridionale* 288 (2015): 489–501.

as in Lyon, or natural bits and pieces scattered in various places of the city, as in Toulouse where the museum was opened in 1865, the museum environment was irregular and unsystematic.

B. Local temporalities

Variability, effects of disappearance and reappearance, and new foundations, together with the many operations of name changes, signalled more than simple aesthetic touch-ups to intellectual geographies. Rather, they conveyed changing interests as well as ways in which the changing political tempo affected intellectual and socio-scientific structures. The chronological span of this study embraces a seventy-five-year period from the generalisation of natural history collections in *écoles centrales* and the birth of the first museums to the nearly simultaneous ending of two long directorships in 1869, Frédéric Cailliaud's in Nantes, and Claude Jourdan's in Lyon, after forty-three years and thirty-eight years of activity respectively. The period also coincided with the opening to the public of the Toulouse Museum of Natural History. Seen from another perspective, this time span is also the period in which French society witnessed numerous political changes, traditionally interpreted as the stabilisation of republicanism from the Revolution to the end of the Second Empire and the inauguration of the Third Republic.

The historiography of the French nineteenth century has been heavily marked by centralised perspectives from Paris, with the result that it is often difficult to disambiguate the "French" from the "Parisian".[115] Recent historiography has nevertheless initiated a general reworking of perspectives on the role of the state. Questions of the construction of authority, of power relations and the practical modalities of the ordering of society in the nineteenth century have served to highlight the various mechanisms of the bureaucratic apparatus too often briefly summarised as "the state".[116] This in turn allows us to think about the limits or the absence of the state, or rather how rules could be bent to accommodate locally determined circumstances.

In the archives of natural history museums, the political scansions of the nation are hardly visible, or were nearly made to disappear. Consciously or not, actors of the

[115] Patrick Luiz Sullivan De Oliveira, 'Imagining an Old City in Nineteenth-Century France: Urban Renovation, Civil Society, and the Making of Vieux Lyon', *Journal of Urban History* 45, no. 1 (2017): 2, https://doi.org/10.1177/0096144216689090.

[116] Patrick de Oliveira has for instance contested the all-encompassing central authority in urban transformation during the Haussmanian period in showing the local incentives and configurations of the transformation of Rue Impériale in Lyon: De Oliveira, 'Imagining an Old City in Nineteenth-Century France'; Emmanuel Fureix and François Jarrige, *La modernité désenchantée: relire l'histoire du XIXe siècle français* (Paris: La Découverte, 2015), 281–84.

museums eluded the eventful temporality of the state from their own rythm at the museum. Perhaps they were not personally interested. Perhaps it was not in their interest nor was it their place to mention politics. Punctually, a princess came to Toulouse, a bust of the king was ordered in Nantes, results of a ballot were communicated to a Bonaparte relative and amateur of nature in Lyon: the time of the national was locally punctual. In contrast, the time of the museum was tightly connected to the temporality of the city: municipal elections mattered. Collaborations were easier with certain holders of authority than others. The temporality of the museum was inscribed in even more disparate ways, which in fact were extremely peculiar: the amount of days necessary to inventory a collection; the time necessary for a cleaning job and how much that would cost; the time waiting for the tempest to ease while trapped in a lighthouse during a field trip; the temporality of individual days signalled for accessions of objects. The list is infinite. The temporality of the museum varied greatly, and like most institutions, it operated according to temporalities of bricolage.

C. Museums of paper

As museums of natural history had a complex history, documenting their pasts can be challenging, first in locating the necessary body of documents and secondly in overcoming, once they are located, their boundless dimensions. The museums of this study are museums from the past and are now long gone. Very little from the collections, let alone the galleries they were displayed in, has been preserved: they exist only as paper. Archival material was therefore the very start of this investigation and it guided most of the work through tortuous ways. Quite consciously, the chaos of the detail was chosen over the calm of the big picture as a starting point, in an attempt to avoid inconsistent projections.

The course of the investigation was also the path which allowed the study to connect different types of document. A primary investigation set out to consider revolutionary material and lists of specimens from inventories. Archives of the departmental administrations of Haute-Garonne and Loire-Inférieure rapidly proved too limited to document the collections of natural history for a study period which had initially meant to end in ca. 1815. What this primary sample revealed, however, was the potential of municipal archives for documenting the management of collections turned into museums. Given the variation of the relations between municipality and museum, the location of the archives would generally differ between municipal

archives, departmental archives and the special collections of the natural history museums.

The content of the boxes was often plentiful, occasionally untouched. Paper material was the proof of a densely bureaucratic activity: heaps of notes and letters, copies of decrees, queries, reports, bills of purchases, printed announcements, even copies of publications circulated from one building to another, the city hall, the museum and the prefecture mostly. In Nantes and Lyon, all three of these institutions were, at least for some periods of time, across the street from one another. Documents produced at the museum, such as catalogues, drafted reports, drafted papers, or notebooks usually remained at the museum, where they can be consulted nowadays. Interestingly, the boxes of "*les papiers des directeurs*", which could be translated as "the directors' papers" might be expected to document purely scientific endeavour, notes translating what these directors reflected on, in the intimacy of their offices. In fact, however, the mass and diversity of their paper production betrays how much scientific work was muddled into bureaucratic duties. The absence of most of their scientific work also seems to point to a growing separation of home and office work. Because most of those private archives were neglected and lost, though, this latter hypothesis is difficult to prove for the time being.

Museums were also places of production of objects which then travelled beyond their gates; museum directors, too, were often involved in other places of scientific sociability, such as the local academies. The annals of the learned societies are a precious resource for finding out about the life of the collections. Often digitised, this part of the corpus is now located in remote access and allows the archive to virtually transfer onto the office desk, hundreds of kilometres away from paper. This included objects where digitisation programmes allowed, like in Toulouse. While actual visits in the storage rooms could be arranged, locating objects from the given period was made difficult by the absence of continuous cataloguing since the early nineteenth century. This is not the result of careless collection keeping. Rather, collection objects live and disappear, according to their general state, due to decisions of de-accession which vary according to time and place and particular choice. That museum collections are not universal but situated in time and space is an important condition to keep in mind when studying collections that, except for some notable examples, exist only on paper.

Chapter 1
Assembling the museum

"The Cabinet [of Natural History of Lyon] presents 1° the cabinet of Monsieur Pestalozzi purchased by the municipality and consigned to the former Académie de Lyon: it was composed of a collection of shells, madrepora, minerals, and of a few fragments of fishes and quadrupeds;
2° The cabinet of Monsieur de Soubré; it is composed of a considerable sequence of birds in glass cages, a sequence of insects, a sequence o f minerals and volcanic productions
3° The succeeding *envois* from the government in minerals, shells, petrifications, birds, insects and a very large herbarium.
4° The cabinet of the late Monsieur de La Tourrete (sic) which offers a very noticeable collection of minerals, a few birds and a large herbarium.
5° A collection of birds from the département, of insects, plants and a large herbarium either indigenous from Lyon or cultivated in Jura for eight years, collections formed by Professor Gilibert .
The five collections have been gathered either in Saint-Pierre or at the apartment occupied by the Professor at the Maison Rivière ; a series of books with illustration gradually purchased in the last eight years to support the demonstrations of the different branches of natural history[1]."

[1] Original text: "Le Cabinet présente 1° celui de feu Monsieur Pestalozzi acheté par le ville et confié à la ci-devant Académie de Lyon; il était formé pour une Collection de Coquilles, de Madrépores, de Minéraux, et de quelques débris de poissons et quadrupèdes;
2° Le cabinet de Monsieur de Soubré ; Il présente une suite considérable d'oiseaux dans des cages de Verre, une suite d'insectes, une suite de Minéraux et productions volcaniques
3° Les envois successifs du Gouvernements en Minéraux, Coquilles, Pétrifications, oiseaux, insectes et un très grand herbier.
4° Le cabinet de feu Monsieur de la Tourrete (sic) offrant une collection très considérable de Minéraux, un Coquillier, quelques oiseaux et un grand herbier.
5° une collection d'oiseaux du département, d'insectes, de plantes et un grand herbier soit indigènes Lyonnaises soit cultivées dans le Jura depuis huit ans. Collections formées par le Professeur Gilibert.
Ces cinq collections sont rassemblées soit à St Pierre, soit dans l'appartement que le Professeur occupe dans la Maison Rivière, il faut ajouter une suite de Livres avec figures achetés peu à peu depuis huit ans pour servir aux démonstrations des différentes parties de l'histoire naturelle."
AML - 78WP021, anonymous [Gilibert], *Observations sur la Cabinet d'Histoire Naturelle de Lyon*, 24 October 1805.

In the beginning of the nineteenth century, the Lyon cabinet of natural history was a collection of collections, or so it was described by this unsigned note to the municipal instances in 1805. The short excerpt above proves to be an interesting summary of the tensions at play in the creation of municipal museums a few years after the generalisation of public natural history collections during the French Revolution, but also a few years after the closing of the *écoles centrales* and the presumed or effective loss, depending on the collections, of their initial pedagogical purposes. Multiple collections from multiple collectors across different times, sometimes even split into different locations and merging composite contents. The collection of the museum of natural history was embedded in a wide range of temporalities, places, and above all, intentions altogether personal, institutional, top-down and collective.

The plan to generalise natural history collections emerged in a context of considerable re-shuffling of the political, territorial, and social cards in the last decades of the eighteenth century and the opening of the nineteenth century. The context generated reasons for frustration at the same time as it opened new doors. For over half a century, until the middle of the nineteenth century at least, the existence and functioning of those collections was never ascertained. During this period, the local cabinet of natural history carried with it the suspicion of being a mere cabinet of curiosity - largely conveyed by descriptions of cabinets such as the one cited above. The riddle posed by the making of the municipal natural history museum, which may be framed as how the local communities responded to the centrally commissioned museums and more or less adapted the project to meet a homogenous model of a French museum, is perhaps irrelevant if formulated in those terms.

Much as the above excerpt sketches a complex situation of a municipal collection assembled of variegated objects, approaches and meanings, this chapter will seek to highlight the complexity of the creation of the municipal museums, with a focus on the beginning of the period. The documentation used was mostly produced in the localities under study: Lyon, Nantes and Toulouse.

Intentionality lies at the core of the assemblage collection, but the rationale of museum collection building, largely guided by institutional decision-making, was embedded in intentionality which went beyond the sole pretention to offer some scientific collectionist coherence.[2] Because they resulted from notably different local social and scientific contexts and environments, the three museums seem to have flouted the possibility of a model for the municipal museum. This chapter proposes to look at the donors of the collections and the entanglement with matters of authority,

[2] Susan M. Pearce, *Museums, Objects, and Collections: A Cultural Study* (Washington, D.C: Smithsonian Institution Press, 1993), 7.

of social and symbolic capital. Such an approach highlights that if there were a common denominator of the museum, it did not lie in local adaptation to the centrally proclaimed law, but in the seized opportunity to create a local place of knowledge, which was to become a place of collective and self-reflecting recognition by a savant (and non) élite.

1. THE OPPORTUNITY OF THE MUSEUM: THE CREATION OF THE LYON, NANTES AND TOULOUSE MUSEUMS

A. Seizing the opportunity: the translation of national regulations locally in Toulouse

The notion of "museum of natural history" in the decades of roughly 1790-1810 was fairly fluid. Retrospectively thought of as clearly delineated institutions opened during the revolutionary years, their history proved more unstable and beyond administrative control than their being called "institutions" suggests. The main steps of French museum building revolved around a few chronological markers, mainly during the "museological bustle" of the Directory and Consulate.[3] These included the opening of three institutions (the Muséum Central des Arts at the Louvre in 1793, the Muséum National d'Histoire naturelle in 1794 and the Musée des Sciences et Techniques in 1795), the bills on the educational system passed in *An III* (1794-1795) and *An IV* (1795-1796) which instituted the *Écoles centrales* in all *départements* and were flanked with natural history collections and botanical gardens, and the Chaptal bill of 1801 which acknowledged the creation of museums.[4] At odds with an all too linear notion originating from comparison with the Parisian examples, the municipal natural history museum was made possible by inheriting more or less directly from the natural history cabinets of the *écoles centrales*. The filiation from school to museum was generally erratic. When it happened, the effect of discontinuity was increased by the changing scope of the collection.

[3] I am borrowing from Dominique Poulot's "*branle-bas muséologique*", in 'Les finalités des musées du XVIIe au XIXe siècles', in *Quels musées, pour quelles fins aujourd'hui?* (Paris: École du Louvre, 1983), 83.

[4] Direction des musées de France, ed., *Le rôle de l'Etat dans la constitution des collections des musées de France et d'Europe: Colloque du bicentenaire de l'Arrêté consulaire dit Arrêté Chaptal* (Paris: Ministère de la Culture et de la Communication, Direction des musées de France, 2003), 18. See also Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 390–91.

Merely stabilised through legislation on museum foundations, the three cases of Toulouse, Lyon and Nantes highlight the ill-definition of their respective statuses as well as the emphasis of national regulations on artistic and archaeological heritage with an incidental failure to take into account the specificity of natural history collections.[5]

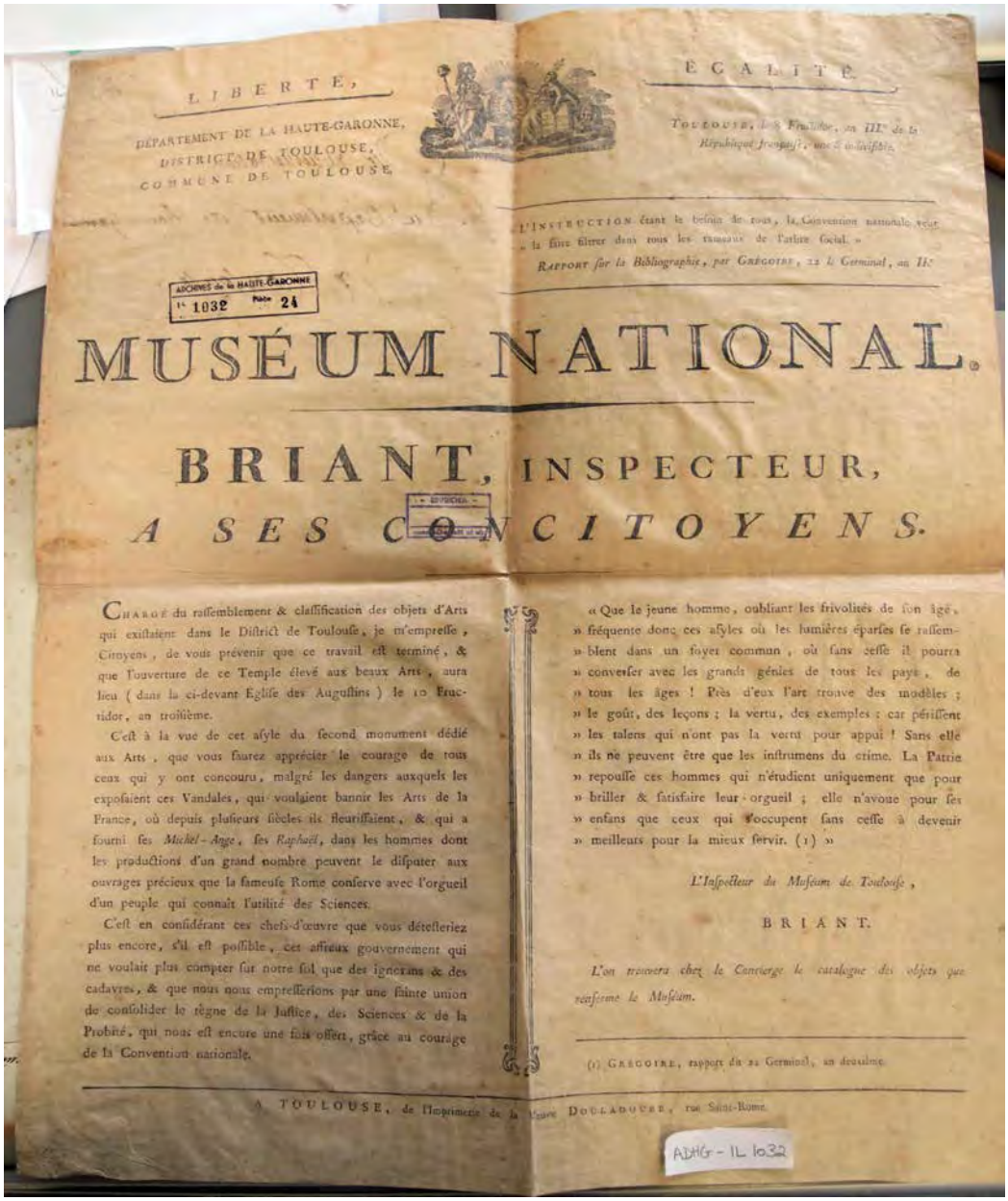
The departmental archive of Haute-Garonne has kept numerous leaflets printed with national directions about "museums" which demonstrate how those nationally produced texts were communicated. Examples read "*Loi relative au transport, dans le dépôt du Louvre des tableaux et autres monumens des beaux-arts qui sont dans les maisons ci-devant dites royales, et autres édifices royaux, du 19 septembre 1792, l'an 4e de la liberté*" or a "*Décret de la Convention Nationale du 21e jour du 2e mois de l'an second de la République française une et indivisible, qui accorde un fonds annuel de 100,000 livres, pour dépense relative au musée de la République, et à d'autres objets qui intéressent les Sciences et les Arts*".[6] All thirteen of these regulatory items were issued between 1792 and 1794, edited locally and signed by the holder of the local authority before being sent to press and circulated. Clear evidence of how the departmental authority relayed and acknowledged the texts sent from the central administration, this is also evidence of the local translation of those early directives about the practical management of national *patrimoine*. Notably, none of those leaflets was specific about the management of the natural history collections.

A poster announcing the opening of the Toulouse museum (Figure 1), from ca. 1795, placed the new institution under the authority and protection of the "Muséum National", the main banner, but also the administration in charge stated in the top left-hand corner ("*Département de la Haute-Garonne, District de Toulouse, Commune de Toulouse*") and a quotation from Abbé Grégoire on the importance of instruction to feed the "tree of the society".[7] In charge of the museum was Briant who had conducted, as Inspector, the gathering and sorting of the objects at the local level. Regardless of the absence of a "general measure, for all museums of the Republic",

[5] This was noted by Edouard Pommier about art museums in 'Collections nationales et musées 1790-1801', in Le rôle de l'État dans la constitution des collections des musées de France et d'Europe: Colloque du bicentenaire de l'Arrêté consulaire dit Arrêté Chaptal, ed. Direction des musées de France (Paris: Ministère de la Culture et de la Communication, Direction des musées de France, 2003), 64.

[6] ADHG - 1L1032, it. 2, Loi relative au transport, dans le dépôt du Louvre, des tableaux & autres ùonumens des beaux arts, qui sont dans les Maisons ci-devant dites royales, & autres édifices nationaux, du 19 septembre 1792, l'an 4e de la Liberté, Toulouse, Imprimerie J.-G. Besian, 1792 and it. 8, Décret de la Convention Nationale, du 21e jour du 1er mois de l'an second de la République française, une & indivisible qui accorde un fonds annuel de 100,000 livres, pour dépenses relatives au Musée de la République, & à d'autres objets qui intéressent les Sciences et les Arts, Toulouse, Imprimerie Veuve Douladoure, 1793.

[7] ADHG - 1L1032, it. 24. The document was not dated, but it mentions the existence of a catalogue which was released in 1795 for its first edition.



LIBERTE,

DÉPARTEMENT DE LA HAUTE-GARONNE,
DISTRICT DE TOULOUSE,
COMMUNE DE TOULOUSE.

ÉGALITÉ.

TOULOUSE, le 8 Fructidor, an IIIe de la République française, une & indivisible.

« L'INSTRUCTION étant le besoin de tous, la Convention nationale veut « la faire filtrer dans tous les rameaux de l'arbre social. »

RAPPORT sur la Bibliographie, par GRÉGOIRE, *22 le Germinal, an II.*

ARCHIVES de la HAUTE-GARONNE
N° 1032 Page 24

MUSÉUM NATIONAL.

BRIANT, INSPECTEUR,

A SES CONCITOYENS.

CHARGÉ du rassemblement & classification des objets d'Arts qui existaient dans le District de Toulouse, je m'empresse, Citoyens, de vous prévenir que ce travail est terminé, & que l'ouverture de ce Temple élevé aux beaux Arts, aura lieu (dans la ci-devant Eglise des Augustins) le 10 Fructidor, an troisième.

C'est à la vue de cet asyle du second monument dédié aux Arts, que vous saurez apprécier le courage de tous ceux qui y ont concouru, malgré les dangers auxquels les exposaient ces Vandales, qui voulaient bannir les Arts de la France, où depuis plusieurs siècles ils fleurissaient, & qui a fourni ses *Michel-Ange*, ses *Raphaël*, dans les hommes dont les productions d'un grand nombre peuvent le disputer aux ouvrages précieux que la fameuse Rome conserve avec l'orgueil d'un peuple qui connaît l'utilité des Sciences.

C'est en considérant ces chefs-d'œuvre que vous détesteriez plus encore, s'il est possible, ces affreux gouvernement qui ne voulait plus compter sur notre sol que des ignorans & des cadavres, & que nous nous empresserions par une sainte union de consolider le règne de la Justice, des Sciences & de la Probité, qui nous est encore une fois offert, grâce au courage de la Convention nationale.

« Que le jeune homme, oubliant les frivolités de son âge, » fréquente donc ces asyles où les lumières éparses se rassem- » blent dans un foyer commun, où sans cesse il pourra » converser avec les grands génies de tous les pays, de » tous les âges ! Près d'eux l'art trouve des modèles ; » le goût, des leçons ; la vertu, des exemples : car périssent » les talens qui n'ont pas la vertu pour appui ! Sans elle » ils ne peuvent être que les instrumens du crime. La Patrie » repousse ces hommes qui n'étudient uniquement que pour » briller & satisfaire leur orgueil ; elle n'avoue pour ses » enfans que ceux qui s'occupent sans cesse à devenir » meilleurs pour la mieux servir. (1) »

L'Inspecteur du Muséum de Toulouse,

BRIANT.

L'on trouvera chez le Concierge le catalogue des objets que renferme le Muséum.

(1) GRÉGOIRE, rapport du 22 Germinal, an deuxième.

A TOULOUSE, de l'Imprimerie de la veuve DOULADOUEE, rue Saint-Rome.

ADHG - 1L 1032

Figure 1 - Official announcement of the opening of Toulouse's Musée National in 1795. AMT.

which was even underlined and noted at the ministry in 1800, Toulouse enacted the decision to open their museum.[8]

More than a project of a museum, the creation of museums locally was more a response to a political impetus. For Lucas Cadet, an artist who would become a *démonstrateur* at the Toulouse museum, there was a manifest contextual opportunity to be seized. In his plea for a museum, Lucas Cadet appeared as supporting a decision

[8] ADHG - 1L1032, it. 26, Ministre de l'Intérieur to the Central Administration of Haute-Garonne in Toulouse, 13 Vendémiaire VIII [5 October 1799].

which came from the city official. The details are unknown, but he seemed to have been in charge of writing a report to justify and give the detail of the necessary resources for the future museum.[9] In this statement, intentions to promote the arts in a museum are jumbled with an insubstantial, or maybe just clumsy, political statement. All ingredients of the picture-perfect revolutionary discourse are there: condemnation of the enemies and a proposed response through a new pedagogy of viewing art and aesthetic experiment. The quick reference to Toulouse does not counterbalance the overall sense of allegiance to the official discourse of the regime underlying in the whole document.

In spite of the existence of a however uncertain administrative framework for the opening of a museum, the Toulouse museum still required a developed argumentation to support the unlocking of financial or material resources: the museum derived from a negotiation process with the authorities representing the national interest. The use of the glorious artistic and scientific past could be of some support in convincing the authorities.[10] Two main arguments may be identified from Lucas' report. The museum would allow students to use the museum to develop their "genius", and its objective was to serve teaching and spark talent. Obviously, the project followed the lines of the national project, obsessed by pedagogy.[11] But it also required forethought in terms of practical details. Consequently, Lucas assured the departmental representatives of the state that the project would be entirely costless, underlining that such a cultural project precisely ought not to be lavish and expensive: the use of the political rhetoric of the "only fair" regaining of goods from *émigrés* and the church certainly helped in projecting the new museum. The Franciscan church would have been ideal, in Cadet's proposal, if the rood screen was brought down and the side chapels separated with walls. The Du Barry collections, for instance, as well as the former possessions of the Académie des Sciences would be welcome to replenish

[9] ADHG - 1L1032, it. 15, 16, 17, Proposal of a museum submitted by Lucas Cadet to the Central Administration of Haute-Garonne, 9 November 1793.
The document reads: "[…] Les grandes connoissances de nos législateurs ont fait peser dans leur sagesse combien il etoit necessaire au bien public de former des lycées dans certaines villes des departmens propres à ces etablissements, seul moyen dassembler les vrais sans culotes qui par leurs talents et leurs connoissances peuvent devenir les soutiens de la chose publique en faisant part à leurs concitoyens des connoissances quils ont acquises par leurs veilles et leurs travaux. Toulouse la Rivale des plus grandes cités par les artistes quelle a formé dans son sein le penchant naturel de ces habitans pour les sciences, sont peu de ressources pour fournir à l'entretien dune grande population, son amour pour la république, La fermeté avec laquelle elle a repoussé avec horreur et indignation le fédéralisme tramé par des armes de boüe dignes des plus grands mépris.
[sic] ont déterminé nos législateurs à établir dans notre ville un lycée qui pas sa création aura un local propre à pouvoir y placer tous les objets de curiosités tant en peinture, sculpture, architecture, gravure, médailles, histoire naturelle et autres objets, dont la vue seule peut faire développer dans chaque individu le germe quil a pour une science quelconque. […](sic.)"
[10] ADHG - 1L1032 it. 31, Mayor of Toulouse to the Prefect of Haute-Garonne, 2 Nivôse an III [22 December 1802].
[11] Poulot, *Musée, nation, patrimoine*, 133.

the empty spaces of the former place of worship, transformed into a "sanctuary for the arts".[12]

The Parisian foundations were of course inspirational for the Toulouse museum. The name of the museum publicly announced was '*Muséum National*' as though the new establishment was an extension of the Parisian facilities, reaching over from the capital city.[13] It was also common to endorse the superiority of the Parisian museums by acknowledging the superiority of their classifications and how difficult it would be to challenge the quality of their collections, owing to the Parisian priority over the distribution of museum objects.[14] Reading between the lines though, inspiration was also the result of political rhetoric and calculation. It was indeed a way of providing a local museum with a strong model. To be granted the relevant authorisation for the foundation, a significant dose of celebratory style was also expected in times where political support was excellent bartering value.

The *Musée* of Toulouse did quickly turn into an art museum, to which an important antique collection was added thanks to the work of Alexandre Du Mège over the first forty years of its existence.[15] Already marginal in the project elaborated by Lucas, the natural history collection did not emerge as an identified section of the museum. The geographical separation of the arts and science classes into the museum and the botanical garden respectively divided the two collections from the start. There were several proposals to extend the covered premises of the garden, notably to host a museum collection. But the interminable battle over ownership of the buildings of the former Carmelite convent adjacent to the garden generated discouragement about the establishment of a municipal natural history museum.[16] A compromise was

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[12] ADHG - 1L1032, it. 15, ibid.

[13] Andrew McClellan, *Inventing the Louvre: Art, Politics, and the Origins of the Modern Museum in Eighteenth-Century Paris* (Cambridge; New York: Cambridge University Press, 1994); Alexandra Stara, *The Museum of French Monuments 1795-1816: 'Killing Art to Make History'*, The Histories of Material Culture and Collecting, 1700-1950 (Burlington: Ashgate, 2013).

[14] "Dans la classification des objets que j'ai réunis j'ai pris pour exemple le Museum formé à Paris Sous les yeux de la Convention Nationale, et par les artistes les plus habiles. j'ai consultés ceux qui se trouvaient ici, sur l'admission de ce plan il a été adopté, sauf a suivre les changemens qui se feroient dans celui de paris, Lors de cet arrangement déffinitif. Les tableaux ni sont points rangés par école, l'avis du Jury des arts à Paris, ayant été de les Mélanger : ce mode etant reconnu le plus propre à développer le génies et le gout des Eleves, en leur présentant sur un meme point de vue les Chefs-d'oeuvres en divers genres ; il réunit aussi l'avantage d'offrir aux amateur des objets de comparaison.[…] Nous ne pouvons pas dans nos musées offrir les mêmes ressources que les Parisiens que nous chérissons et à qui nous devons notre existence républicaine par leur constance et leur fermeté. mais ils viendront au secours de leurs frères, et ne nous abandonnerons pas pas dans nos projets, dont le résultat nous devient comun pour le bien public. […](sic.)". ADHG - 1L1032, it. 23, Report on the musée by Briant, 25 thermidor III [12 August 1795].
See also Pommier, 'Collections nationales et musées 1790-1801'.

[15] A detailed overview of the completed work can be found in Shun Nakayama, 'Alexandre du Mège et l'enrichissement des collections archéologiques du Musée de Toulouse dans les premières décennies du XIXe siècle', *Annales du Midi : revue archéologique, historique et philologique de la France méridionale* 127, no. 289 (2015): 65–82.

[16] Meillon, a librarian, suggested the plan. For an exhaustive history of the feud about the property and extensions of the site of the botanical garden, see Louis Vergne, *Le Jardin des Plantes de Toulouse. Sa fondation. Ses*

somehow found in the acquisition of the Lapeyrouse collections by the municipality in 1824, which were then stored at the Faculty of Science.[17] This was however no satisfactory situation and the scientific elites of the city kept complaining about the absence of the museum of natural history of Toulouse, which did not take material shape before the early 1860s.[18] The existence of the natural history collection before 1860 was limited to a fugitive idea and stood in a complex in-between: it was both an imagined and hoped-for institution for local scholars, but it also raised practical issues of dealing with natural history collections outside of the structure of a museum.[19]

B. A localist response to the museum opportunity

The dominance exerted by the Parisian institutions over the control and sorting of artistic and scientific collections was generally not thought of as an opportunity, but rather as a threat. Some provincial savants clearly voiced their opposition to the cultural and scientific monopoly of the French capital city.[20] Accused of attempting to impoverish the provinces, Paris' prevalence in science was nevertheless hardly ever contested.[21] It was rapidly made clear that in contrast to discourses of the equal distribution of art collections, for instance, the Parisian museums would have priority over the best pieces.[22] Two conceptions were in opposition, Édouard Pommier explained.[23] One conception of the distribution of the *patrimoine* reduced the nation to Paris and aimed at concentrating its essential pieces in one central place. The other, largely emanating from the provinces, claimed the importance of the local situation.

In this context, the creation of the *école centrales* in 1794-1795 was a stroke of luck for the *départements*: the decision to closely lace the national territory with a tight pedagogical institutional fabric and to second it with arts and natural history

translations et ses transformations. (Toulouse: Imprimerie G. Berthoumieu, 1893), http://tolosana.univ-toulouse.fr/fr/notice/177217332.

[17] Alexandre Leymerie, *Notice sur le cabinet minéralogique et géologique de la Faculté des Sciences de Toulouse* (Toulouse: Imprimerie de A. Chauvin, 1855).

[18] Astre, *Le Muséum d'histoire naturelle de Toulouse*, 1949, 41–54.

[19] The "provisional museum" was registered by the local administration in 1795 which requested the Central Administration to support their request to the National Convention to rule in favour of a Toulouse museum which should also keep a natural history collection: See ADHG - 1L1032, it. 21, *Extrait du Registre des Délibérations du Conseil Général de la Commune de Toulouse du 2e ventôse 3e Année de la République* [20 February 1795] and ADHG - 1L1032, it. 58, *Extrait des Registres de l'adm centrale du Département de la haute-garonne du 24 pluviose an 4 de la repub. franc.* [13 February 1796]. The Ministry of the Interior issued a response in 1798 stating that since the organisation of museums at national level was provisional, the status of the Toulouse museum could not be changed: ADHG - 1L1032, it. 64, the Minister of the Interior to the Central Administration of Haute Garonne, 18 Floréal an 6 [7 May 1798].

[20] Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 386–87; Charle, 'Introduction. Pour une histoire culturelle et symbolique des capitales européennes', 16.

[21] Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 388–89.

[22] Pommier, 'Collections nationales et musées 1790-1801', 58.

[23] Ibid., 60.

collections provided the right opportunity for departments to find the administrative framework to have a locally-established collection of natural history.[24] In Lyon, the natural history course was taught by Jean-Emmanuel Gilibert (1794-1814), a doctor of medicine and a botany specialist, at the Cabinet of Natural History established together with the botanical garden at La Déserte, on the slopes of the Croix-Rousse.[25] In Nantes, another physician, François Lemeignen, was handed the supervision of the course at the botanical garden.[26] In Toulouse, Philippe Picot de Lapeyrouse, an expert of mineralogy and botany, was given the chair of natural history at the *école centrale*; he is said to have taught in buildings adjacent to the botanical garden, too. In all three cases, the pedagogical supports used for teaching were mostly borrowed from the personal collections of the professors, who were also in charge of the botanical garden located in their respective cities.[27]

The opening of the *école centrales* permitted the realisation, at the level of the city, of the possibility and utility of having a collection. Besides, it led to the identification of a group of naturalists who could be trusted with the management of the collection, because they were collectors themselves. The *écoles* were ultimately short-lived and consequently many collections were abandoned without care, some irremediably damaged.[28] This "endgame" situation most certainly engendered a break with a certain conception of natural history as an essential support for the development of the nation.[29] But above all it had created a precedent of municipal attention to local collections. While the discourse on the public utility of natural history collections continued to draw from its association with teaching, the discourse kept its distance from the idea of blending into a national framework in order to promote the local, which the contrasting projects of Toulouse and Lyon illuminate.

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[24] For a rich overview the teaching of natural history in the *écoles centrales*, see Pascal Duris, 'L'enseignement de l'histoire naturelle dans les écoles centrales (1795-1802)', *Revue d'histoire des sciences* 49, no. 1 (1996): 23-52, https://doi.org/10.3406/rhs.1996.1247.

[25] Anthelme-Jean Rochaix, *L'enseignement des sciences médicales à Lyon de 1792 à 1821. Thèse présentée à la Faculté de Médecine et de Pharmacie de Lyon* (Lyon; Paris: Maloine, 1906), 145–55, https://gallica.bnf.fr/ark:/12148/bpt6k9766494g. 145-155

[26] Ch. Morel, 'Etude sur l'École Centrale de Nantes', *Annales de la Société Académique de Nantes et de la Loire-Inférieure* 6, no. 3 (1882): 129–79.

[27] The school regulations provisioned that the course should take place at the botanical garden. The poster announcing the opening of the school had left a blank space next to the name of the professor of natural history. See ADHG - 1L992, it. 10, decree on the provisional organisation of national instruction ("*enseignement national*") [print, poster], 29 Nivôse II [18 January 1794]. Lapeyrouse was not available at the opening of the school owing to his obligations as Inspector of the Mines. He was appointed as chair of natural history in ca. 1798. ADHG - 1L1008, it. 48, Lapeyrouse to the Central Administration of Haute-Garonne, 25 Nivôse VI [14 January 1798]. In the secondary literature, Astre and Vergne provide unclear accounts of the actual use of the premises at the convent of the Carmelites. See Astre, *Le Muséum d'histoire naturelle de Toulouse*, 1949, 20–21; Vergne, *Le Jardin des Plantes de Toulouse*, 22–39.

[28] Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 519–25.

[29] "*Fin de partie*" was borrowed from Ibid., 519.

a. Lyon and the Conservatoire des Arts: supporting the industry

> "Before we give further detail about the other tasks it was possible to undertake, it should be pointed out that in Lyon, the School of Drawing cannot be assimilated, with regards to its organisation, to any other school established elsewhere. […] In this manufacturing city, whose industrial products have, for centuries, contributed to the pouring of foreign treasures into the heart of the state, it is her stable interest to direct the influence of the arts towards the trading industry and to make the sciences serve the improvement of the products of this industry.[...]"[30]

At the very start of the century, the 'Lyon spirit' was starting to be constructed around the pride of being an industrial town and the capital of work, and celebrated the independence and freedom of the city.[31] Later, towards the middle of the century, Lyon would even seek to embody the battle of the French provinces against centralising forces, all of this by carefully crafting the history of Lyon and designing an 'eternal Lyon'.[32] The elaboration of an ambitious educational and commercial project, the Conservatoire des Arts, contributed to the manifestation of the particular identity Lyon claimed to have. The insistence on the specificity of Lyon and the "territorial discourse" became deeply infused in the political culture of the early nineteenth century and municipal decisions of that period.[33]

The disappearance of the *école centrales* freed the way to a new learning institution in Lyon: the Conservatoire des Arts. The passage above, quoted from an 1805 report on the Conservatoire, gives an excellent notion of the context in which the Lyon museum was created. The objective was very clearly to serve the industrial development of a city where the production of textiles in particular had been hit quite hard by the revolutionary years. The gist of the project was to centralise in one site all the 'useful' resources of the arts and sciences in order to educate the gifted youth, with the intention that they would then support industrial development. The Conservatoire was going to be settled at the former convent of the Benedictines in Place des Terreaux, a central square of Lyon, in the heart of the city and its the political power, namely, just a street crossing away from the city hall. The former convent was usually referred to as "Palais Saint-Pierre". The Conservatoire was purposefully designed to host, in the very spacious premises of Palais Saint-Pierre, a complex of several institutions, including the Lyon board of trade, the Chamber of Commerce, and the

[30] Original text: "Avant que de donner le détail des autres travaux qu'il a été possible d'entreprendre, il est à propos de faire observer qu'à Lyon, l'Ecole de dessin ne saurait être assimilée, quant à son organisation, à aucune qui sont établies ailleurs. […] Dans cette ville toute manufacturière, et dont les produits industriels ont fait verser dans le sein de l'état, et pendant plusieurs siècles, les trésors de l'étranger, il est d'un stable intérêt de diriger l'influence des beaux-arts sur l'industrie commerciale, et de faire concourir les sciences au perfectionnement des produits de cette industrie. […]" ADR - 4T60, Regny, Director of the Conservatoire des Arts to the Préfet, 2e Jour Complémentaire XIII [19 September 1805].
[31] Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale*.
[32] Ibid., 32–39.
[33] Ibid., 178.

School of Arts.[34] The latter brought together several components: a free and public school of drawing, classes in chemistry and in physics, with the respective "laboratory" and "cabinet", a museum of arts, plaster casts, and antiques, a collection of looms[35] and a library. Amongst other components, the cabinet of natural history was aimed at serving the industrial development of the city.

b. Toulouse and the *École Spéciale des Arts et des Sciences*: compensating the wronged capital city of Languedoc

The naturalist Philippe Picot de Lapeyrouse was appointed mayor of Toulouse in 1800.[36] Using his position to stand for the development of science in his city, the argumentation he developed in his report on the creation of a southern *École Spéciale* around 1800 revolved around the significance of material and intellectual capital (collections and scholars), suggesting a local appropriation of the centralising discourse of regional development

The essay *De l'établissement des écoles spéciales dans le Midy et en particulier dans le département de la Haute-Garonne* accounts for the merits of the city of Toulouse in being granted the right to open an *École Spéciale*, thought to replace the all too revolutionary *École centrales* founded in 1795.[37] The argumentation developed by Lapeyrouse was not far from the rhetoric used by the local representatives in defending their respective cities as the future *chef-lieu de département* in 1789. Marie-Vic Ozouf-Marignier noted that during that time of parliamentary survey to choose the local seats of government, which Lapeyrouse must have witnessed or even participated in, the responses showed ambivalent tactics in order to legitimise the bourgeoisie's coveting of local territorial command. The portrait of provincial cities depicted in the responses to the survey was also ambivalent. The cities were on the one hand represented in an archaic manner, with long-standing traditions of arts and culture. On the other hand, responses noticeably played the opportunistic game of the Parliament by endorsing their views and arguing for the centrality of the city in the *département*, both in terms of geometry and influence[38]. Likewise, both traditionalist and modernist thoughts underpin Lapeyrouse's argumentation:

[34] AML - 465WP001, Rapport relatif à la vente projettée des boutiques de batimens de St Pierre et du Lycée (sic.), 1813.
[35] See ADR - 4T59, Règlement pour les établissements publics existant dans le bâtiment de St Pierre, 2 September 1813.
[36] AMT - 1D10, fo. 45, Copy of a consular decree for the nomination of the mayor of Toulouse, 5 Floréal VIII [25 April 1800].
[37] MNHN - Ms 1992, it. 537, De l'établissement des écoles spéciales dans le Midy et en particulier dans le département de la Haute-Garonne, par Philippe Picot Inspecteur des Mines de la République, [1800].
[38] Ozouf-Marignier, *La formation des départements: la représentation du territoire français à la fin du XVIII*e *siècle*, 195–289.

> "'A system for public instruction could only be placed next to a republican constitution: it needed her. But today it is she who demands that it gives irreplaceable support for her.' Dausson, *Rapport sur l'Instruction Publique du 27 vendémiaire an IV* [19 October 1795] It is to befriend the Republic to advocate for the sciences and the arts". [39]

Lapeyrouse's *Essay* opened with bold support for the central government and its policies, by quoting from official regulations and thereby endorsing the strong connection between educational policy and republicanism. In doing so, Lapeyrouse put his claims beyond dispute because in line with the official policy. Besides, this sort of endorsement also showed that despite distances and different perspectives, local and national authorities could handle a common language.

The text continued with a long and detailed description of the state of the artistic and scientific resources available in Nantes, in an attempt to prop up Toulouse's potential for hosting a new teaching institution. As it happened, the presentation of the resources insisted above all on names, and objects and instruments. Collections of paintings, statues, scientific instruments were envisaged altogether as a key resource for teaching, itself understood as being intrinsic to the scientific activities: there was no conception of a separation between research and teaching.[40] By all means, this antiquarian description of resources would cast light on a city which indeed seemed to have a thriving scientific community, crystallised around the observatory, the art museum and Lapeyrouse's work itself on natural history.

In addition to the city being adequately provided with the necessary resources, Lapeyrouse constructed his plea around two other arguments: a geographical argument, which induced a political one.

> "One must prefer the cities (*communes*) whom their topographical situations and the genius of their inhabitants divert from the hustle and bustle of the great commercial operations. The whirlwind of affairs overly weigh on the character, customs, and the dispositions of the minds of the youth and bring about trouble and unruliness unsuitable to silence and contemplation necessary to the high meditations. One must prefer those cities where the love of the arts and sciences has been naturalised; who at all times have cared specially for their progress, who have dedicated to them sanctuaries which time, envy and anarchy have respected.[...]
> Amongst all the great cities of the *Midi*, who shall all partake in the development of general prosperity with their own means, Toulouse is presenting to the nation, and to all *départements* surrounding her, the ancient and resplendent temple which she raised for the arts and sciences; situated under beautiful skies, above fertile soil and on the banksides of a great river and the Canal of the Two Seas, the urbanity of her inhabitants, their kind

[39] Original text: "Un système d'instruction publique ne pouvait se placer qu'à côté d'une constitution républicaine: il avait besoin d'elle. Mais aujourd'hui c'est à elle à son tour qui la réclame comme un appuy que rien ne peut suppléer. (…) C'est être ami de la République que de s'occuper du progrès et des arts." MNHN - Ms 1992, it. 537, op. cit.

[40] On the history of teaching science, see Bruno Belhoste, ed., *Les sciences dans l'enseignement secondaire français: textes officiels, 1789-1914* (Paris: Institut de recherche pédagogique Éd. Économica, 1995).

> ways, their occupations almost all agricultural or literary, their character, a natural effect of the climate and their position, which keeps them perhaps too far from a spirit of speculation and industry, which alone brings opulence to the great cities, have long attracted into Toulouse every one in the *Midi* who wished to brighten their spirit and gain deep and variegated knowledge in the sciences and the arts. It is the natural centre of numerous *départements*. She was named "Palladian" in the antiquity, we shall see whether she deserves it."[41]

The southern location of the city was thought to have innate qualities: good sun exposure making the area ideal for experimenting and developing acclimation of exotic botanical species. Lapeyrouse also attributed to the "*midi*" an enduring and even "natural" inclination towards the arts and the sciences, due to its connection with the ancient Roman civilisation, altogether coined in the expression "Palladian City".[42] This is yet another revolutionary trend in Lapeyrouse's writing, and even if the construction of the "*midi*" was seriously challenged by administrative territorialisation, it is still telling of the localist inclination of the author.

Lapeyrouse's considerations on the urban were also telling of how he drew from a geographical situation to build a political argument about the provinces. Strangely, he seemed to put in opposition the evil urbanity of the capital city, Paris, wrestling with issues of chaos and excess, and the good "urbanity" of Toulouse. In doing so, he promoted the southern former capital city of Languedoc as a provincial shelter for the sciences and for scholars, which precisely was thought to result from its distance from Paris. It was not yet patent, but despite the attempt to take advantage from the situation, the development of representations foreseeing a form of regionalim is palpable. And this is only made clearer by this political claim which appeared at a later point in the text: "Toulouse has lost it all during the Revolution. She is left with only her love of the Republic", which also conveys bitterness for the loss of the city

[41] Original text: "On doit préférer les communes que leur situation topographique et le génie de leurs habitants éloigne du fracas et de l'agitation des grandes opérations commerciales. Le mouvement de tourbillon des affaires influent trop sur le caractère, les mœurs, et la disposition de l'esprit des jeunes gens et y portent un trouble, une dissipation contraire au silence et au recueillement qu'exigent les hautes méditations. On doit surtout préférer celles dans lesquelles l'amour des arts et des sciences est naturalisé ; qui dans touts les tems se sont spécialement occupées de leurs progrès, qui leur avoient levé des sanctuaires, que le tems, l'envie et l'anarchie ont respecté.[…] Parmi toutes ses [celles du Midy] grandes communes, dont chacune doit concourir par des moyens propres à la prospérité générale, on voit Toulouse présenter à la nation, et à touts les Départements qui l'environnent l'antique et majestueux temple qu'elle a élevé aux arts et aux sciences ; située sous un beau ciel, dans un terroir fertile sur les rives d'un grand fleuve et du Canal des Deux Mers, l'urbanité de ses habitants, l'aménité de leurs mœurs, leurs occupations presque toutes agricoles ou littéraires, leur caractère, effet naturel du climat et de leur position, qui les éloigne trop sans doute de cet esprit de spéculation, et d'industrie, qui seul porte la vie et l'opulence dans les grandes cités avoient attiré de long tems à Toulouse tous ceux qui dans le Midy vouloient polir leur esprit et acquérir des connaissances profondes et variées dans les sciences et les arts. C'est le centre naturel d'un grand nombre de départements. L'antiquité lui avait donné la mention de palladienne, nous verrons si elle l'a mérité. (sic.)": MNHN – Ms 1992, it. 537, op. cit.

[42] Pierre-Yves Lacour, 'Les collections du Midi, une méridionalité en trompe l'œil', *Liame. Histoire et histoire de l'art des époques moderne et contemporaine de l'Europe méditerranéenne et de ses périphéries*, no. 26 (20 January 2016), https://doi.org/10.4000/liame.569.

university.[43] In other words, granting Toulouse with an *Ecole spéciale* would have been only fair, to compensate for the political and scientific losses inflicted by the reorganisation which narrowed the city's sphere of influence from *Province du Languedoc*, to the *Département de la Haute-Garonne*.

The nature of the relationship between the political claims and the scientific activities of Toulouse are shown in two ways. First, Lapeyrouse's plea underlined the absence of any significant administrative role, also magnified by the resentment over having lost two important institutions, the *Parlement du Languedoc* and the *Capitoulat*. His text uncovers his true hopes for the scientific and intellectual activity and material structures of Toulouse should contribute to the re-development of the city's symbolic authority and influence. Secondly, it does not seem too unreasonable to think that Lapeyrouse himself, a naturalist and a mayor, facilitated the development of such an argumentative construction. In the "Natural History" section of his report he put his own contributions to the fore, and one cannot help understanding, even if that appeared in a however long footnote, that he considered his work as a flagship leading Toulouse and its adjoined territory. Undoubtedly, he also used his assumed position of an established and distinguished scholar to sustain his views to the central government.

Elaborated in a context of particularly centralised governance, the notion of collection required some negotiation at the interface between the local and national representatives in order to come to some reality. The development of institutions of public instruction, because of the process of authorisation and negotiation with the higher tiers of government, were an instrument of domination, not solely in social, but especially territorially terms.[44] Perhaps paradoxically, this led the local notabilities to sharpen the structure of their argumentation, laying the basis of a regionalist discourse.[45]

C. Localisation of collections: the transfer to the municipality

The opening years of the nineteenth century saw not only the questioning of the *école centrales* and their afferent natural history collections; they also witnessed the passing of the responsibility for the existing collections from the departmental authority (upon which the *écoles* depended) to the municipality. The municipalisation

[43] Original text: "*[Toulouse] a tout perdu à la Révolution. Il ne lui reste que son amour de la République*" in MNHN - Ms 1992 it. 537, *op. cit.* Like Caroline Barerra showed, Toulouse did not only lose its political rule over Languedoc, but also its university and its school of medicine which was compensated for by the Society of Medicine who offered classes. Barrera, 'Les sociétés savantes et les facultés toulousaines (1797-1870)', 490.
[44] Bennett, *The birth of the museum*, 36.
[45] Pétré-Grenouilleau, *Nos petites patries: identités régionales et État central, en France, des origines à nos jours*.

of the collections changed their perspectives and separated them from a national scheme to embed them in a frame of reference which was essentially local.

The Conservatoire des Arts had been organised initially at the level of the communal authorities who coined its name and then applied for the support of the prefect so as to obtain the "sanction" of the government. The museum of arts had already been acknowledged by 1801, leaving the natural history collection in some administrative interstices. The objective of the compound site was to sweep up all the scattered resources deposited across the city into one building: the Palais Saint-Pierre, which was granted official recognition with the transfer of property of the Palais from state to *commune* in 1802.[46] Resulting from the policy of concentration of means to encourage the industry, the natural history cabinet, still in the charge of Gilibert who had been maintained in his position, was given a stable place in the municipal affairs.

While a fairly smooth operation when the municipal authorities quickly saw their own interest in it, in Nantes it triggered a long-lasting conflict.[47] The natural history museum, inaugurated in 1806, was passed onto the municipality in 1812 when the prefectoral authorities decided to dismissively hand over the collection. The two administrations kept shifting the blame onto each other. An interesting aspect of the Nantes museum was precisely that the municipality was forced into the management of a collection which it did not see itself capable, financially, of supporting: rather than intentionality, this example showed reluctance in keeping a natural history museum.

Back in Toulouse, the *École Spéciale*, supported by Lapeyrouse and opened in 1805, depended upon the municipality which was thereby in charge of the botanical garden and the scientific collections which were grouped together with the teaching institution.[48] A complex and long conflict opposing the municipal plans to obtain uncontested property of the former buildings of the Discalced Carmelites impaired the museum project from the start.[49] The scientific material escaped the hold of the municipality when the *École Spéciale* was transformed into a Faculty of Science in 1809.[50] The transformation was made upon the demand of the municipality, supported by the claim that the City of Toulouse deserved it by rank among the cities

[46] AML - 77WP001, Minutes of the session of 27 Prairial an XI [16 June 1803]; AD69 - 4T59, Copy of a Consuls' decree, 23 Germinal X [13 April 1802].
[47] This example is developed in Chapter 2, 1, C, a. The unwanted museum, p. 136.
[48] AMT - 1L17, Budget 1806. The municipal authorities wished for continuity while awaiting the organisation of the university and opted for the creation of an "École Spéciale communale". AN - F17 1947, folder 1817, *Copie des renseignemens fournis par MM. les membres de la commission d'instruction publique. Observation de MM. les Professeurs de la facultés des Sciecnes de Toulouse*, 15 June 1817.
[49] Vergne, Le Jardin des Plantes de Toulouse, 17–55; 61–62.
[50] ADHG - 5T1, 19 November 1816, 9 May 1817.

of France.[51] This was of course a way to operate a transfer of responsibility onto the university, namely an opportunity for Toulouse to lighten the burden of the expenses in science and education which they had already protested against.

The institutional framework was however far from clearly delineated and the management of the educational and scientific facilities of Toulouse was shared between the municipal instances, together with the Académie des Sciences and the Faculty of Science. Because the decree transferring responsibility to the University was only issued a couple of years after the transformation of the *École* into a Faculty, the treatment of the faculty professors still appeared in the municipal budget of 1811.[52] Nevertheless, the municipality remained in charge of the building of the Collège Royal, where the Faculty had been accommodated. The municipal council ruled mainly over matters of urbanism, and as custodian of the buildings in the public domain, the matter of natural history collections emerged occasionally. The Lapeyrouse collection, for instance, was housed at the Collège Royal, following the decision and intervention of the City's Architect, Virebent.[53] Hosted in municipal premises, the objects themselves were the property of the Faculty of Sciences.[54]

What may appear as a jumbled administrative situation should be read otherwise: the context of the first decades of the nineteenth century was more flexible in the capacity it allowed for local political and scientific institutions to manage issues. The observation that Toulouse had no proper collection to teach mineralogy, however useful to the garrisons positioned in the city, had been made several times. [55] The solution lay in sharing the responsibility between municipality, faculty and academy. By all means, the resulting distribution of responsibility in managing the natural history collection, by entrusting professors with a collection which was already a

[51] AN - F^{17}1947, folder 1817, Copie des renseignemens fournis par MM. les membres de la commission d'instruction publique. Observation de MM. les Professeurs de la facultés des Sciecnes de Toulouse, 15 June 1817.

[52] ADHG - 1L17, Dépenses ordinaires - Etat Récapitulatif des mandats et état des sommes payées à Divers pendant l'exercice 1811 pour Instruction Publique. The decree which transfered the financial responsibility of the faculty to the national University was issued in 1812: AN - F^{17}1947, folder 1817, Copie des renseignemens fournis par MM. les membres de la commission d'instruction publique. Observation de MM. les Professeurs de la facultés des Sciences de Toulouse, 15 June 1817.

[53] AMT - 7D69, Report of Virebent, Head Architect of Toulouse, 3 July 1823.
Another location was alluded to in 1824. The Facuty of Science, which had long complained about the absence of a collection to support a course in mineralogy, see ADHG - 1L18, *Budget ou état des recettes et dépenses de la ville de Toulouse pour 1825*.

[54] This point still requires clarification as sources can be contradictory: some designated the Académie des Sciences as owner (see AMT - 7D69, ibid., 3 July 1823); a letter of Isidore Picot Lapeyrouse dated from 1819 mentioned explicitly the Faculty as targeted buyer in AN - F^{17}1947, folder 1819, Isidore Picot de Lapeyrouse to the Ministry of the Interior, 11 May 1819.
The municipality acquired the books of Lapeyrouse; AMT - 1D38, *Délibérations du conseil municipal. 3 mars 1821 - 29 décembre 1823*, p. 391.

[55] AN - F^{17}1947, folder 1817, the Rector of the Toulouse *Académie* to the President of the Committee on Public Instruction, 8 September 1817. A precedent was this address to the mayor: AMT - 3D132, Isidore Picot de Lapeyrouse to the Mayor of Toulouse, 18 October 1816.

fragment of the Lapeyrouse cabinet, missed an important point: a natural history collection required maintenance and curation. Without it, it was bound to just gather dust in a back-roomed cabinet.[56]

'*Musée*' or '*Muséum d'Histoire Naturelle*', '*Cabinet d'Histoire Naturelle*', '*Gallerie d'Histoire Naturelle*', '*Palais des Arts*' or even '*Galerie Ethnographie*' were all names designating a place hosting and displaying, sometimes amongst other things or collections, natural objects. The names would vary from one city to another and would even be unstable within one city. Behind the differences, however, a certain number of common trends were identifiable. The fluidity of the model of municipal museum resulted from the sudden disengagement of the central state and the ad hoc, sometimes creative, sense of adaptation of a nationally intended framework to the local situation. The response, however, outstripped the mere appropriation of national regulations: openings of museums often preceded national legislation, and since the case of natural history was never clearly ruled over, those collections conveniently remained in a useful form of oblivion. The soil of provincial cities could use this opportunity to grow its own local programme regarding natural history.

2. LOCAL COLLECTIONS AND COLLECTIVE MUSEUM

The opening of municipal museums of natural history took different institutional paths in Lyon, Nantes and Toulouse, and conveyed variegated objectives. In each city, a fabric of collections in the city and around pre-existed them. Often is the discourse reduced to a tale of vandalism of *émigrés*' property turned into museums, particularly emphatic about artistic heritage.[57] The question of the re-use, however relative, of 'old' collections into a public museum highlights two points. The first is to further show how the local institutions did not just apply a centrally decided programme but responded to a favourable opportunity. Second, this was made

[56] "Le cabinet de minéralogie laissé par Monsieur de Lapeyrouse appartient à la Faculté des Sciences ; mais cette magnifique collection est absolument lettre close, série d'hiéroglyphes, même pour les savants Toulousains ; et je crois être le seul qui ait depuis deux années passé la porte du sanctuaire où ces objets mystérieux sont renfermés.", AN - F17 1948 - Thuillier, Recteur de l'Académie de Toulouse to the Minister of Public Instruction, 20 July 1838.

[57] Dominique Poulot's lifelong work, notably, has contributed to challenge and deconstruct this view. See especially Poulot, *Surveiller et s'instruire: la Révolution française et l'intelligence de l'héritage historique*; *Musée, nation, patrimoine*; *Une histoire des musées de France: XVIIIe-XXe siècle*.

possible by the existence of a strong armature of savants, collections and knowledge outside of Paris and inherited from the Republic of Letters.[58]

A. Confiscated nature: a symbolic importance in the history of the museum

It is a particularity of the French history of collections that confiscation is considered the primary way of collecting for public museums. This has inscribed the museum collection into an original wickedness and has been the source of a complex competition between partisan memories of the French Revolution in the course of the nineteenth century.[59] The process of confiscation was itself both very random and very precise in its targeting. Etienne Geoffroy Saint-Hilaire knew very well what pieces he was looking for at the Royal Gabinet da Ajunda when he was dispatched to Lisbon in 1808 to seize useful specimens.[60] The justification for confiscations was sustained especially by a martial discourse paralleling the confiscation to duly acquired tribute copied from the ancient Romans. But the process was not entirely deprived of scientific significance, as physiocratic and pedagogical notions also provided a rationale for the confiscations.[61] The tours of the naturalist commissioners to conquered areas of Europe were even understood as naturalist voyages, and as such are not necessarily to be understood as the application of administrative and political agendas, as they were in fact sustained by scientific caution and practice.[62]

If the input of confiscation into the constitution of natural collections was essential, as demonstrated in great detail by Pierre-Yves Lacour about the Muséum National d'Histoire Naturelle in Paris, the impact of confiscation in the provinces was perhaps less systematic, and by all means of narrower range.[63] With over six acknowledged natural history cabinets in the city, Nantes stood as an important place of natural knowledge on the eve of the French Revolution.[64] This, Lacour explained, was largely related to the presence of the city's maritime port, an asset for collecting

[58] Roche, *Le siècle des lumières en province*; 'Natural History in the Academies', in *Cultures of Natural History*, ed. Nicholas Jardine, James A. Secord, and Emma C. Spary (Cambridge: Cambridge University Press, 1996), 127–44.
[59] Poulot, *Surveiller et s'instruire: la Révolution française et l'intelligence de l'héritage historique*.
[60] Filipa Lowndes Vicente, 'Travelling Objects: The Story of Two Natural History Collections in the Nineteenth Century', *Portuguese Studies* 19 (2003): 19–37.
[61] Pierre-Yves Lacour, 'Les amours de Mars et Flore aux cabinets. Les confiscations naturalistes en Europe Septentrionale 1794-1795', *Annales historiques de la Révolution française* n° 358, no. 4 (2010): 71–92.
[62] Pierre-Yves Lacour, 'Les Commissions pour la recherche des objets d'arts et de sciences en Belgique, Allemagne, Hollande et Italie, 1794-1797: des voyages naturalistes?', in *Voyager en Europe, de Humboldt à Stendhal: contraintes nationales et tentations cosmopolites, 1790-1840*, ed. Nicolas Bourguinat and Sylvain Venayre (Paris: Nouveau Monde éditions, 2007), 21–39.
[63] Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*.
[64] The Nantes situation has been thoroughly re-examined by Pierre-Yves Lacour. See Ibid., 403–12.

rare fish and exotica.[65] From the six extant cabinets, one was confiscated in 1792: the Le Bouvier-Desmortiers cabinet. The confiscation was however temporary, and it was restored in 1798 before eventually being acquired by the departmental authorities in 1802. All other cabinets inventoried by Lacour, namely the cabinets of Deloynes, Blanchard de la Musse, Dutertre, Goullin de Bourgneuf and Veuve Kérambart de la Pommeraye were absorbed by the Buron cabinet before 1800.[66] Buron's collection was kept by his friend François Dubuisson. The latter maintained some level of confusion, perhaps on purpose, about the ownership of the collection: his catalogue of the Dubuisson collection was indeed Buron's.[67]

In Lyon, the collection of Soubry, property of the *émigré* Jacques Imbert-Colomès, was seized during the Revolution.[68] But this was just one collection among the genealogy of remarkable collections noted by Gilibert (and quoted at the beginning of the chapter). The collection of minerals and insects together with the herbarium of Claret de La Tourrette possibly just remained at the botanical garden which he had founded in Lyon, on the slopes of Fourvière.[69] The most antique piece of the museum's collection would certainly be Gaspard de Monconys'. A wealthy *Prévôt des Marchands*, the powerful officer at the head of the city's guilds, he was the owner of a rich cabinet of curiosity. The cabinet was later enriched by his brother Balthazar and passed through the possession of several heirs until it was eventually purchased, for the *naturalia*, by rich physician Jérôme-Jean Pestalozzi in ca. 1700. A physician at the Hôtel-Dieu like his father, and a member of the Académie des Sciences, Belles-Lettres et Arts of Lyon, Antoine-Joseph Pestalozzi inherited the collection and obtained a life rent from the municipality in exchange for its ownership, as well as that it be deposited with the Académie, in rooms located in the city hall, in Place des Terreaux.[70] From these "early" collections, almost everything was lost. Some pieces were still in the possession of the Lyon museum towards the middle of the nineteenth century and were attested to by engravings commissioned by Claude Jourdan, the museum director of this time. Regardless of their good conservation, the "old" collections have contributed to the generation of a discourse on the construction of the municipal

[65] Ibid., 403.
[66] See figure in ibid., 404.
[67] *Catalogue du Cabinet d'histoire naturelle de F.-R.-A. Dubuisson, contenant une collection de minéralogie, quadrupèdes mammifères et ovipares, serpents, ornithologie, conchyologie, crustacées, oursins, polypiers marins, ichthyologie, entomologie et divers ouvrages de l'art* (Nantes: Malassis, 1800); Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 406–7.
[68] Bruyzet de Manévieux, *Éloge de M. Soubry, Trésorier de France de la généralité de Lyon* (Chambéry: n.d., 1775), 6, https://gallica.bnf.fr/ark:/12148/bpt6k5787728j.
[69] Dr. Antoine Mangin, *Claret de la Tourrette, sa vie, ses travaux, ses recherches, sur les lichens du Lyonnais, d'après ses ouvrages et les notes inédites de son herbier* (Paris ; Lyon: Baillère ; Georg, 1885).
[70] For an overview of the history of the collections, see Cédric Audibert, 'Le musée des Confluences, une histoire', in *Musée des confluences, une collection*, ed. Hélène Lafont-Couturier and Cédric Lesec (Arles: Actes sud, 2017), 294–303.

collections which is rooted in time and likes to emphasise the "early" taste for local science, like Antoine Mangin did about La Tourrette.

In Toulouse, the much acclaimed cabinet of Lapeyrouse, visited by Blainville or Charpentier among other famous visitors of the early nineteenth-century, was hardly foundational to the museum.[71] A plaque at the entrance of present-day Museum of Natural History, installed at the reopening of the museum in 2008, may pay tribute to the long passed-away naturalist and some historians may go back to Lapeyrouse for the origins of the museum, but there was no collection of natural history, private or institutional, in 1816, other than Lapeyrouse's and his disciple and friend Frizac.[72] A nobleman, Lapeyrouse never emigrated and consequently his collection was not confiscated. In addition, Lapeyrouse never showed any intention of giving away his collection for teaching.[73] However, the handover of some of Lapeyrouse's former collection objects, associated with a celebrated memory of his work and his knowledge of Pyrenees which gave it a territorial inscription, contributed to the slow elaboration of a museum which remained only imaginary for the community of Toulouse savants until 1865.

In Toulouse, the elusiveness of the project of a public natural history museum, shelved time and time again for later inspection, made the composite nature of the municipal collection particularly visible: the triggering contribution of the several donations, and especially Capitaine Rocquemaurel's was essential. And it was particularly true in a scientific environment which had grown around the celebrated past scientific glories of Toulouse, glories which highlighted, precisely, the absence of a collection which been turned into a genuine *topos*.

The presence of one or more collections of natural history in a city was not a condition for the realisation of a municipal natural history collection - or at least not in the short term. The examples developed above demonstrate, if anything, that when the break operated by the Revolution opened the gateway to institutional museum creation, there were visible marks of continuity: people, bodies of objects and knowledge predated the revolutionary moment; the municipality, in the case of Lyon, had already moved towards the setting up of a museum of their own. To a certain extent, the rupture was institutional: collections were tossed around different institutions. Part of the material remained, although often badly damaged by the breaks in maintenance and judgement over obsolescence, but the changing affiliation did also echo change in the destination of the collection. The sole material presence

[71] MNHN - MsBLA13, "Voyage dans le Midi de la France, 1828". See Chapter 4, 3, C. Making Toulouse the scientific centre of the Pyrenees, p. 296.
[72] AMT - 7T69.
[73] AN - F17 1947, folder 1819, Isidore Picot de Lapeyrouse to the Ministry of the Interior, 11 May 1819

of a collection did not generate a museum. But perhaps the matter can be examined otherwise: beyond the material, continuity was offered by the developed know-how of keeping and curating collections, which accompanied the development of specialised collections, increasingly in the charge of expert naturalists.[74] Dubuisson, for instance, illustrated very well this changing rationale behind the collection.

More than the opening the public of the collections, because their public/private nature was very difficult to delineate in contemporary terms, the major change lied in the institutionalisation of a collection, or in its perspective as in Toulouse. The collection of natural history served as a point of crystallisation of aspects of the local identity which materialised in the development of a municipal centre for the production of local knowledge. In turn, the keeping of a natural history museum also contributed to offering a space for the community to store the memory of their savants.

B. Donors of collections and the collective collection

The consolidation and growth of the museum as institution was not solely the product of administrative or municipal ruling, but also came from the continuous extension of the museum collections, fuelled by proposals, sales, purchases, donations. Hazards of archival classification have made it that the municipality of Toulouse saved all offers of acquisition of a collection in a folder named "collection".[75] The absence of a municipal natural history museum to acquire these collections is no paradox: precisely because there was no other institutionalised place to address the offers, the municipality, and the mayor as a matter of fact, became the recipient and keeper of dozens of proposals. This group of documents is extremely interesting in the way it encapsulates a wide range of tensions at play in the process of acquisition, which of course was never simple and involved many material, financial, social and administrative issues. Collections were offered for sale or as a donation; they could be separate items or groups of thousand pieces; proposals might range from a roadmender which stood next to the donation of Louis-Napoléon Bonaparte. Beyond the apparent little coherence, I chose to study the group of documents as a whole because of the administrative coherence the clerks who saved them gave it: whatever they contained, those were proposals for adding to the collection of an imagined or foreseen museum. The file containing those documents was very likely to have been started when the municipal council approved the creation of a committee to examine

[74] Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 398–400.
[75] I hypothesise that the folder, recently refurbished, bears the original text markings. The service of the AMT could not confirm this hypothesis as the history of the folder was lost.

the project of the opening of a natural history cabinet in the city of Toulouse. The last pieces were added roughly at the time of the opening of the museum to the public in July 1865, in the last years of the 1860s.

a. Presentation of the sample

Under the umbrella name of "donors", which will be used essentially for convenience here, lay a wider range of profiles who had in common that they had made an offer to the municipality. The group of donors covered 29 individuals. Lapeyrouse, for whom the documents were retrieved in other sets of archives, is counted as one from the 29 cases. He constitutes an exception, but the addition of his collection could not be isolated from other contributions due to its retrospective and memorial significance in the history of the Toulouse collections.

All the collections were gathered by male collectors and most actors of the donations were men: women would appear mostly as orphaned or widowed, the daughter of Auguste de Labouïsse-Rochefort in 1865 or the wife of Jules Roussel in 1868.[76] The collectors, at the time of the proposal, were rarely youths: time and effort for collecting were to be counted in years, many letters insisted.[77] Five collectors were deceased at the moment of the donation; the rest of them was mostly middle-aged. One at least was a youngster: Louis de Blandinières, an Officer Aspirant at the École d'Hydrographie de Brest when he first sent a few specimens.

Also, the sample is revealing about the practices of collecting in the nineteenth century. They translate a prominent taste in collecting shells and birds and more generally, specimens of smaller sizes. Notably, the large specimens like mounts of mammals were offered as itemised objects, separate from a collection, like for instance Bories' gift to the city.[78]

In terms of social status, although the sample appears variegated, all donors have in common that they had the financial means or the practical opportunity to gather natural specimens. Two sets of donors appear: the professional naturalists and the military men. Lapeyrouse was a rentier and naturalist and had earned the position of professor of natural history first at the *école centrale* of Toulouse and then at the Faculty of Science. Verdot was a physician and professionally acquainted with naturalist collecting. Lefèvre was a preparator of natural specimens, Barthélémy a natural history museum director, Lartet a famed geologist. In addition to those who

[76] AMT - 3D132, H. de Labouïsse-Rochefort to the Mayor of Toulouse, 10 February 1865; ibid., Widow Roussel to the Mayor of Toulouse, 15 May 1868.
[77] Jeanbernat insisted his cabinet was the fruit of forty years of effort: AMT - 3D132, Jeanbernat to the Mayor of Toulouse, 4 May 1839; Bérenger explained his collection had been gathered through "many years" of work: ibid., Bérenger to the Mayor of Toulouse, 11 June 1859.
[78] AMT - 3D132, Bories to the Mayor of Toulouse, 7 September 1869.

earned a living from natural history, there would be lettered collectors acknowledged by their membership at local academies, such as Maureau in Rochefort, Béguillet in Toulouse, or Caraman, a traveller and member of the Société de Géographie in Paris.[79] Collecting nature was indeed marked by a growing professionalisation.[80] The second larger group was formed by the military men, most of them officers, but not exclusively. For Rocquemaurel, the catalogue of his donation of 1842 may as well have been a list-like map of his circulations and terrains of operations around the globe.[81] Being a veteran could be used as a guarantee for the seriousness of the proposal, as the case of Bérenger from Grasse showed.[82] Beyond these groups, some donors could be workers, usually in the public services, like Olive, a communal schoolteacher and clerk, or Voltaire-Lesbareilles, a roadworker. Respectively selling an entire collection and donating for free a piece possibly collected on a working site, the two men's motivations were certainly different, and despite common traits, the corpus of documents is also just a sum of individual trajectories which is unwieldy in the face of strict categorisation.

b. The nature of the proposal

The proposals were made in the form of a letter addressed to the mayor, which is unsurprising because there was no designated institution in Toulouse to manage matters of natural history cabinets, and furthermore, the museum, had it existed, would have been under municipal responsibility. The majority of the proposals concerned whole collections, some very important and expensive ones, like Jules Roussel's, which was estimated to be worth 50,000 francs in 1856 and even 100,000 francs in 1868 by the intermediary acting for Roussel's widow.[83] Most sellers or their intermediaries were willing to offer payment facilities and suggested payment by several yearly instalments. The offer of sale was quite evidently a commercial offer which the seller was willing to be successful in. Many offers insisted on the quality of the preparation (a guarantee of long-term investment) and the existence of a thorough catalogue or inventory of the objects (a guarantee of good classification and scientific value, but also of time saved for the organisation of the cabinet). Interestingly, the delineation between the private sale of a particular collection and the sale proposal

[79] For the moment, the relation of Thomas-Comnène de Caraman to Toulouse could not be elucidated, beyond his donations to the city. His family were perhaps landowners in the neighbouring *département* of Aude.
[80] Robert Fox and George Weisz, eds., *The Organization of Science and Technology in France, 1808-1914* (Cambridge; New York: Cambridge University Press, 1980), 9–13.
[81] AMT - 3D132, *Catalogue des objets d'histoire naturelle donnés à la ville de Toulouse par Mr de Roquemaurel* by Traverse, preparator of natural history at the Faculty of Sciences, 2 October 1842.
[82] AMT - 3D132, Bérenger to the Mayor of Toulouse, 11 June 1859; ibid. 21 January 1860.
[83] AMT - 3D132, Roussel to the Mayor of Toulouse, 30 May 1856; ibid., Intermediary of Widow Roussel, 6 May 1868.

made by a merchant naturalist was sometimes difficult to distinguish. The offer of Lefèvre from Paris, for instance, took the appearance of a handwritten note and insisted on the domestic locations of the goods on sale "collections which [were] at [his] place". But the note was printed and produced in series and the note suggested that beyond the existing objects, all preparations could be made on demand.[84] At the same time, the language used by sellers of collections, even if such was not their professional field, was hardly different from that of the merchants: Bérenger or Bellaire had a catalogue of their collections printed; Monsieur Flamant, who had inherited the Maureau cabinet, publicised the sale with a printed advertisement (see Figure 2).[85] If each of those prints were accompanied with a relatively personalised note, it shows also that in some cases the municipality of Toulouse was one possible client amongst others, and the collection sellers tried their luck everywhere they thought relevant. Understandably, the rumour of an opening municipal museum, since the setting up of a committee of that matter in 1836, did seem quite opportune to some donors.[86]

Much like Dubuisson had negotiated his collection against a position at the Nantes museum and a life rent, there were occurrences of donors not looking for forming a financial capital from the collection, but to find assurance they would have enough for subsistence in their older days. Seven donors or their heirs expressed clearly that they were encountering financial difficulty at the moment of the offer. In 1819, Isidore Lapeyrouse insisted he did not sell away his father's cabinet with a light heart but had to face the poor situation of affairs in which the family had been left.[87] Jeanbernat or Béguillet both claimed they needed to sell the collections they had fashioned themselves owing to bad circumstances, like retirement for Béguillet.[88] A couple of donors were, in contrast with the previous examples, of modest condition and used their collection as material capital to exchange for some guarantee of subsistence. Olive, in 1838, realised that his precarious situation as a schoolteacher, also given that the government would not offer teachers a retirement pension, was not sustainable and offered his collection in exchange for any position as a municipal

[84] AMT - 3D132, Lefèvre to the Mayor [print], 5 February 1838.
[85] AMT - 3D132, Ornithologie et zoologie. Cabinet d'histoire naturelle de M. Paul Bérenger, à Grasse, Membre de la Société Zoologique des Alpes, Naturaliste Préparateur, 1859; ibid., Collections conchyliologiques de Corse; Collections minéralogiques de Corse; Situation au 15 septembre 1858; ibid., M. [Rodantes?] to the Mayor of Toulouse, 12 September 1836.
[86] AMT - 1D43, p. 353, Deliberations of the municipal council of Toulouse, 11 January 1836.
[87] AN - F17 1947, Isidore Picot de Lapeyrouse to the Minister of Public Instruction, 11 May 1819.
[88] AMT - 3D132, Jeanbernat to the Mayor of Toulouse, 4 May 1839; ibid., Béguillet to the Mayor of Toulouse, 22 May 1839.

BELLE COLLECTION

DE COQUILLES ET DE MINÉRAUX,

A VENDRE.

Les amateurs de la Conchyologie n'apprendront pas sans une vive satisfaction que la collection de Coquilles formée par M. MAUREAU, ancien président du tribunal de Rochefort, va être mise en vente. Cette collection, fruit de quarante années de persévérance, est riche de 1,000 à 1,200 espèces, formant un total de plus de 3,000 coquilles, parmi lesquelles il en est de très-rares et de très-précieuses, soit par leur volume, soit par leur belle conservation. On y compte une douzaine de coquilles entièrement nouvelles pour la science, entre autres une espèce très-remarquable d'Ampullaires. Mais les genres où les espèces belles ou rares abondent, sont les Nautiles, les Volutes, les Cames, les Huîtres, les Solens, etc., etc.

Cette collection est d'autant plus curieuse, qu'elle forme un genre assez complet, et qu'elle est cataloguée par son ancien possesseur. Les espèces se font généralement remarquer par leur fraîcheur et par le bon état de leur conservation. Quelques unes possèdent un très-grand volume et manquent aux collections les plus famées de la Capitale.

Enfin les personnes qui sont jalouses de posséder les Tests dépouillés et polis avec le plus grand soin, trouveraient une nombreuse série préparée dans le goût hollandais et d'une manière supérieure.

Cette collection que l'on désire vendre *in globo*, serait parfaitement placée dans le musée d'une grande ville de province où elle pourrait servir comme objet de curiosité et d'instruction.

Aux coquilles est jointe une suite de Minéraux de choix. Les amateurs de minéralogie y trouveraient de magnifiques échantillons, ainsi que des Pétrifications et plusieurs objets curieux en histoire naturelle.

S'adresser à M. FLAMANT, Sous-Inspecteur de la Marine à Rochefort.

Rochefort, Imprimerie de FAYE FILS.

Figure 2 - Printed advertisement for the sale of the Maureau natural history cabinet, 1836. AMT.

agent.[89] So had Gélibert done in 1836: his terms were to exchange the collection for a life-long position as the keeper of the then municipal cabinet together with tied accommodation.[90] The army veteran Paul Bérenger negotiated along similar terms. After a first attempt in 1859, he tried his luck again the following year: [91]

> "I do regret that the municipality did not find itself in a position to accept the offer at the conditions I had made. A widower for two years, and father of a son enrolled at the Lycée of Toulouse whom my family must provide for, my financial means do not allow for me to move closer to him. I am offering for the second time, Monsieur le Mayor, my cabinet to the city. I am asking nothing in exchange for this gift, except a position as police officer. I am a veteran from Africa, I hold an excellent certificate, I am familiar with the arts of repression, in good health and active. I believe you shall find this new proposition more at your convenience."[92]

[89] AMT - 3D132, Olive to the Mayor of Toulouse, 15 February 1838.
[90] AMT - 3D132, Gélibert to the Mayor of Toulouse, 10 August 1836.
[91] AMT - 3D132, Bérenger to the Mayor of Toulouse, 11 June 1859.
[92] Original text: "Je regrette beaucoup que la ville ne se soit pas trouvée en position [d'accepter l'offre] aux conditions que je vous avais proposé. Veuf depuis deux ans et ayant un fils au Lycée de Toulouse à la charge de ma famille, mes moyens ne me permettent pas de me rapprocher de lui. Je viens offrir une deuxième fois, Monsieur le Maire, mon Cabinet à la ville. Je ne vous demande rien pour ce don, si ce n'est un emploi d'agent de police. Je suis un ancien militaire d'Afrique, porteur d'un excellent certificat, habitué à la rédaction des arts

In a context of questioning of customary solidarities and yet poor state-offered social protection, the possession of a natural history collection served as an asset to be exchanged for life-ensuring conditions. Interestingly too, what made the municipality a particularly attractive buyer, did not play at the level of natural history or science. Rather the municipality appeared as a trusted partner, which offered terms of transaction which could be profitable.

c. Donating for free? Afterlife strategies and civic pride

Collections, when understood as objects of the social, materialise a multiplicity of social relations and representations, also leading us to consider how the collector, especially of natural history, would in fact control knowledge. The group of donors to the museum were, Alberti noted, a portion of a civic elite which retained control of collections and museums throughout the nineteenth century. They were "an emerging bourgeoisie, consolidating their authority in the expanding urban provinces, who displayed natural history collections as emblems of their cultural erudition alongside art galleries, libraries and gardens".[93] And finally, like we will see below, collecting and giving was entirely part of "manifestations of civic pride, evidence of the sophistication of one town in contrast to its neighbours, the capital and the wider empire".[94] This sense of civic pride can be traced in many occasions, in the process of building a collective, rather than public, scientific space under the patronage of a handful of donors.[95]

Most of the offers were made for collections located in meridional cities. Considering matters of transportation, an expensive collateral cost could easily add to the transaction. Bories for instance waited to be on leave in Toulouse to bring his gift of two "*varants (sic.) des sables*", an undetermined species of lizard.[96] But the southern tropism may also be explained to a sense of attachment to the region. Seven offers were made of collections in Toulouse, three from neighbouring *départements* (Olive from Verdun, Labouïsse-Rochefort from Castelnaudary, Gélibert from Bagnères-de-Bigorre) or the South-West (Voltaire-Lesbareilles in Narbonne, Roussel in Bordeaux).

The personal relationships of donors to Toulouse were, however, important. Lartet, born in the southwestern *département* of Gers, a student in Toulouse before he moved to Paris, made his offer through a discursive strategy developed to convince

de répression, jouissant d'une bonne santé et actif. Je pense que ma nouvelle proposition pourra mieux être à votre convenance.": AMT - 3D132, ibid., 21 January 1860.

[93] Alberti, 'Placing Nature', 214.

[94] Ibid., 292.

[95] Van Damme, 'La grandeur d'Édimbourg', 159–60.

[96] The description of genus *varanus* dates back to 1820, but *varanus panoptes* ("Monitor lizard" or "Varan des sables" in French) was described in 1980 by G. M. Storr.

the municipality that to purchase the fossiliferous land of Sansan would be to emphasise the city as holding priority "by the right of nature because [the fossils] were found on our meridional grounds".[97] Besides, several offers were made by individuals who had left Toulouse but wished to pay tribute to their "native city": Bories, a Maréchal des Logis positioned in Sétif; Blandinières, a Navy Officer in Brest or Gorée or on a ship and Lartigue in Paris. For Lafond de Villiers and Sainte-Vallière, both donors of a small group of birds, or Thomas Comnène de Caraman, a traveller positioned in Indochina who offered to supply the museum, did a personal relationship to Toulouse appear so obvious that it failed to be expressed in explicit terms? They were all army officers, travellers who occasionally offered a small group of specimens, with the exception of Rocquemaurel with his two donations of hundreds of pieces. Sometimes expressed clearly, donors wished to serve the place where they were born, through donations for which they wished nothing in return.

Collecting and donating were not gratuitous, and were practical gestures inscribed in an economy of possession, gift and self-fashioning. Beyond the generous gesture of giving away one or more natural objects lay a strategy of personal remembrance, albeit unspoken. Collecting participated in the construction of charisma and self-fashioning.[98] The identification of the collector with the collection was strong, and voiced in how the collection had accompanied them through their life: Jeanbernat in 1839 insisted on how the collection had cost him "forty years of expenses and research"; Terraillon in 1842 wished to not disperse his father's cabinet to honour the memory of his life's work. [99] This identification was especially noted by Alberti for museum curators who used plenty of possessives to refer to 'their' collections.[100] More generally, it is widely accepted now that a collection was an extended self of the collector.[101]

A fondness for his native city was particularly clear in the intentions described by Gaston Rocquemaurel, and the whole, substantial and free donation translated a high level of commitment.

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[97] AMT - 3D132, Rapport sur les découvertes paléontologiques faites dans le département du Gers par M. Édouard Lartet, by Joly professor at the Faculty of Sciences, 25 August 1845.

[98] The following publications have been particularly useful in framing the persona of the collector: Krzysztof Pomian, *Collectionneurs, amateurs et curieux: Paris, Venise, XVIe-XVIIIe siècle* (Paris: Gallimard, 1987); Mary P. Winsor, *Reading the Shape of Nature: Comparative Zoology at the Agassiz Museum* (Chicago: University of Chicago Press, 1991); Wendy M. K. Shaw, *Possessors and Possessed: Museums, Archaeology, and the Visualization of History in the Late Ottoman Empire* (Berkeley: University of California Press, 2003); Eva Rovers, 'Introduction: The Art Collector, between Philanthropy and Self-Glorification', *Journal of the History of Collections* 21, no. 2 (2009): 157–61, https://doi.org/10.1093/jhc/fhp014; Ting Chang, *Travel, Collecting, and Museums of Asian Art in Nineteenth-Century Paris*, The Histories of Material Culture and Collecting, 1700-1950 (Burlington: Ashgate, 2013).

[99] AMT - 3D132, Jeanbernat to the Mayor of Toulouse, 4 May 1839; ibid., Terraillon to the Mayor of Toulouse, 13 February 1842.

[100] Alberti, 'The Status of Museums: Authority, Identity and Material Culture', 63.

[101] Russell W. Belk, 'Possessions and the Extended Self', *Journal of Consumer Research* 15, no. 2 (1988): 139–168.

> "The collection I am honoured to give to the city is destined to supply new means of instruction for the clever youth of this province".[102]
> "I desire fondly that my little collection may serve as a means for the Toulouse youth to engage in the study of the natural sciences now cultivated everywhere across Europe … and even in the most faraway points of the world. Calcutta, Batavia, Sydney, Manilla … already have their own cabinet of natural history. This vast science which embraces altogether the mineral productions composing the Earth's crust and the whole of the beings living above its surface, cannot reach perfection without the enlightened scrutiny of the largest group of observers scattered in all points of the globe. Public collections are very profitable to science, not only because they are used for the classification and conservation of the samples of minerals and the remains of the organised beings, but also because they contribute to the development, for individuals, of a force of observation and investigation for the infinite extension of the range of discoveries."[103]

In those two excerpts, Rocquemaurel hinted at his intended programme: having noticed that the bare absence of a cabinet of natural history was damaging both the youth of Toulouse and the city and influence of Toulouse, his proposal was to supply the material to trigger scientific engagement. Although implicit in his polite address to the Toulouse administration, the argumentation noted that Toulouse was losing its rank in a shrewd analysis of how scientific emulation was designing world hierarchies and how Toulouse needed to play a part. A witness to this globalising competition owing to his own experience of seeing it change scale in the course of his voyages across the seas, Rocquemaurel's observation of how cabinets were opened in the most remote places of the world was irrefutable and decidedly destined to alarm the Toulouse authorities. He had no exigency in counterpart for his donation, but Rocquemaurel felt a responsibility in fashioning the influence of a city whose importance he identified with.

The life of Rocquemaurel may help to understand his gesture, which can be situated in a personal history of detachment. He was described as a man who was left an orphan at a young age, lived a precarious life with his mother until he received protection from his powerful uncle, Casimir de Marcassus Baron de Puymaurin, a powerful landowner, the Director of the Royal Mint of Paris since 1816, a man with

[102] Original text: "La collection que j'ai l'honneur d'offrir à la ville Est destinée à fournir de nouveaux moyens d'instruction à la jeunesse si intelligente de ces contrées. Elle lui rendra plus facile l'Etude des Sciences naturelles Et Ethnographiques dont les descriptions techniques ne peuvent se passer de ce concours."AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 3 June 1854.

[103] Original text: "Je désire infiniment que ma petite collection puisse servir de moyen pour un cabinet où la jeunesse de Toulouse pourrait se livrer à l'étude des sciences naturelles qui sont cultivées aujourd'huy dans toute l'Europe … même sur quelques uns des points les plus lointains du Globe. Calcutta, Batavia, Sydney, Manille … ont déjà leur cabinet d'histoire naturelle. Cette vaste science qui embrasse à la fois les productions minérales qui composent l'Ecorce du Globe et l'Ensemble des Etres qui vivent à sa surface, ne peut atteindre sa perfection, que par le concours Eclairé d'un grand nombre d'observateurs répartis en tous les points de la terre. Les collections publiques sont très profitables à la science, non seulement parce qu'elles servent à Classer Et Conserver les Echantillons des minéraux ou les dépouilles des êtres organisés, mais Encore parce qu'elle développent chez les individus cet Esprit d'observation et d'investigation qui Etend indéfiniment le champ des découvertes." AMT - 2R24, Rocquemaurel to the Mayor of Toulouse, 30 June 1854.

a strong inclination for the sciences and a member of the Académie in Toulouse. An alert and intelligent mind, Rocquemaurel was said to have always taken lots of books with him, in a constant endeavour to understand the world around him.[104] As a humble and selfless marine officer, he did not marry, nor did he have progeny. In 1841, upon the death of his uncle and protector, Rocquemaurel was left with no relatives or descendants he could be indebted to, and that was the moment he chose to make his first donation. The terms of the donation put the municipality under an obligation to accept it: because the donation was made well before his death and outside testamentary provisions, Toulouse was not charged with an expensive inheritance tax over it.[105]

[104] Comte de Toulouse-Lautrec, 'Éloge de M. de Rocquemaurel, prononcé en séance publique le 2 mars 1879', in *Recueil de l'Académie des Jeux-Floraux* (Toulouse: Douladoure, 1879), 3–43, https://gallica.bnf.fr/ark:/12148/bpt6k415456n/f250.

[105] Rocquemaurel insisted that his gift was "*Parfaitement Gratuit*", in a letter where he capitalised the first letter of each word and underlined them. AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 31 March 1854.

THE ROCQUEMAUREL DONATION: A CHRONOLOGY

20 February 1841: Rocquemaurel donates his collection to the City of Toulouse

2 October 1842: An inventory of objects is conducted by Traverse, Préparateur at the Faculty of Science

Rocquemaurel had established the first version of the inventory himself

11 August 1849: The municipal council deliberated on the opening of a dedicated room within the Musée to host the Rocquemaurel collection. Also, the room should be named after the donator.

18 April 1849: A report was submitted by Prévost, the conservateur of the museum, on the possibility to have a room for the Rocquemaurel collection: he confirmed the room was appropriately lit, spacious and decorated to host the collection, and it did not require additional expenditures collection.

May 1850: Rocquemaurel increased his first donation by a dozen pieces.

28 June 1850: The conservateur du Mobilier du Capitole" acknowledged the reception of the additional series of objects.

City architect was required to assess the cost of the construction of new showcases (2,202.70 francs)

M. de Poumarac, a friend and Justice at the court of Toulouse, was chosen as an intermediary for the donation of the deers.

31 march 1854: Rocquemaurel offered to give two live deers for the botanical garden and announced a second donation, but he then required the city authorities to show their interest first to avoid the collection being set aside in an attic to deteriorate.

5 April 1854: donation of the two deers is submitted to the municipal council who accepted the donation and in turn informed Rocquemaurel that the gallery was being set up (an operation which had seemingly been delayed since the last deliberation)

7 April 1854: The mayor took personal action to enjoin the municipal architect to ensure that the new gallery hosting Rocquemaurel's collection would be ready by the upcoming time of his visit to Toulouse

8 April 1854: The mayor personally wrote to Rocquemaurel to give his word the collection would be appropriately exhibited in one of the rooms of the musée;

3 July 1854: The mayor immediately responded to Rocquemaurel's letter (dated 30 June 1854) to thank him on behalf of the municipality (without actually waiting for a municipal session to deliberate of that - the letter is read out during the following session).

7 July 1854: Deliberated on the name of the Gallery : "Galerie Rocquemaurel" (as opposed to "Galerie Océanique ou Orientale" suggested by Rocquemaurel;

In the course of year 1854, Rocquemaurel seemingly reiterated many times his wish for the gallery not to be named after him.

1857: Prévost was required to conduct the catalogue of the ethnographic gallery of the museum, i.e. the Roquemaurel collection.

23 February1865: Roquemaurel was asked if donated objects could be moved from "la petite galerie du Musée" to a new location inside the Faculty of Medicine where all the natural objects would be gathered from then on.

1865: The mayor required a report on the possibility to host the collection inside the new museum. A new showcase for the objects was projected.

The authorities could hardly refuse the gift. In fact, the city stood in his debt. The study of donations to museums and public collections has shown that the direction of the gift was not only unilateral. Samuel Alberti noted, for instance, that the "donation constituted a reciprocal relationship between benefactor and recipient", also referring to the paradox of 'keeping-while-giving'". The donation always existed in the hope of being an act which would remain visible in perpetuity and also, that it

would establish a lasting connection between the person and the object.[106] This clever arrangement certainly assured Rocquemaurel to entrust the city of Toulouse with the materiality of his bequest and the symbol of his memory. His continuous refusal of a gallery named after him, a wish which was denied to him, reveals the notion of a donor who trusted his memory to be incarnated in the sole presence of the objects he had gathered in the course of his voyages, and in his belief in their permanent display and existence, of which the museum was to be a guarantee.[107]

Looking at donors bartering their collections in exchange for payment or symbolic retribution emphasises the individual and proprietary relations entertained with them. Collections were closely interwoven with the temporalities of the lifetime of their owners, and therefore followed a rhythm which went beyond the sole satisfaction of possession.[108] The constitution of a collection could be associated with important steps in life, like loss and bereavement.[109]

Individual relationships with the collection could not be disassociated from the collective effort the donation of the collection projected them into: once the collection was detached from an individual biography it made sense in the collectiveness of collecting.[110] The ambition of participating in a collective scientific effort was also perceivable from Rocquemaurel's writings.

> "In order to complete such a vast enquiry, I would have required the contribution of several other travellers animated by a similar thought and pursuing a similar objective. But in my laborious career my time was often absorbed by other commitments and other duties, I could only glean a few specimens along the road, the whole of which already forms a good enough root for a collection. The numerous doubles it contains shall be used for the acquisition of new species with which the Gallery will enrich itself by virtue of an intelligent administration that is the friend of progress."[111]

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[106] On the link between benefactor and recipient, see Samuel J. M. M. Alberti, 'Objects and the Museum', *Isis* 96, no. 4 (2005): 564, https://doi.org/10.1086/498593. See also Annette B. Weiner, *Inalienable possessions: the paradox of keeping-while-giving* (Berkeley: University of California Press, 1992); Susan M. Pearce, *On Collecting: An Investigation Into Collecting in the European Tradition* (London ; New York: Routledge, 2013).

[107] AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 3 June 1854; ibid., Deliberation of the Municipal Council (copy), 7 July 1854. Agassiz had refused too, that his museum should be named after him, on the principle that individualities should be banished from science: Winsor, *Reading the Shape of Nature: Comparative Zoology at the Agassiz Museum*, 143.

[108] Esmée Quodbach, "'I Want This Collection to Be My Monument'", *Journal of the History of Collections* 21, no. 2 (2009): 237, https://doi.org/10.1093/jhc/fhp008; Susan Crane, *Collecting and Historical Consciousness in Early Nineteenth-Century Germany* (Ithaca: Cornell University Press, 2000), 63.

[109] It was particularly true for art collectors, but a similar pattern use to guide the life of Louis Agassiz and of his son especially. Winsor, *Reading the Shape of Nature: Comparative Zoology at the Agassiz Museum*, esp. xii; Crane, *Collecting and Historical Consciousness in Early Nineteenth-Century Germany*.

[110] Collecting was hardly a solitary activity, and studies of nineteenth-century European collections and collectionism have illuminated this: Crane, *Collecting and Historical Consciousness in Early Nineteenth-Century Germany*; Stammers, 'The Bric-a-Brac of the Old Regime: Collecting and Cultural History in Post-Revolutionary France'.

[111] "Pour remplir un cadre aussi vaste, il Eut fallu le concours de plusieurs voyageurs animés d'une même pensée et poursuivant [le même but]. Mais dans cette carrière laborieuse où mon temps Etait souvent absorbé par d'autres soins Et d'autres devoirs, Je ne pouvais que glaner sur le bord du chemin quelques specimens dont

The way Rocquemaurel foresaw the future of the collection was indeed by conceiving the collection as a hub for the development of further reticular exchanges.[112] Henceforth inserted in a system of collective effort, the individuality of the collection dissolved upon donation. Also anticipating an advisable increase of collections, using the provided doubles, Rocquemaurel manifested a tying trust in the proper future administration.[113] Not only a contractual dimension, Rocquemaurel's words translated his conception of a public institution and how it was thereafter tied to good scientific governance, as the founder and ruler of the future scientific instances represented by the institutionalised collection.

The group of donors and collectors of Toulouse, regardless of the fact that collections and objects were displayed or not at the museum show that the municipal museum had become a target: a target for sellers indeed, but above all a place of concentration of particular collections with new functions. Contrasting with individual cabinets, the museum collection was to become a place for the perpetuation of the memories of the collectors and the place of construction of a collective, local memory. The infinite permanence of their memories was materially inscribed in the museum collection, by means of the intercession of collection objects well across generations.[114]

d. The mechanism of reception and the protagonists

In general, the reception of a large collection happened less than once a year.[115] In Toulouse, the announcement of the creation of a new museum in around 1830 started a movement of proposals which later stalled before it resumed at the moment of the inauguration of the Rocquemaurel Gallery in the 1850s and the opening of the actual museum in 1865.[116] Most offers were declined if they were not expense-free.

The protagonists were usually the same, and they were more or less numerous, according to the value and level of possible expenditure or else the authority of the collector. In Nantes and Toulouse, which will be compared here, the situations regarding the establishment of the natural history museum and the ensuing documentation were different. The sampled donations of Toulouse have been

l'ensemble forme déjà un assez bon noyau de collection. les doubles, nombreux, qu'elle présente serviront d'ailleurs à l'acquisition des Espèces nouvelles dont la Galerie ne tardera pas à s'enrichir sous une administration intelligente et amie du progrès." AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 3 June 1854.

[112] On commodification see Pomian, *Collectionneurs, amateurs et curieux*; Arjun Appadurai, *The Social Life of Things: Commodities in Cultural Perspective* (Cambridge: Cambridge University Press, 2003).

[113] On the leitmotiv of increasing collections, see Alberti, 'The Status of Museums: Authority, Identity and Material Culture', 60.

[114] Objects can be seen as intercessory devices in how they can be turned, once collected, into relics connecting the living or the dead and more generally as a way to 'manage the social surplus', Pearce claimed. See Pearce, *Museums, Objects, and Collections: A Cultural Study*, 91.

[115] For an exhaustive presentation of the donations see Appendix F: Donors of collections in Toulouse, 1819-1868, p. 437.

[116] AMT - 3D132, [Sales and donations of collections], 1833-1865.

presented above. In the case of Nantes, three cases are well documented for 1800-1860, which corresponded to three important contributions to the museum collection, or the construction of its memory. Namely, those are the Buron collection offered for sale in 1806, the Pesneau collection bequeathed in 1843 and finally the Bertrand-Geslin bequest in 1863. They were acquisitions which were accepted. While Nantes, unlike Toulouse, had seen the opening of a natural history museum in 1810, it was still faced with problems of storage due to an inappropriate locale, which until the mid-1860s had been an ongoing issue against which first Dubuisson and then Cailliaud had fought.

The process of reception of an offer of donation usually saw the interaction of more or less numerous individuals who had a special interest in the matter. The role of the mayor was central, and a lot of the actors involved in the decision-making process and the reception of the donation were related to him by means of the hierarchy: such was the reason for the involvement of the *Conservateur du Capitole*, the director of the Musée in Toulouse, or the Head Architect from whom a plan of the works was requested.[117] Unrelated to the mayor was the opposite party: family members, intermediaries or third party persons whose expertise was necessary for the assessment of the value of the collection, financial and/or scientific.[118]

Above the mayor was the prefect and the prefectoral council or *Conseil Général*. They would interfere in the process at the stage of funding: the mayor always needed to refer to that higher tier to unlock the treasury. Therefore, the prefect intervened towards the end of the process, and left the mayor in charge for most of the steps of the acquisition of the collection, during which the mayor could also turn to him to request clarification over regulations.[119] In Toulouse, the process never went as far as involving the prefect: the mayor never had to turn to him because a collection was never acquired thus debiting from public funds before 1865. On one occasion though, the Prefect of Haute-Garonne served as an intermediary and supported the sale of a Corsican collector, because he himself been solicited horizontally by a fellow prefect

[117] AMT - 3D132, Prévost, Conservateur of the Musée, to the Mayor of Toulouse, 14 April 1857. ADHG - 7T4, Projet de vitrine à établir dans l'une des galeries du Musée pour renfermer les collections que M. de Rocquemaurel a offert à la ville, by the Public Architect, 14 August 1854. See Figure 3 and Figure 4. AMT - 2R25, *Inventaire des objets donnés par M. de Rocquemaurel avant son départ (Mars 1850)*, 28 June 1850: the copy of the inventory and the objects were thereafter given to the *conservateur* of the Capitole.

[118] See Appendix F: Donors of collections in Toulouse, 1819-1868 for examples of intermediaries of family members. The Académie des Sciences had been asked to make an estimation for the collection of Mademoiselle de Labouïsse-Rochefort: AMT - 3D132, Filhol to the Mayor of Toulouse, 7 May 1865.

[119] AMN - 2R566, Folder 'Collection Buron'.

of Corsica.[120] But he knew already the sale was not going to raise the municipality's interest, which is attested by a short note he left in the margin of the received letter.[121]

It is difficult to assess the role of the municipal council. Deliberations are rarely long-winded, and the minutes did not necessarily note the rough patches of the discussion. Somehow, the council seems to have proceeded with what was decided outside of it and submitted to it. But it did however have to organise a vote of approval, which still granted the council with some latitude and a say. The council was a necessary step to summon a committee to give further clarification about a topic, like for instance the committee in charge of studying the possibility of establishing a cabinet of natural history in 1836 in Toulouse. Collection sale proposals were often passed on to the committee. A quick look at the composition of a municipal council, for those available, shows that, especially in Nantes, the primary category of a councillor were merchants or landowners. The situation has not been clarified in Toulouse, but there seems to have been a similar pattern of a bourgeoisie dominating the municipal institutions. Therefore, under the mayor's guidance, the council would summon the appropriate committees, when necessary, to provide reports in order to make decisions.[122]

An intermediary type of actor was precisely the committees. Their work was framed by temporary demands, yet their work belongs, in the longer term, to general questions of public instruction or the supervision ("*surveillance*") of the museum. They would provide expert knowledge and assessment on a given matter. The Buron collection in Nantes, for instance, was scrutinised by a special committee, specially summoned by the municipal council to provide an estimate of its value, as the collection was being sold. In that case, the committee was composed of Richard, a physician, Athénas, *directeur de la monnaie*, Dubuisson, then a chemist, and Lemeignen, a natural history professor, representing respectively the interests of the municipality, the prefect, the vendor and a third party. It is interesting that the figure representing the upright and neutral citizen should be the naturalist. Other than that, one can see here how the work of expertise, conducted in 1806 in Nantes relied also on representing the interest of the different parties - the interest of the city, not the mayor. In 1847, the role of the committee in the case of the Pesneau bequest was different. The mayor then sent for a report in order to word a reply to Cailliaud, then director

[120] The Prefect of Haute-Garonne circulated documents received from his Corsican counterpart to the Toulouse municipality: AMT - 3D132, the Prefect of Haute-Garonne to the Mayor of Toulouse, 22 October 1833.

[121] AMT - 3D132, Bellaire to the Prefect of Haute-Garonne, 12 October 1832.

[122] A proper general study of the mechanisms of the 1815-1848 institutions, especially municipal, is lacking to us and particularly for urban centres, as the countryside has paradoxically been studied in greater depth. See Chapter 2, 1., A. The omnipresent figure of the mayor.

of the Nantes museum. Cailliaud wished to go against Pesneau's will by restraining from separating the collection of objects from the book collection (at least those related to science), arguing that it made more scientific sense to keep them together.[123] The Committee for public instruction which was trusted with this duty decided against Cailliaud's suggestion. They acknowledged the validity of Cailliaud's reasons, but eventually put forward two elements, first that the humidity and deficiency of the building where the books would be stored would irremediably damage them. On top of that, Cailliaud's option was deemed to go against the testator's will.[124] The committee, therefore, did not follow Cailliaud's proposal in spite of the mayor supporting Cailliaud. As a matter of fact, the mayor had put together a strong argument in favour of Cailliaud's option. First, he had pointed out that the brother of the donator had agreed to the modification of the destination of the books. Then he had declared that it indeed was more sensible to keep the objects and the book together, adding perhaps fallaciously that, had there been a library within the museum, Pesneau would certainly have reached the same conclusion of giving away the scientific books to the museum. The affair appeared to have been closed after that, without traces of special proceedings to move the books: this might be a sign that the procedure went on in agreement with the will, and the committee's recommendation. This further shows, in that case, that the mayor did not always have the last word.

While the notary played a significant role, too, especially in controlling the procedural aspects of the operation, the collector himself could also be an important player. He participated by usually giving the impetus for the collection's sale or donation, and then by granting it with a regulatory framework. Mayor and collector might therefore keep a tight epistolary relationship throughout the process. In most of the cases, especially in Toulouse, the relationship was quickly ended with a letter of acknowledgement, declining the offer. But in other important cases, the mayor could take personal care of the matter, and the importance of the affair is attested by the copies of the letters having been saved and registered in a specific folder. For the Rocquemaurel collection, the correspondence exchange in the year 1854 evidenced how the mayor took it upon himself to ensure that the will of the *Capitaine* would be followed by the book, so that the city would not miss out on the opportunity presented to it. As it happened, the council formally accepted the gift only five days after the date of the initial trigger letter, and a week later, the mayor officially announced to Rocquemaurel the city's intention to carry out his conditions.

[123] AMN - 2R567, Folder 'Collection Pesneau'
[124] AMN - 2R567, Folder 'Collection Pesneau', The municipal committee to the Mayor of Nantes, 18 May 1847.

e. Triggering problems of storage

The reception of a collection was not always good news for the municipality. Behind polite faces of gratefulness, the reception of those objects posed material issues of appropriate exhibition in a museum-less city as much as it more or less provocatively pointed to the absence of the same begged-for institution, both by the savants and also by a diverse crowd of collectors. Over and over again, the effective and safe storage of collection objects came into question. In 1836 and more than a decade after the actual donation, for example, where was the herbarium given by Lapeyrouse to be kept to prevent damages?[125] The elephant who died in Toulouse in 1822 could not be prepared and mounted at that moment: it was therefore buried at the botanical garden in the meantime. Those birds given by Monsieur de Sainte-Vallière in 1835, they could not be indefinitely kept at Moquin-Tandon's residence: his position as the director of the botanical garden and the proximity with the garden was not coherent enough.[126] The skeleton of a giraffe acquired by the city in 1849 was decidedly not in ideal conditions in the place it was allocated to: should it not be kept at the veterinary school instead, waiting for a proper locale to be designated?[127]

The two Rocquemaurel collections, in spite of their significance, posed problems of storage: the absence of an "establishment specially instituted for the conservation and exhibition", which was the hope of Rocquemaurel, put the municipality in a difficult position.[128] This had led the first donation to be forgotten in the Capitole's attic for over ten years, which Rocquemaurel complained about - and also threatened to not continue his donations.[129] The donor was therefore put in a situation where compromises had to be reached, because the municipality could only offer temporary exhibition space in the art and antiques museum of Toulouse. This state of affairs managed, on top of that, to irritate Alexandre Du Mège, the antiques museum director. His report on the museum could not conceal his strong disapproval of being burdened with a collection he knew so little about.[130] There were, in addition, proposals to move the collection to the Society of Medicine, which Rocquemaurel

[125] AMT - 1D43, p. 353, *Délibérations du conseil municipal*.11 janvier 1836.
[126] AMT - 3D132, Moquin-Tandon to the Mayor of Toulouse, 2 June 1836
[127] AMT - 3D132, The director of the École Nationale Vétérinaire de Toulouse to the Mayor of Toulouse, 11 January 1849.
[128] AMT - 3D132, Rocquemaurel to the Mayor of Toulouse, 23 February 1865.
[129] AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 31 March 1854.
[130] AMT - 2R25, Du Mège to the Mayor of Toulouse, 16 April 1851: "PS : je n'ai pu comprendre dans état estimatif les objets d'histoire naturelle et les étoffes et armes de sauvages, existant dans la salle à laquelle on a donné le nom de M. le Capitaine de Vaisseau de Rocquemaurel. je ne me crois pas du tout appelé à juger du prix de ces objets, et en outre, il ya dans cette salle beaucoup de pièces qui sont comprises dans les divers états estimatifs."

opposed, arguing that the place was not appropriate in terms of curation and exhibition to a wider public.[131]

An important difficulty was the temporality of the donations which overarched nearly twenty years, and many mayors. The constant political change, particularly acute in Toulouse, in comparison with Nantes and Lyon, meant constant loss of the memory of the past decision, but Rocquemaurel's habit of close follow-up surmounted that obstacle, as in 1865.[132] In the end, it was always with a strong accent of pride that mayors received the donation of Rocquemaurel:

> "But in this moment already, I must express to you, in the name of the city, how much she has appreciated your generous deed. She has witnessed with pride how one of her noblest children has deployed many times the French flag, and always with panache, on all decks of the world. She likes to claim for herself the honours attached to his name, and to iterate the gratitude she owes him.
> I am particularly thankful, *Monsieur*, to be in these circumstances the interpreter of my fellow citizens and that it falls upon me to assure you that the desire you manifested of the creation of a locale for the permanent and public exhibition of your collection shall be fulfilled entirely. I am actively looking after this important matter."[133]

A few days after he was notified of Rocquemaurel's intention, the mayor wrote the lines quoted above. The style easily conveys the pride of the mayor, speaking on behalf to the "*cité*" - as opposed to the *commune* - which suggests a changed delineation of its singular identity. Similarly, the renown of Toulouse was described as serving the prestige of France, which appears like a reversal of the centre/periphery pattern, as the provincial city now saw itself serving the centre, and it was the duty of the mayor to voice it as a front-runner in the race to prestige. The insistence with which on multiple occasions, the mayor refused to name the new ethnographic collection '*Gallerie Asiatique ou Orientale'* but rather after its donator, namely '*Galerie Rocquemaurel*'', reflects the ability of the city, now maybe more clearly represented by the mayor, to perpetuate a certain idea of its resources, influence and identity, projected in the name of one famous citizen.[134]

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[131] AMT - 3D132, Rocquemaurel to the Mayor of Toulouse, 23 February 1865.

[132] Ibid.

[133] "Mais dès ce moment, j'ai à vous exprimer, au nom de la cité, combien elle apprécie votre généreux procédé. Elle a vu avec orgueil un de ses plus nobles enfants déployer plusieurs fois et toujours avec éclat le pavillon Français sur tous les ponts du monde. Elle aime à revendiquer l'honneur attaché à son nom, et à redire la reconnaissance qu'elle lui doit.
Je me félicite particulièrement, Monsieur, d'être auprès de vous dans cette circonstance l'interprète de mes concitoyens et d'avoir à vous assurer que le désir que vous manifestez relativement à l'appropriation d'un local pour l'exposition permanente et publique de votre collection sera plainement satisfaits. je m'occupe activement de cet important objet.(sic.)": AMN - 2R25: Letter to Rocquemaurel from the Mayor of Toulouse, 8 April 1854.

[134] The naming of the gallery was an issue raised twice by Rocquemaurel: AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 30 June 1854, and AMT - 3D132, Rocquemaurel to the Mayor of Toulouse, 23 February 1865. The municipal order was taken in July 1854: AMT - 2R25, Municipal deliberation of 7 July 1854.

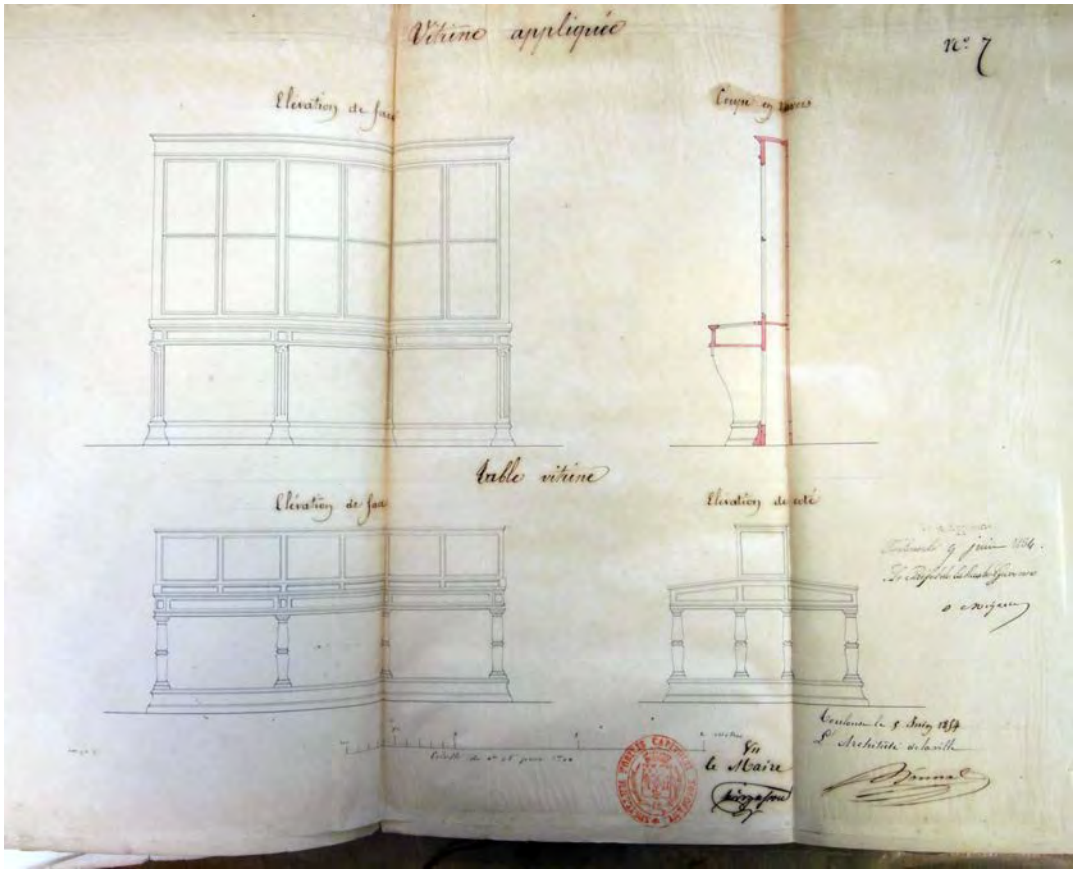


Figure 3 - Architectural plan of the cabinets for the Galerie Rocquemaurel at the Musée in Toulouse, 1855. AMT

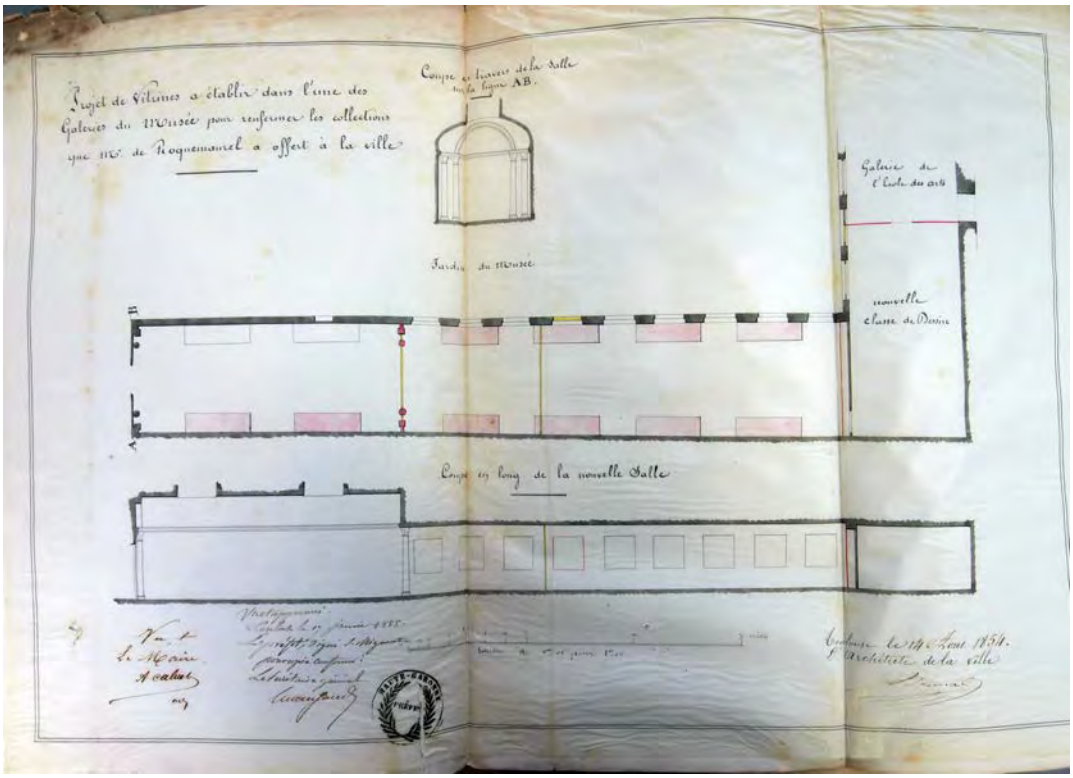
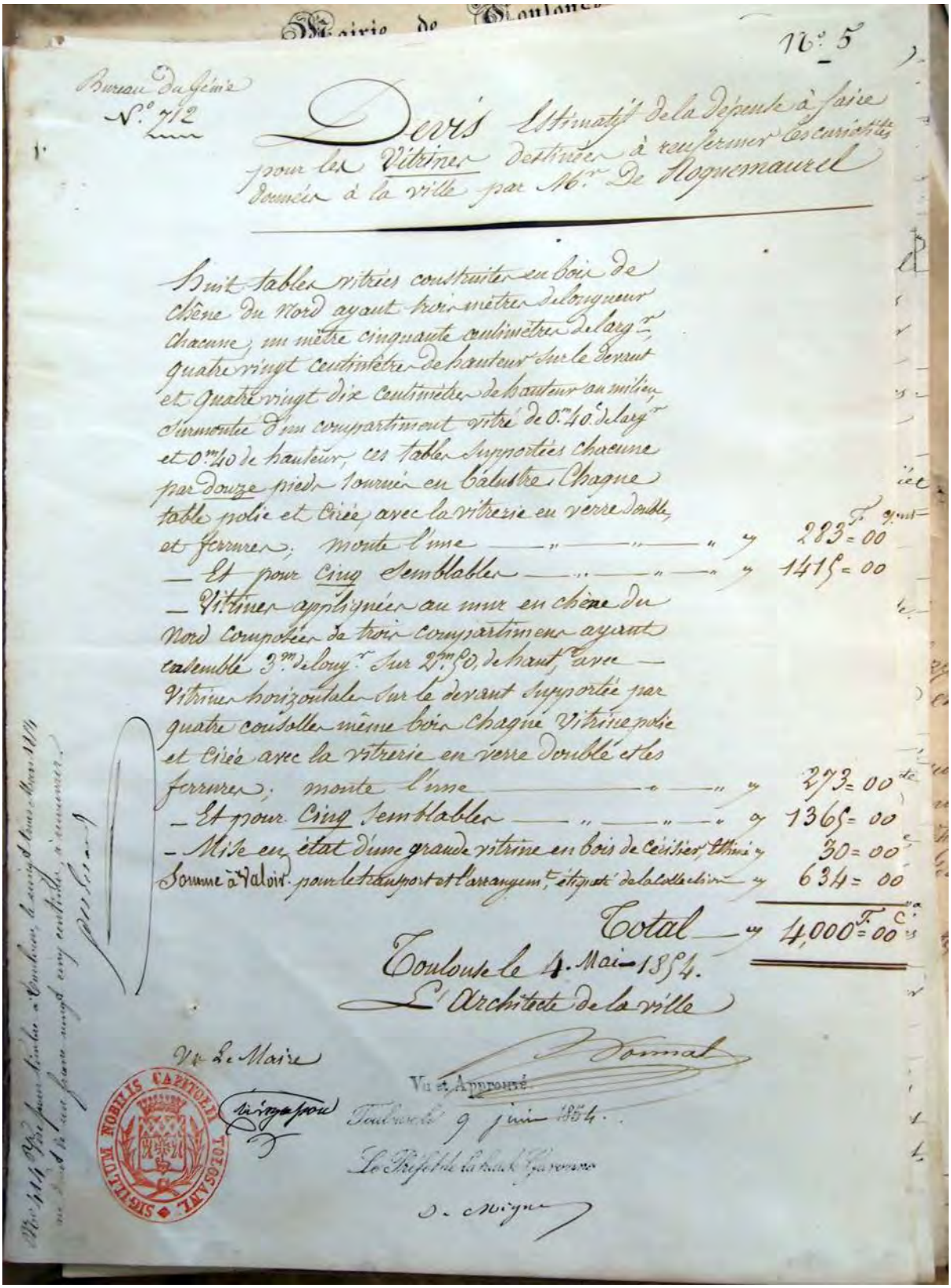


Figure 4 - Architectural plans of the Galerie Rocquemaurel at the Musée in Toulouse, 1855. AMT



Mairie de Toulouse

N° 5

Bureau du Génie
N° 712

Devis Estimatif de la dépense à faire pour les Vitrines destinées à renfermer les curiosités données à la ville par Mr De Roquemaurel

Huit tables vitrées construites en bois de chêne du Nord ayant trois mètres de longueur chacune, un mètre cinquante centimètres de largr, quatre vingt centimètres de hauteur sur le devant et quatre vingt dix centimètres de hauteur au milieu, surmontée d'un compartiment vitré de 0m40c de largr et 0m40 de hauteur, ces tables supportées chacune par douze pieds tournés en balustre. Chaque table polie et cirée avec la vitrerie en verre double, et ferrures; monte l'une — " — " — " — " 283F=00
— Et pour Cinq semblables — " — " — " — " 1415=00
— Vitrines appliquées au mur en chêne du Nord composées de trois compartimens ayant ensemble 3m de longr sur 2m50 de hautr avec — Vitrines horizontales sur le devant supportée par quatre consolles même bois chaque vitrine polie et cirée avec la vitrerie en verre doublé et les ferrures; monte l'une — " — " — " — " 273=00
— Et pour Cinq semblables — " — " — " — " 1365=00
— Mise en état d'une grande vitrine en bois de cérisier, ethiné " 30=00
Somme à valoir pour le transport et l'arrangemt, étiqueté de la collection " 634=00

Total — " 4,000F=00c

Toulouse le 4. Mai 1854.
L'Architecte de la ville
Vu Le Maire
Vu et Approuvé
Toulouse le 9 juin 1854.
Le Préfet de la Haute Garonne
D. Migne

SIGILLUM NOBILIS CAPITOLII TOLOSANI

Figure 5 - Cost estimate for the transformation of a gallery of the Musée in Toulouse in view of the Galerie Rocquemaurel, 1854, AMT.

The expression of gratitude and the responsiveness of the municipality was not only rhetoric. An interesting counterpoint was provided by the donation, through testamentary bequest, of the collection of books, natural history cabinet, and notebooks, worth 20,000 francs, which had belonged to Charles Bertrand-Geslin, a Nantes-born geologist and resident of Paris. His father Jean-Baptiste Bertrand-Geslin had been a mayor of Nantes from roughly 1805-1815, at the time of the opening and consolidating of the natural history museum of Nantes. In the case of Nantes, the municipality was expected to express its will to accept the bequest in clear terms and was faced with the threat that the collection could be yielded to another city, in accordance with the will of Charles Bertrand-Geslin. In his testament, Bertrand-Geslin insisted that he would prefer his collection to go to Nantes, and his son Henri later expressed his family's relief that the municipal council had accepted the conditions of the will, declaring how important it had been for himself and for his family's memory to keep the collection in Nantes despite pressures from Parisian institutions seeking to get hold of them.[135] In stronger terms than for the Rocquemaurel donation, the Bertrand-Geslin bequest highlights the importance of procedure in the reception of collection.

The mechanism of reception of collection is also telling about the municipalisation of the natural history collections and how it translated into administrative and political practices. Rather than considering the institutional framework like a definite state of affairs, making decisions on natural knowledge shows how decision-making at municipal level was in a constant state of flow, and highlights the technical, material and administrative issues related to the absorption within public institutions of places of knowledge dedicated to science and instruction.[136]

[135] AMN - 2R567: Henri Bertrand-Geslin to the Mayor of Nantes, 10 November 1863.

[136] Using Michel Foucault and Suzanne Elm, Michel Senellart analysed the moving nature of power plays and their state of fluidity and unfinishedness Michel Senellart, 'Michel Foucault: le problème de l'acceptabilité du pouvoir', in *Qu'est-ce que l'autorité? France-Allemagne(s), XIXe-XXe siècles*, ed. Emmanuel Droit and Pierre Karila-Cohen (Paris: Maison des sciences de l'homme, 2016), 52.

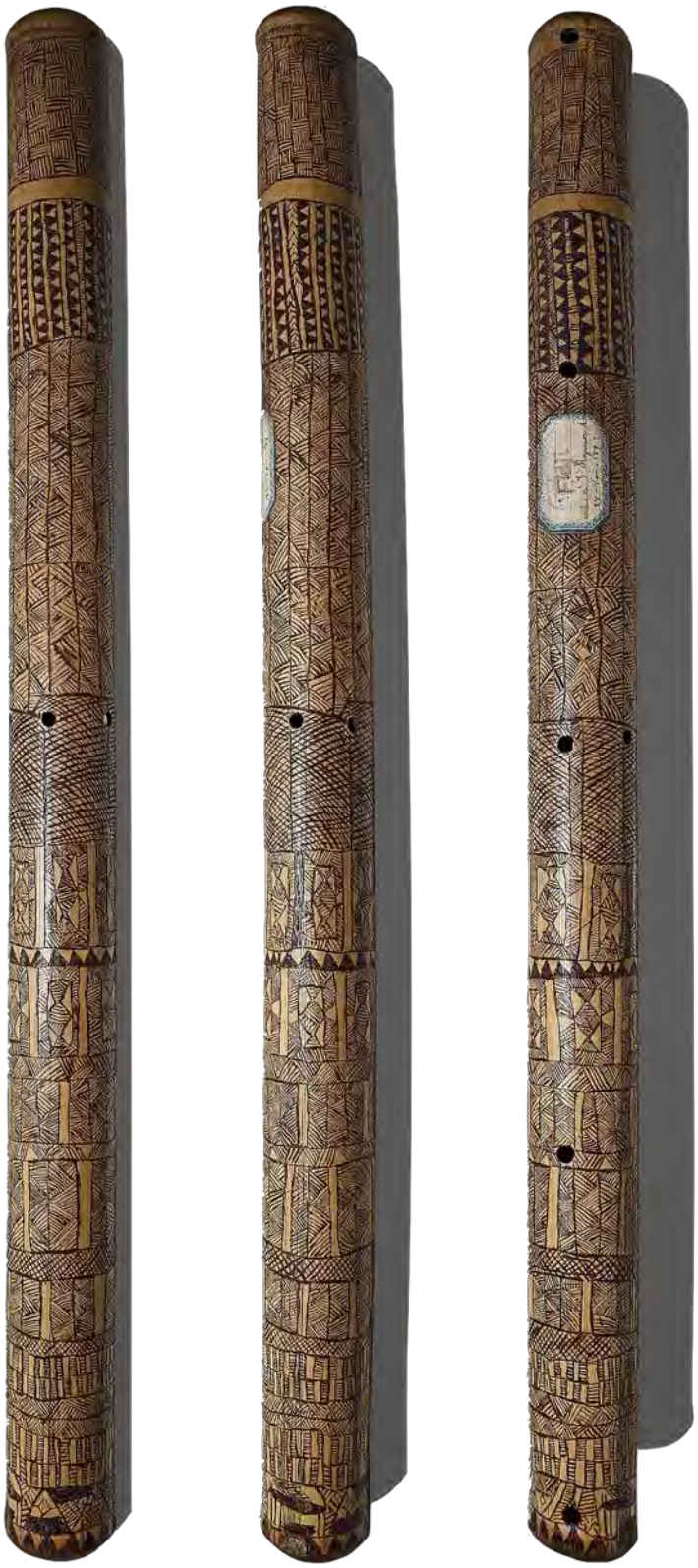


Figure 6 - Nose flute, Figi Islands. Rocquemaurel collection, [1837-1840]. MHNT

f. The museum as the collective place of gathering of individual nature-based symbolic capital

A common point to all donors is that they considered, whatever the size or value of the offers, that the museum was an appropriate place for their carefully collected objects to end their itineraries. The history of the natural history collections in Lyon, the way they were passed on from the hands of Monconys to the hands of Pestalozzi and then to the municipality in the 1770s exemplifies how the museum became considered the 'right place' to pursue the work of collecting - as opposed to academies, for instance. This movement of regarding the municipal authorities or the public as to be trusted with taking care of a collection emerged in the 1830s in England.[137] The history of public museums in France, which developed forcefully during the French Revolution, might lead one to assume that the process of public opening of collections started earlier here. However, the willing donation of collections in Toulouse and Nantes started more or less with the July Monarchy, which corresponded to times of greater stability for local and civic institutions and their better identification by possible collectors.

The landscape of donors conveys the significance of natural collecting, throughout the nineteenth-century, which perhaps did even reinforce itself towards the end of the century.[138] Altogether, private collecting continued to take place in parallel to museum collections, and was an important source of supply for the museums which relied heavily on donations and small purchases on a regular basis: museum collecting therefore did not replace private forms of collecting. Quite on the contrary, they were complementary, as museums relied considerably on amateur collectors before the heavy professionalisation of collecting during the Third Republic.[139]

A major change brought to natural history collection was locational: early modern cabinets of natural history were sited randomly, where their owners had them accommodated. By extension, the rooms hosting the collection metonymically became a *cabinet* of natural history. The opening and the consolidation, over time, of a municipal collection was generated by the growing attention to a centralised point of gathering of naturalist collections: the museum quickly became the chosen place to

[137] See Joël Clary and Cédric Audibert, 'L'enrichissement des collections du Muséum de Lyon au XIXe siècle: le cas des collections de zoologie', in *La Passion de la collecte: aux origines du Musée des Confluences* (Lyon: Musée des Confluences, 2008), 89–104; Audibert, 'Le musée des Confluences, une histoire'. On museums considered 'better places' than academies, see Crane, *Collecting and Historical Consciousness in Early Nineteenth-Century Germany*, 85. For the building of museum authority see Alberti, 'The Status of Museums: Authority, Identity and Material Culture'; and 'Placing Nature', 309.

[138] Barbara J. Black, *On Exhibit: Victorians and Their Museums* (Charlottesville: University Press of Virginia, 2000).

[139] Tom Stammers noted a similar trend in French collecting of historical objects: Stammers, 'The Bric-a-Brac of the Old Regime: Collecting and Cultural History in Post-Revolutionary France'.

which to give away a collection. Because the collector was ageing and they needed to secure a living for the remainder of their days or for their spouse; because the heir or heiress of the collection wished to kill two birds with one stone, liberating a residence from bulky cupboards and striking a profitable deal; because collecting was a skill and the collector wished to exchange it for a permanent role. In all these variegated situations, making and owning a collection of natural history meant being in possession of material and professional capital. The negotiation for entering the list of donors also meant obtaining a right to enter a closed cast of benefactors of the community, transforming indeed that material capital into symbolic capital.

Pomian noted that naturalists, especially, did not collect only just to possess but also to acquire social superiority, and therefore that naturalists, more than others, would collect for the sake of maintaining their social status.[140] In the reality of natural history collecting for a good first half of the nineteenth century, many collectors claimed a certain social rank which they considered to come from their mastery and skill in collecting and classifying natural specimens. Some saw it as an instrument of glorification for the city. There was a strong link between the collecting of natural objects and a certain sense of belonging to an authoritative group. In addition to a sense of belonging, the development and consolidation of municipal museums were also the point of materialisation for a local, situated, culture of the city.

3. COLLECTING FOR THE CITY, COLLECTING FOR THEMSELVES: THE PROFESSIONALISATION OF MUSEUM DIRECTORS

Louis Agassiz used metaphors of cathedrals and temples for his museum, Mary Winsor related.[141] He did not refer to the architecture of the museum but "to the selfless zeal impelling people to devote money and labour to building institutions such as these". The image of a busy, overworked, dedicated museum director was commonplace in the correspondence between them and the municipal administration, to the point where it filtered into biographical accounts.[142] The operations of collecting they conducted for the museum were numerous and certainly

[140] Crane, *Collecting and Historical Consciousness in Early Nineteenth-Century Germany*, 64.
[141] Winsor, *Reading the Shape of Nature: Comparative Zoology at the Agassiz Museum*, 143.
[142] A. Lacour, 'Claude Jourdan', Lyon Médical : Gazette Médicale et Journal de Médecine Réunis 12 (1873): 346-49.

strenuous. They had little assistance, and often worked on their own when they could not outsource part of the collecting and preparing operations to someone else.

Museum directors held a position which made them embrace both the figure of the collector and that of a municipal servant. Literally standing on the threshold of two related institutions, their position could draw them into equivocal circumstance. Naturalists like François Dubuisson, Jean-Emmanuel Gilibert or Frédéric Cailliaud, despite their dissimilar individual trajectories, were hired for their knowledge of natural history, regardless of specialisation, and before anything else for their command of collection-keeping, which derived from their naturalist knowledge.[143] To museum directors, skilled management of incoming objects or donated collections and knowledge of classification, be it of operations or specimen preparations, were all elementary. Because they were in charge of bringing coherence to the museum collections and ensuring their scientificity, using their own hands to fashion the collection, picking up the samples, preparing them, sorting and placing them the right way, penning reports and letters and catalogues, they were also collectors for the sake of the municipality.

Most of the time, they would be owners of a collection themselves, at least prior to being hired. Collecting for the city's museum made them enter a different category of collectors because they held a public office for which they were paid and were increasingly considered professional agents at the service of a public institution. These generations of museum directors were rarely university educated and had built their skill in the private sphere, more precisely through the practice of natural history and the development of near-artisanal know-how. Increasingly though, the tendency to separate the private from the public led to rising suspicions regarding those private collectors turned museum directors. In the drafted regulations from the early nineteenth century (presumably in the 1820s), the second article specified that the museum director should not be in possession of a collection similar to the one of which he was in charge. Should he have owned one, he would have been commanded to get rid of it. Similarly, trade of natural objects was also forbidden.[144]

The museum collections were a "protean assemblage" of objects compiled by manifold collectors.[145] The museum directors were made responsible for the difficult task of making sense of heterogeneous bodies of objects, while also made accountable for the good management of objects heavily charged with collective civic pride.[146] To

[143] For a quick overview on the relation between collection and natural history, see Secord, 'Containers and Collections'. See also Introduction, B. Museums and natural history, p. 34.
[144] AML - 78WP021, [museum regulations; drafted], undated.
[145] Alberti, 'Placing Nature', 292.
[146] Sam Alberti beautifully presented the entanglement between collectors, museums, learned societies and municipalities in 'Placing Nature'.

this material ensemble, the museum director added another layer of meaning through his actions which could be very significant. Death would generally be the only reason for directors to stop working, after directorships neighbouring lifetimes in length. This section aims to illuminate the role of museum directors and to demonstrate how municipalities increasingly made it very clear that the collections were theirs.

A. A municipal naturalist without a municipal collection: the strange case of Lapeyrouse

Philippe Picot de Lapeyrouse was a bewildering example. The Toulouse naturalist was also the mayor of Toulouse for a surprisingly long term of six years (1800-1806). His example led to other links made between mayors and natural knowledge. His case may have been exceptional, but his life provides a significant example of the decision-making process around the museum and the strategies around natural knowledge in cities after 1800. Lapeyrouse's activities also shed light on the relationship between the central state and cities, coloured perhaps by opportunism, but most certainly also by a keen project for the local development of scientific infrastructure and influence.

Philippe Picot de Lapeyrouse was born in 1744 to a wealthy merchant family. The biographies later written in his honour usually identify the death of his uncle, Baron de Lapeyrouse, from whom he inherited the title and land, as the turning point in his career as a naturalist. Initially trained as a jurist, the young Picot was an advocate at the Parlement de Toulouse, and botany was his hobby during his early and short career in law. Lapeyrouse, from then on, is said to have decided to dedicate his life to the study of natural history after his inheritance allowed him to earn a living.[147]

The activity of a naturalist was itself very time-consuming and required plenty of time to look after the different activities related to the development of natural knowledge. One of his favourites, different authors agree, was to ramble the Pyrenees he had been fascinated with ever since a trip to those mountains at a younger age. The lyrical style of *éloges* inspire little confidence, nonetheless, Lapeyrouse did not hide a certain fascination for the Pyrenees. Those were the constant object of his publications: *Voyage au Mont-Perdu* or *Histoire abrégée des plantes des Pyrénées* were among the most noteworthy publications.[148]

[147] Louis-Amédée Decampe, *Éloge de M. le Baron Picot de Lapeyrouse* (Toulouse: Imprimerie de J.-M. Dalles, 1819) other biographical elements can be found in; Alexandre Du Mège, *Notice sur la vie et les écrits de Philippe Picot de Lapeyrouse* (Toulouse, 1822).

[148] Philippe-Isidore Picot de Lapeyrouse, *Figures de la flore des Pyrénées, avec des descriptions, des notes critiques, des observations* (Paris: Imprimerie Du Pont, 1795),

He liked to consider himself the only reference in terms of knowledge about the Pyrenees, and for that purpose he did not hesitate to publicly dismiss his main challenger, Ramon de La Carbonnières, who overshadowed Lapeyrouse by being the first to climb the Monte Perdido, the highest summit of the Pyrenees, across the Spanish border.[149] Lapeyrouse was however the acknowledged correspondent for anyone interested in Pyrenean samples.

Indeed, Lapeyrouse was assiduous in maintaining an important epistolary network, and new correspondents were in fact quite often forwarded to him. The passive correspondence of Lapeyrouse, gathered in five volumes at the Muséum National d'Histoire Naturelle in Paris, records ca. 140 correspondents from various places in Europe. Connections to the important places of mineralogical knowledge, especially, are manifest, with the intermediary of Hermann in Strasbourg who stood at the intersection between France and the German-speaking world.[150] As a consequence, Lapeyrouse's mineralogical collection contained an important number of specimen records coming from the north of Europe.[151] Epistolary sources echo very well the sometimes relentless business of listing 'available' or missing species, collecting them, packaging them in accordance with level of fragility, writing down notices accompanying the specimens, posting them, or collecting from the post, asking for fee retrieval and so on.[152] The many memberships to learned societies throughout Europe offered official recognition among the Republic of Letters of Lapeyrouse's work. Indeed he was introduced into the prestigious Royal Swedish Academy of Science of Stockholm, the Accademia delle Scienze of Turin, and the Natur- und Heilkunde Gessellschaft of Berlin, and in France he was the correspondent of the Académie des Sciences in Paris, of the Société Royale d'Agriculture de la Seine, and of course, was

http://numerique.bibliotheque.toulouse.fr/ark:/74899/B315556101_RA18_000038; Philippe-Isidore Picot de Lapeyrouse, 'Voyage au Mont Perdu et observations sur la nature des crêtes les plus élevées des Pyrénées', *Journal des Mines*, 1797, 35–66; Philippe-Isidore Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes* (Toulouse: Imprimerie de Bellegarrigue, 1813), http://numerique.bibliotheque.toulouse.fr/ark:/74899/B315556101_BC_000045.

[149] Ramon de la Carbonnière engaged more subtly in the wrestling for authority over Pyrenean knowledge. He paid tribute to Lapeyrouse's findings and help prior to his ascent. He did not miss an occasion to flaunt how he took Lapeyrouse's students by his side because Lapeyrouse was in poor health, and underlined how Lapeyrouse turned a deaf ear to Ramond's discovery of an ammonite, patronisingly pretending Gillet de Laumont had already made such finding: Louis-François Ramond, *Voyages au Mont-Perdu et dans la partie adjacente des Hautes-Pyrénées* (Paris: Belin, 1801), 1–89, esp. 35–40.

[150] Dorothée Rusque, 'Faire circuler les objets naturalistes au XVIIIe siècle. Jean Hermann comme intermédiaire dans les échanges entre la France méridionale et l'espace germanique', *Liame. Histoire et histoire de l'art des époques moderne et contemporaine de l'Europe méditerranéenne et de ses périphéries*, no. 26 (2016), https://doi.org/10.4000/liame.568.

[151] MHNT - Catalogue de la collection de minéraux de Monsieur Picot de Lapeyrouse classés d'après la méthode de Werner, [1820-1823], facsimile.

[152] MNHN - Ms1990-1994: Correspondence of Picot de Lapeyrouse; BMT - Num Ms 2093, Correspondance from Picot de Lapeyrouse to Gillet de Laumont, http://numerique.bibliotheque.toulouse.fr/ark:/74899/B315556101_MS_002093.

locally a leading figure of the Académie des Sciences, Inscriptions et Belles-Lettres and the Académie des Jeux-Floraux in Toulouse. This recognition served his professional positions and allowed him to be granted the chair of Natural History as the *école centrale* opened, which in turn would open to a university position when the *Ecole Spéciale* (founded in 1803) was transformed into the new Faculty of Science, of which he soon became the dean.

Lapeyrouse seems to have shared his time between his house in Toulouse and his land at Château-Lapeyrouse. Indeed, Lapeyrouse's intensive scientific activities allowed him to form a well-established collection, kept in Toulouse and visitable in his house on Rue de la Pomme. It held a collection of books, which is not recorded in any inventories, a monumental herbarium in several volumes and a mineralogical collection containing samples but also objects crafted to illustrate the possible uses of the minerals.[153] Besides this, his land at Chateau-Lapeyrouse hosted a collection of live species in the gardens, where he experimented with the acclimation of plants and the raising of merino sheep.[154] The location of the collection in his private premises reveals an inclination for a clear separation between the activities of the amateur and those of the professional naturalist: according to his son, none of his private collection was used for classes at the *École Spéciale* where he held the chair of Natural History.[155] However, there were evident connections between his appetite for natural history and how this served his career.

B. Meet the museum director

The designation of the museum director was codified in 1815. If Dubuisson was appointed through the application of the terms of the sale of the Buron collection, the following generations of museum directors would need to comply with national regulations: the mayor would provide three names - and possibly insist upon their favourite candidate - then the decisions would be given central validation through a decision of the Ministry of the Interior.[156] The main role was the mayor's and Cailliaud and Jourdan, for instance, were clearly in debt towards the municipality for their having made a firm stand for their nomination.

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[153] MHNT - *Catalogue de la collection de minéraux de Monsieur Picot de Lapeyrouse classés d'après la méthode de Werner*, [1820-1823], facsimile, and Raymond Pulou, 'L'ancienne collection minéralogique de Picot de Lapeyrouse', *Mémoires de l'Académie des sciences, inscriptions et belles-lettres de Toulouse* 151, no. 16e série, tome X (1989): 157–78.
[154] BMT - Num Ms 2093, it. 26, Lapeyrouse to Laumont, 14 March 1809.
[155] A deduction made from AMT - 3D132, Isidore Picot de Lapeyrouse to the Mayor of Toulouse, 18 October 1816 and AN - F171947, Isidore Picot de Lapeyrouse to the Minister of the Interior, 11 May 1819. There are however diverging views: there have been claims that Lapeyrouse moved his collection to the Jardin des Plantes, but I have not retrieved archival evidence supporting this version.
[156] AD69 - 4T59, ministerial circulary letter, 7 November1815.

As a municipal servant, the museum director was accountable for his choices to the municipal administration, and especially the mayor. The museum director stood in the middle of the museum as the reference and the one intermediary: sources show how museum collections and displays were patiently crafted, by hand, by the museum director who was quite often on his own in the museum. In the early years of the museums, there was no established education or examinations that were expected from future museum directors.[157] Nevertheless, there were ways and practices which highlight the collecting competence of the museum director.

a. In Nantes: the weight of collecting skills

François Dubuisson (1761-1836)

Dubuisson was a local, self-taught pharmacist: he was not an educated upper-class offspring with a fondness for botany who found a way to live from his passion following an unscripted itinerary, like Lapeyrouse or Cuvier amongst other examples.[158] Rather, even if his education was far from a formalised training itinerary, Dubuisson was a foreteller of the professionalised public worker hired for his specific, expert competence in a certain area.[159]

Bound to a very local celebrity, despite some contact with the Mines and some geologists at the Paris Museum, the biographical information he left is only sparse. If it was not for the *éloge* written for him by Dr. Pihan-Dufeillay, a former collaborator, on behalf of the Société Académique de Nantes, not much would be known about his education.[160] Throughout the *éloge*, the author insisted on his lack of recognition, owing to inappropriate education and modest origin, but also to a backwards context wherein education was not made accessible to all comers. Dubuisson did not escape mockery for his poor command of written language, even much later: Morel could not help noting that Dubuisson had misspelt "*augmentation*" as "*ogmantasion*".[161] Pihan-

[157] Robert Fox, *The Savant and the State: Science and Cultural Politics in Nineteenth-Century France* (Baltimore: Johns Hopkins University Press, 2012).

[158] Lapeyrouse was able to give up his career in law to study mineralogy and botany after he inherited the land and title from his uncle, see Decampe, *Éloge de M. le Baron Picot de Lapeyrouse*, 7. About Cuvier see Dorinda Outram, *Georges Cuvier: Vocation, Science, and Authority in Post-Revolutionary France* (Manchester; Dover: Manchester University Press, 1984).

[159] On professionalisation and the state see Robert Fox, 'La professionnalisation: un concept pour l'historien de la science française au XIXe siècle', *History and Technology* 4, no. 1–4 (1987): 413–22; Isabelle Laboulais, *La Maison des mines: la genèse révolutionnaire d'un corps d'ingénieurs civils (1794-1814)* (Rennes: Presses universitaires de Rennes, 2012).

[160] Pihan-Dufeillay and Dubuisson had co-authored *Note sur la présence de la strontiane dans la baryte sulfatée des terrains primitifs* (Nantes: Mellinet-Malassis, n/d) and; 'Notice sur une défense d'éléphant colorée en noir', *Annales de la Société Académique de Nantes et de la Loire-Inférieure* 1 (1830): 261–64. About the youth of Dubuisson, see François-Nicolas Pihan-Dufeillay, 'Notice biographique du F.-R.-A. Dubuisson, Conservateur du Muséum d'Histoire Naturelle de Nantes', *Annales de la Société royale académique de Nantes et du département de la Loire-Inférieure* 7 (1836): 197–212.

[161] Ch. Morel, 'Etude sur l'École Centrale de Nantes', 140.

Dufeillay's tone was laudatory and positive, but it is however interesting to note the focus on the "obstacles", "difficulties" and "discouragements" of standing with "no guidance nor master" owing to the mediocrity of his family's situation.[162]

Traditionally, the biographer would insist upon the early vocation of the celebrated character; here too, Dubuisson was introduced as an early entomology enthusiast: "the myriad insects scattered around the globe" made them so convenient to have access to.[163] Dubuisson was also said to have purchased his very first collection of minerals and shells at the age of thirteen.[164] Finally, it was his apprenticeship as a chemist which gave him the means to become an amateur naturalist: "In 1788, Dubuisson opened a pharmacy. His home thereafter became a favourite meeting place for all men who cultivated natural history."[165]

Indirect sources point to what the competences and qualities of Dubuisson must have been in order for him to be nominated, but what actually mattered is that the local human resources in natural history were scarce. A locally known collector, he was also the keeper of Buron's collection, and as such found himself among the group of experts nominated to draw up the inventory and assess the value of the Kérambart and Buron collections. Later, he consolidated the collection with his own, displayed in Rue Caylus, to the point where the two collections could be confused.[166] Dubuisson's physical presence and involvement led his position to be confirmed in 1806 with the argument that he was "the only man in Nantes who to his active zeal joined practical talents and the appropriate instruction for the keeping of this precious collection."[167]

Collecting had led him to a stable position. In a second phase, his personal collection became a token he could use to secure his position: his collection was indeed estimated at 17,423 francs' worth and acquired by the municipality in 1825, after several attempts at coming to terms with a sale. Dubuisson tried to exchange his collection for a life rent in 1825 under the pretext that there were empty cupboards where his collection could have been accommodated (and no extra cost of making furniture) with the purpose of using those pieces for teaching.[168] A pedagogical collection, he argued, did not exist. In July 1825, Dubuisson claimed to have a buyer, the city of Poitiers, for his collection and thereby pressurised the municipality to make

[162] Pihan-Dufeillay, 'Notice biographique du F.-R.-A. Dubuisson, Conservateur du Muséum d'Histoire Naturelle de Nantes', 198.
[163] Ibid., 199.
[164] Ibid.
[165] Ibid., 200.
[166] AMN - 2R568, Proceedings of the inventory of the Kérambart Collection, 16-17-18-19-23 Nivôse an VI [5-6-7-8-12 January 1798]. The complex transfers of ownership of natural history collections in Nantes were disentangled in Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 406.
[167] AMN - 2R567, Belleville, Prefect of Loire-Inférieure to the Minister of the Interioir, 21 January 1806.
[168] AMN - 2R568, Inventory of the Dubuisson collection, 4 December 1825.

a decision.[169] Of course, he insisted he would give preference to the city in which he had been born.[170] Primarily, it was his own experience, even if self-taught, which led him to stand out from the group of savants in Nantes, in times of significant renewal of the administrative staff during the French Revolution and in a moment when the central authority demanded that the municipal administration should extend the necessary infrastructure allowing them to offer natural history classes, which was officially formalised in Loire-Inférieure by a prefectoral order in 1806.[171] Then the building of contacts and the elaboration of his persona as the 'only one' at hand made it acceptable for his collection to be purchased in exchange for a lifelong stipend.[172]

As a "*directeur-conservateur*", Dubuisson pursued his work for his own collection. Indeed, resulting from his passion and skill in natural collecting, this side activity was above all a way to increase his own economic and professional capital. The difference between the two collections was statutory: one was Dubuisson's, one was the city's. The difference was clear on paper, but it is difficult to find out how Dubuisson effectively divided his time for collecting activities between the two collections. Overlaps would have presumably occurred, but the line separating the collections in terms of actual work was never pointed to. It was the collections themselves which served as material tokens of separate status, which would become manifest in how the two would complement one another. With a possible sale as target, Dubuisson had designed a collection which he could promote as the complement of the municipal collection. The private collection which Dubuisson continued to increase during his days at the head of the Nantes museum indeed helped him to solidify his capital, for which he could eventually obtain a better price.[173]

There is every reason to believe the words of Derostaing-Derivas: as a youth, Dubuisson preferred to study rather than unwinding after a hard day's work. Rather than spending his meagre income on frivolities, he formed a collection of natural history. And in this fashion did he overcome the difficulties of lacking primary education and placed himself at the head of the naturalists of Nantes.[174]

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[169] AMN - 2R568, Dubuisson to the Mayor of Nantes, 13 July 1825 and 20 July 1825.
[170] AMN - 2R568, Dubuisson to the Mayor of Nantes, 13 July 1825.
[171] AMN - 2R568, Prefectoral decree, 3 January 1806.
[172] AMN - 2R565, Dubuisson to the Mayor of Nantes, 3 January 1826.
[173] A first estimate of 12,000 francs had been made "eight years earlier", presumably in ca. 1816 under the mayorship of Bonaventure du Fou during the Prussian occupation of Nantes. Dubuisson seemingly lost his deal with the return of Bertrand-Geslin. AMN - 2R568, Dubuisson to the Mayor of Nantes, 20 July 1825.
[174] Eugène Pierre Derostaing Derivas, 'Notice sur le musée d'histoire naturelle de la Ville de Nantes', *Annales de la société royale académique de Nantes et du département de Loire-Inférieure* 8, no. 2 (1847): 127–47.

Frédéric Cailliaud (1787-1869)

The career of Frédéric Cailliaud looked like it was also not following the initial plan. Biographies insist upon the fact that he was neither prepared nor educated to become a scholar by his family, whose views about his future diverged from his own.[175] His chance lay in his being acquainted with a family of Nantes academicians, the Huettes, through whom he was introduced to botanising and the sampling of minerals, but who also made it possible for him to travel. It is also very likely that he received the necessary support from the Huettes in order to go to Paris and follow natural history classes at the Jardin des Plantes, thereby affirming his own will with maybe some romantic model in mind.

Beyond the apologetic tale, Cailliaud's case shows strikingly well the level of socio-professional mobility in the earlier nineteenth century. Like Dorinda Outram showed for Cuvier, being in the 'province' did not mean being an outcast. Relations and manoeuvres could be ropes, which when activated in the appropriate fashion could help the young naturalist to navigate his family's machinations.[176] Cailliaud pursued his training on the field of Egypt, to which he travelled twice between 1815 and 1822. There he built up a valuable record as he located an emerald quarry and gathered a collection which was integrated into the royal collection of Louis-Philippe, who had commissioned his second voyage.[177] He was also the recipient of the Légion-d'Honneur. Under the protection of Jomard, who offered him housing in at his Paris residence, Cailliaud was able to publish his *Voyage à Méroé et au fleuve blanc pendant les années 1819 à 1822*.[178] Fragments of his notes, sometimes used as rough paper for his later publication on malacology (Figure 7), revealed attempts to learn about the customs and language of the people he encountered there.[179] The sum of his travels, curiosity and the personal relations he developed lay the foundations for his authority

[175] Among the few published works on the life of Cailliaud, the following were retained: Auguste de Girardot, *Frédéric Cailliaud de Nantes, voyageur, antiquaire, naturaliste* (Paris: A. Labitte, 1875), http://gallica.bnf.fr/ark:/12148/bpt6k64571128; M. le Président Petit, 'Notice sur M. Cailliaud', *Annales de la Société Royale académique de Nantes et du département de la Loire-Inférieure* 40 (1869): 213–17; M. le Dr Delamare, 'Notice biographique sur Frédéric Cailliaud', *Annales de la Société Royale académique de Nantes et du département de la Loire-Inférieure* 40 (1869): 390–412. See also Philippe Mainterot, *Aux origines de l'égyptologie: voyages et collections de Frédéric Cailliaud (1787-1869)* (Rennes: Presses universitaires de Rennes, 2011).

[176] Outram, *Georges Cuvier: Vocation, Science, and Authority in Post-Revolutionary France*.

[177] Derostaing Derivas, 'Notice sur le musée d'histoire naturelle de la Ville de Nantes', 139.

[178] MHNN - Cailliaud 1, folder "Journal du voyage au désert en Egypte supérieure 1816-1818"; ibid. folder "1er voyage en Egypte. Voyage dans la Haute Egypte et en Nubie. 18 janvier 1816 au 9 mars 1816. Journal". See also Frédéric Cailliaud, *Voyage à Méroé, au Fleuve Blanc au-delà de Fazoql, dans le midi du royaume de Sennâr, à Syouah, et dans cinq autres oasis: fait dans les années 1819, 1820, 1821 et 1822.*, 4 vols (Paris: Imprimerie Royale, 1826), https://gallica.bnf.fr/ark:/12148/bpt6k200844r/f8.image.

[179] MHNN - Cailliaud 8, "Maladies à Sennar", undated. This list of terms in arabic associated with their latin transliteration lay on the verso of a page inserted in notes taken for the project of mineralogical map of the *département*.

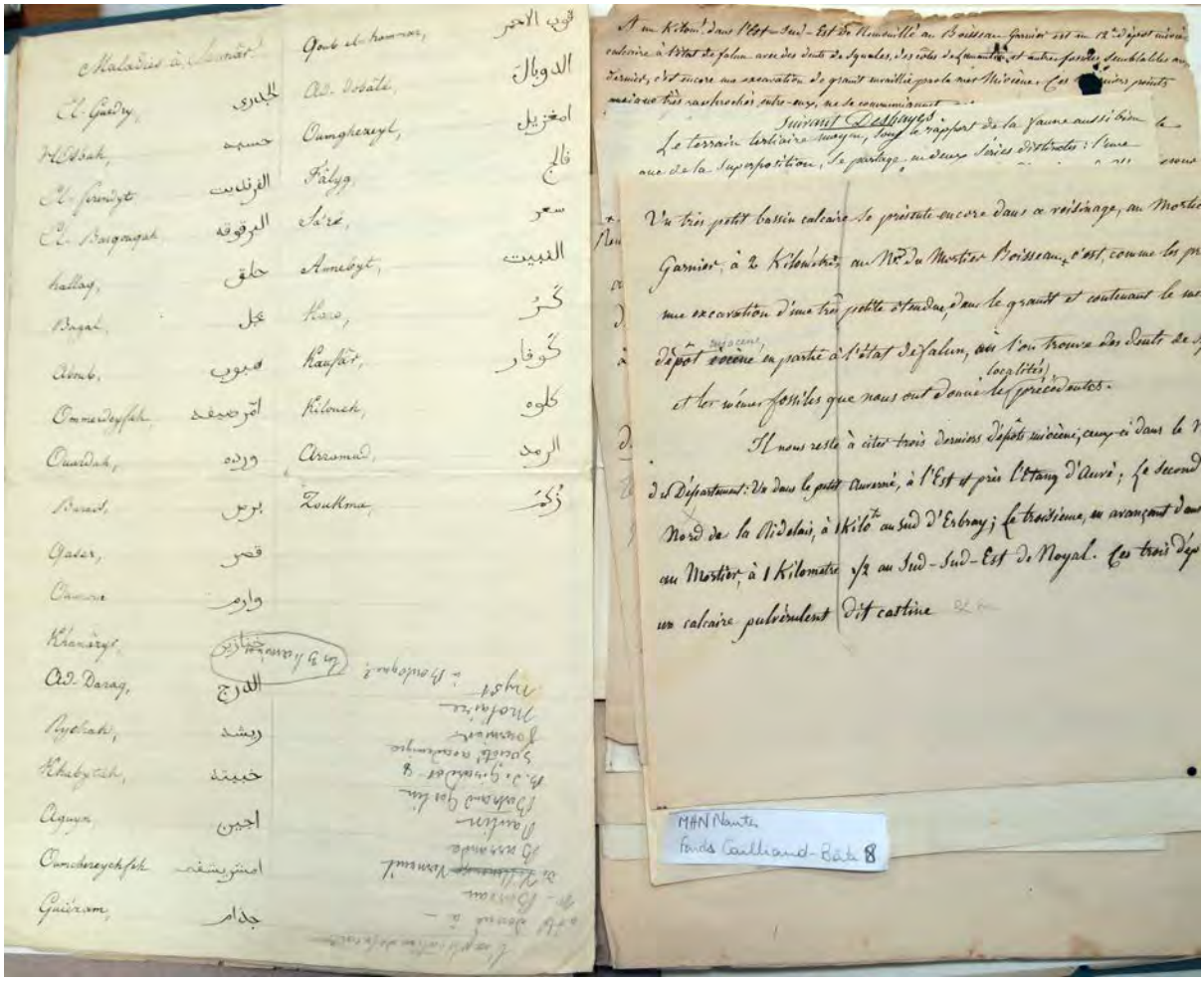

Figure 7 - Manuscript notes of Cailliaud, undated. Muséum d'Histoire Naturelle de Nantes.

as a savant, which was essentially based on empiricism and the value of experience of the field.

The material and portable translation of an evanescent experience of travelling were the collected objects. Samples, gathered by Cailliaud, included precious stones like emeralds and were used by him as intercessors to access the favours of the king, but also to capitalise on his relations with his native city. Cailliaud, upon his return from his first trip, offered a group of objects to the Nantes museum, namely a mummy "he had exhumed himself" and several mineral samples from his travel.[180] How he was appointed an assistant to Dubuisson in the late 1820s remains unclear, but his donation had certainly been beneficial. In Paris, returning travellers were numerous and Cailliaud's fame was certainly replaced by newer discoveries and accounts. Straddled across the two cities of Paris and Nantes for a few years, Cailliaud's

[180] Girardot, *Frédéric Cailliaud de Nantes, voyageur, antiquaire, naturaliste*, 37.

involvement at the Nantes museum increased and he was eventually appointed as full director of the museum upon the death of Dubuisson in 1836.[181]

Cailliaud too carried on collecting for his own sake while he was at the head of the museum. His collection was even bequeathed to the natural history museum after his death in 1869. Perhaps a sign that private affairs needed to be more clearly differentiated from publicly funded ones, the supervising committee of the Nantes museum developed a substantial suspicion with respect to Cailliaud. In 1835, as the assistant of an ageing Dubuisson, he was trusted with the opening of boxes of minerals, delivered from Paris. Thereafter, a few members of the committee overtly suspected him of stealing away samples in order to enrich his own collection, a statement that he vigorously opposed.[182] The situation may have been emphasised by the conflictual passing of the direction upon Cailliaud. Considering that Cailliaud had also opposed the purchase of the President of the committee, the situation was explosive and an important feud broke out, involving Cailliaud, the mayor and the museum committee.[183] As the mayor was not willing to follow the voted museum regulations and had chosen to bypass the approval of the ministry for Cailliaud's nomination, all members of the committee collectively felt disowned from their position and handed in their resignation.

In retrospect, what could have been considered as a clear separation between his personal and professional interests in archaeology and in shells and malacology on the one hand, and the keeping of the museum on the other, was probably more jumbled. Considered primarily a collector, owing to his practice and knowledge of the field, his skill in classification and his theoretical knowledge, his collecting profile was precisely what was useful to him to be entrusted with a municipal position, together with the ties woven with Dubuisson and the municipality in the years of his assistantship. As much as it created a tension between private and public collection, the situation of a collector-director appeared less and less acceptable to the controlling authorities.

b. In Lyon, the necessity of applied knowledge

Quite unlike the contrasting stability of the museum directorship in Nantes, the identity of the director of the natural history collections in Lyon changed four times in the course of the opening thirty years of the nineteenth century. Following the passing of Gilibert in 1814, Mouton-Fontenille attempted to be officially appointed

[181] This appointment had led to an important feud with the committee members who claimed the nomination process employed was illegal: Derostaing Derivas, 'Notice sur le musée d'histoire naturelle de la Ville de Nantes', 137.
[182] AMN - 2R566, Cailliaud to the Mayor of Nantes, 28 March 1836.
[183] Ibid.

director of the cabinet but his relations with the City Hall remained bumpy until 1816 at least. Mouton-Fontenille was replaced by Rey in 1830 who was covering for the position until Clerjon was officially named. The young new head of the collection died a couple of years later. In 1832, the appointment of Claude Jourdan began a directorship of nearly four decades, up to the very last days of 1869. Until 1830, the hesitations between La Déserte and Palais Saint-Pierre for a definitive location of the cabinet, which was itself fuelled by the changing directors and their different rationales, also conveyed hesitation about the usefulness of natural history in Lyon.

The natural history cabinet existed officially as a component of the Conservatoire des Arts, and as such its use was to be employed for the development of the textile industry; natural history depended on its applicability to the industrial arts. The industrial necessity was detectable in the naming of the learned society which gathered naturalists: the Societé d'Agriculture, Histoire Naturelle et Arts Utiles.

Gilibert & Mouton-Fontenille: the ambivalent owners of collections

The case of Lyon is particularly useful in illuminating the interactions between the personal and museum collections, which were very problematic. Jean-Emmanuel Gilibert (1741-1814) and Marie Jacques Philippe Mouton-Fontenille (1769-1837) directed the museum from 1802 to 1814 and 1817 to 1830 respectively and the two of them had been chosen because of their knowledge of natural history, which was also materialised in their owning and curating a personal collection.[184] Gilibert, a botanist and an active defender of a continued association with the botanical garden, had a contrasting profile from Mouton-Fontenille, an ornithologist who strived to obtain recognition for his work.

Gilibert, a Lyon native and a doctor from the faculty of Medicine in Montpellier, had long been involved in the publicisation of natural history: he used to teach medicine in the garden of his property around 1768 and had a project of a botanical garden in the Brotteaux area, on the mostly rural left bank of the Rhone River.[185] It is not certain whether the Brotteaux garden was ever carried out, but he was in command of the new Jardin des Plantes in 1795, and was given the chair of Natural History at the *école centrale*.

If Gilibert was an experienced collector of live plants, whether he had his own collection of natural history is less certain.[186] The formulation of the history of the

[184] AML - 78WP021, Prefectoral order, 5 Brumaire XI [27 October 1802]; ibid., Mouton-Fontenille to the Mayor of Lyon, 2 September1817.
[185] Patrice Béghain and Bruno Thévenon, eds., *Dictionnaire historique de Lyon* (Lyon: S. Bachès, 2009) See esp. entries "Gilibert", p. 562 and "Jardin Botanique" p. 698-700. See also Duval, 'Le jardin botanique des Brotteaux en 1773, d'après un document peu connu', *Annales de la Société botanique de Lyon*, 1911, 195–99.
[186] AML - 78WP021, 'Observations sur la Cabinet d'Histoire Naturelle de Lyon, 24 December 1805.

cabinet of natural history, in this brief account, identifies five different collections, or even moments of significance in the construction of the collection. Each collector was thereby however clearly identified by his name, insisting on their personal contribution, but also placed in a form of genealogical history of the collection, of which Gilibert was seen as the continuing collector, in the same way Pestalozzi, Soubré or La Tourette was. Making the collections be all in the same place, the museum contributed to bringing coherence to a variegated body of objects coming from different personal collections. In a way, the work of Gilibert as the cabinet director is seen as practicing as a personal collector, but this would be happening within the framework of the municipal museum, therefore putting his skill at the service of the city, in exchange for a stipend, and leaving the judicial property of the material to the city. There was a shared ownership of the collection, stressed by the confusing spatial organisation of the collection, which was situated both in the Saint-Pierre building and at the residence of Gilibert in Maison Rivière. Also, some ambiguity came along with the collection being said to have been collected *by* him, without using a possessive form. That shared ownership of the natural history objects ran throughout the director's lifespan, before the situation was clarified with the city's exclusive ownership as the director passed away. And in 1814, when Gilibert succumbed to his poor health, there was no doubt the objects he had collected were to remain in the ownership of the municipality and located at the museum.

The case of Mouton-Fontenille was more conflictual. His appointment as the director of the Lyon Cabinet of Natural History was the result of long negotiations. He had been looking for a position for a while and probably even wished to be given the chair of natural history at the *école centrale*, when Gilibert was nominated instead.[187] However, following the death of Gilibert in 1814, the destiny of the Jardin des Plantes was not settled: the municipal council questioned its very existence from 1813 onwards, and wished not to have Gilibert's position continued.[188] This added to spatial confusion in the collection. Gilibert, who had been in charge of both the natural history collections and the garden, had obtained permission to move the collections from the Palais Saint-Pierre to La Déserte, which was the locale of the garden - in order to have everything in the same place. But it appears the transfer had not been completed and there were objects here and there.

Mouton-Fontenille was only officially appointed in 1817, after he had worked at the cabinet for at least a year already: the situation was so unclear that he demanded that the municipal authority clarify his status and stipend a couple of times, and the

[187] Rochaix, *L'enseignement des sciences médicales à Lyon de 1792 à 1821. Thèse présentée à la Faculté de Médecine et de Pharmacie de Lyon*, 145–55.
[188] Ibid., 152–53.

argument he used was to threaten to put his collection and library on the market: owning a collection was definitely an important capital and asset.[189]

Mouton-Fontenille had a clearer idea of the difference between his collection, then considered an asset, and the collection of the municipality. His activities prior to the cabinet direction entailed the building of an important ornithological collection and developing new techniques for stuffing birds. Together with his partner Hénon, they elaborated and sold collections of '*oiseaux en vol*' or bird herbaria.[190] One was sold to the Museum of Gap and can still be seen today. He was also one responsible for the teaching of natural history at the *Académie*.[191]

His appointment was initially informal, and he started working as soon as he could, before he had even received an official order of nomination. For instance, he pursued the transfer of the natural history collections from the Jardin des Plantes to the Palais Saint-Pierre in the summer of 1817. Even before that, he addressed to the Prefect a request for a gun permit in order to hunt for birds himself, insisting on his goodwill and commitment to his new functions and finding it regrettable that he was not given the means to expand the collection and respect his engagement to provide the requested "Ornithologie du Département", since he was limited to bird acquisition from the market rather than being able to choose for himself.[192] Otherwise, his collecting practice also consisted of going out to the Montagnes du Pilat and the Grande Chartreuse to collect plants, for which he requested permission and funding.[193] What appears to have changed in his collecting ways is the obligation to ask for permission, which was also the only way to receive financial support for his research.

As the keeper of the municipal collection, Mouton-Fontenille also possessed his own collection. He appeared to draw a clear separating line between the two (unlike Dubuisson) since he emphasised its distinct value to the municipal authorities to whom he was hoping to sell it. For instance, in 1817, he referred to the museum collection as the Mayor's ("*Votre collection*").[194] But Artaud, the general director of the Palais Saint-Pierre complex, complained in 1826 about the state of the transfer of the natural history collection from La Déserte to Saint-Pierre. As it appeared, Mouton-Fontenille had deliberately left many objects from the municipal collection at La Déserte, and used the shelf space at Saint-Pierre for his collection instead: namely, he had replaced

[189] AML - 78WP021, Mouton-Fontenille to the Mayor of Lyon, 26 April1817; ibid., Mouton-Fontenille to the Mayor of Lyon, 2 September1817.
[190] See Chapter 5, 3., A. "*Les faire respirer après leur mort*": the afterlife of animals, p. 372.
[191] Jacques-Marie Hénon and Marie-Jacques-Philippe Mouton-Fontenille de La Clotte, *L'art d'empailler les oiseaux* (Lyon: chez Bruyset Ainé, 1802), https://books.google.fr/books?id=K6bfpm5FfHMC&hl.
[192] AML - 78WP021, Mouton-Fontenille to the Prefect of Rhône, 4 December 1816.
[193] AML - 78WP021, Mouton-Fontenille to the Mayor of Lyon, 25 June1819
[194] AML - 78WP021, Mouton-Fontenille to the Mayor of Lyon, 26 April1817

the municipal collection with his own, even before the purchase of his collection by the municipality was settled. Mouton-Fontenille was irritated, including in his response to what he interpreted as the calling into question of his expertise: he not only responded by calling the mayor as a witness in what he considered a feud internal to the museum, but he also meant to re-assert his position as the collecting expert and his authority, as opposed to Artaud the archeologist's.[195]

Claude Jourdan (1803-1873): from savant to administrator

The turning point for the museum of natural history of Lyon was the setting up of the faculty of science and the appointment of Claude Jourdan. He was trained as a physician and articulated his career as a savant with commitments in public affairs, in the development of silk, or public health issues.[196] The amount of biographical information written about Jourdan was inversely proportional to his significant tenure as the director of the museum in Lyon. Appointed in 1832 by Prunelle, he resigned on the eve of 1870, after no less than thirty-eight years leading the institution. And yet, only a couple of eulogies were published.[197]

"This [museum] is somehow the realisation of my entire scientific life", Jourdan wrote in 1854.[198] While the dramatic tone was useful, in those days, to increase the persuasive force of Jourdan's argumentation with the prefect, this sentence also translates very acutely the tight entanglement of director and museum's biographies. Jourdan had taken over the direction of the Lyon Museum after years of tumultuous moves and changes. He accepted that "mission", in his own words. To the authorities it secured an institution at a point where stabilisation was necessary. To Jourdan, it was an opportunity to materialise "the three frames of thought which had guided him throughout his studies" in the form of "three great collections".[199]

He was still a young man when he started, aged twenty-eight at the time of his nomination. The reasons and motives for his appointment remain unknown: his name literally just appeared with his nomination. The appointment of a person fairly unknown and whose roll of honours was still limited shows that either the function of museum director was possibly meant to be given to a *homo novus* in order to keep tensions down or to enable a better control over the museum administration,

[195] AML - 78WP021, Mouton-Fontenille to the Mayor of Lyon, 13 March 1826.
[196] A. Lacour and Société médicale des hôpitaux de Lyon., 'Le Docteur Jourdan', *Lyon Médical: Gazette médicale et Journal de médecine réunis* 12 (1873): 346–49.
[197] Ibid.; Lacour, 'Claude Jourdan'.
[198] CCEC - DP-J, "Journal de Jourdan", p. 16, Jourdan to the Prefect of Rhône, 23 January 1854.
[199] Original text: "J'acceptais cette mission: elle me permettait de réaliser par trois grandes collections publiques, les trois pensées qui m'ont servi de guide dans toutes mes études." CCEC - DP-J, "Journal de Jourdan", p. 16, Jourdan to the Prefect of Rhône, 23 January 1854.

especially from its direct authority, the municipality. Another plausible explanation was that the position was of no real interest to acknowledged naturalists.

Claude Jourdan was mainly an administrator. A sign for this is found in the discussion on the attribution of his nomination as Dean of the Faculty of Science of Lyon. Brongniart, who was in charge of the assessment of the university teaching of natural history, underlined that his publication record was not up to the expectations of such a position. And it is true that in spite of an overwhelming presence in the sources of the Lyon museum from 1832 to 1869, Jourdan did not publish much.[200] This was especially striking because he was a member of the Académie des Sciences, Inscriptions et Belles-Lettres, the Société Linéenne, and the Société d'Agriculture. The position of Jourdan as museum director is interesting in the light of his education and other activities. Like Gilibert in his time, Jourdan was a physician who over the decades, in Lyon, seems to have represented a trend in the selection of the museum directors.[201]

Possibly a practitioner rather than an intellectual thinker, Jourdan was a good negotiator. He sat on numerous public committees, visited officials when on scientific travel, knew how to word reports to unlock funding sources, and how to negotiate the organisation of the extraordinary session of the Société de Géologie de France in Lyon, with the presence of Vaïsse himself, the Senator and Prefect of Rhône.[202] But he did have attempts at a political career and he was even said to have quit his position as a director to embrace a political career, running to be a member of the French parliament.[203] This was not at all sudden: Jourdan had been involved in his own commune of Saint-Didier-au-Mont-d'Or, just outside of Lyon, as the mayor of the small town.[204] Besides, he thoroughly crafted his relationships with politically important figures. His good relationship with naturalist and cousin to Prince Louis-Napoléon, Charles Bonaparte, Prince of Canino was hinged on mutual respect. Bonaparte publicly supported Jourdan, especially in savant circles. Jourdan hosted

[200] A few proofs of fossil and mineral engravings were retrieved for the Museum des Confluences, for which there is no systematic inventory. See CCEC - folder "Archives du Muséum. 1er volume. Épreuves" (uncatalogued). Some of those plates were published by the successor of Jourdan, Louis Lortet: 'Mémoire n°I. Les reptiles fossiles du Bassin du Rhône', *Archives du Muséum d' Histoire naturelle de Lyon* 5 (1892): 1–139 See for instance plate n°3.

[201] Jourdan's successor, Louis Lortet was also a doctor of medicine and then defended a doctoral thesis in Natural History. He was also the grandson of botanist Clémence Lortet. Roffavier, *Notice sur Mme Lortet, membre de la Société linnéenne de Lyon, par M. Roffavier, lue dans la séance du 15 juin 1855* (Lyon: impr. de L. Perrin, 1855), http://catalogue.bnf.fr/ark:/12148/cb31234469h.

[202] CCEC - DP-J, "Journal de Jourdan", p. 44-46, *Rapport sur les recherches géologiques et paléontologiques faites dans le bassin du Rhône par M. le Professeur Jourdan*, 9 August 1859. The report provides indications of the persons he visited who where mostly scholars, but also politicians.

[203] Louis David, 'Histoire du Muséum d'Histoire Naturelle de Lyon', *Publications du musée des Confluences* 35, no. 1 (1997): 15.

[204] MNHN - Ms 2604, it. 1745, Jourdan to Charles Bonaparte, [1852].

him at his home on the Lyon bourgeois extension of the Monts-d'Or and did not miss an opportunity to manifest his support of the Bonaparte family.

> "Prince,
> The lettre I had the honour of receiving from you could not find me in Lyon: I was in the midi where I conducted a research trip about lower marine animals.
> Straight upon my return, I was compelled to discuss of Your presence at the Congress of Lyon with our Mayor and our Prefect: I did, as you know, for your stay in our city to be in no way unpleasant, or if you shall prefer, for it to be acceptable in all respects. It was not officially that I undertook to take action, it was confidentially and as a result of the relations which I am honoured to entertain with our two magistrates. Both of them know about your purely scientific works, and think that these days, with regards to politics, your presence within us should not bear any inconvenience, and the Prefect made the promise to me that he would write accordingly to the Ministry of the Interior.
> Prince, upon your arrival in Lyon, my wife and I urge you to not take a room at the hotel and to accept an appartment at our home. Every evening after the sessions of the congress, we shall come to the countryside and shall be back in the morning to engage in the works of this great meeting: we address this invitation to you in the hope that we shall not be refused."[205]

Jourdan may have been in contact with Charle Bonaparte prior to the 1841 Congrès Scientifique, but he clearly used that opportunity to formalise their friendship.[206] It was indeed a relatively successful attempt, but later exchanges never went beyond some regular comments on family (the education of the children, the greetings to the wife), despite a writing style which was slightly less official.[207] This letter is of great interest for it casts light on how Jourdan appears as a sort of middleman bridging the scientific and the political spheres. Of course it leaves no doubt that polity and science were imbricated: the topics of the letters to Bonaparte,

[205] Original text: "Prince, La lettre que vous m'avez fait l'honneur de m'écrire ne m'a pas trouvé à Lyon: j'étais encore dans le midi où j'étais allé faire un voyage de recherches sur les animaux marins inférieurs. Dès mon arrivée j'ai du m'entretenir de Votre présence au Congrès de Lyon avec notre Maire et notre Préfet: je l'ai fait, vous le savez, pour que votre séjour dans notre ville ne vous soit en rien désagréable, ou si vous aimez mieux, pour qu'il fut convenable sous tous les rapports. Ce n'est point officiellement que cette démarche a été faite par moi, c'est confidentiellement et par suite des relations que j'ai l'honneur d'avoir avec nos deux magistrats. L'un et l'autre connaissant vos travaux purement scientifiques, pensent qu'aujourd'hui, sous le rapport politique, votre présence au milieu de nous doit être sans inconvéniens, et le Préfet m'a promis d'écrire dans ce sens au ministre de l'intérieur. Prince, à votre arrivée à Lyon, nous vous prions ma femme et moi de ne point de [?] dans un hôtel et d'accepter un appartement chez nous. Tous les soirs après les séances du Congrès, nous irons à la campagne et reviendrons le matin vous livrer aux travaux de cette grande réunion: nous vous adressons cette prière avec l'espérance que nous ne serons point refusés.": MNHN - Ms 2604, it. 1745, Jourdan to Charles Bonaparte, 11 August 1841.

[206] The Congrès Scientifique was organised every two years in a city outside Paris, and saw important scholarly figures come together to exchange on the latest scientific findings. The ninth session, in 1841, was held in Lyon. These occasions were also an important moment for the cities to stage their participation in scientific excellence and publicise their symbolic power. *Congrès scientifique de France, 9e session tenue à Lyon en septembre 1841 - t. 1 Procès verbaux* (Paris: Courdon; Gibberton et Brun, 1842), https://gallica.bnf.fr/ark:/12148/bpt6k411520j; *ibid.*, *t. 2 Mémoires*, 1842. https://gallica.bnf.fr/ark:/12148/bpt6k4115891.
The Lyon geologists disapproved of the many errors, they explained, which the Parisian geologists had made. An alternative publication of the proceedings was published under Joseph Fournet, *Géologie lyonnaise* (Lyon: Barret, 1861).

[207] MNHN - Ms 2604, it. 1748, Jourdan to Charles Bonaparte, 30 December 1856.

which comment on the 1852 elections, also providing reassuring news about a positive issue for the Bonaparte family as Louis-Napoléon was attempting to have his coup confirmed via referendum.[208] But that very intimate link is expressed in the letter very clearly: it is also about Jourdan trying to help a naturalist, who happens to also be a member of a very powerful family, introducing him to the notabilities of Lyon, here represented by the Mayor and the Prefect. Jourdan had every reason to know the Mayor well, since he was working under his authority at the museum - maybe less so with the Prefect - but here he boastfully suggested that they all three stood on a horizontal line.

Jourdan was an ambivalent figure, or perhaps even a failing figure, when considering his work only through how much went to press, or whether there were eulogies of publications. Also a sign of a settling and consolidating institution, the career of Jourdan as a director needs to be embraced as a whole, comprising his administrative management of the museum and its articulation with the organisation of collecting and accumulation of objects for which he had very precise objectives - even though he did not come to terms with them. A physician, a naturalist in charge of the collection of the second largest city in France and with a thriving economy, Jourdan's position was also largely related to his ability to provide justification for and elaborate an intelligible discourse on natural history to the authorities. His sense of pragmatism was Jourdan's strong character.

No record of a personal collection was retrieved for Jourdan, and the historians of the museum often criticised him for neglecting the museum collection.[209] He presumably chose to limit the number of exhibited specimens, contributed to concealing objects of science from the visitors and was too busy to care for the *conservation* of the collection.[210] Fontannes disapproved especially of the many losses owing to superficial care of the objects.

The memory of Jourdan's work is somewhat muddled, and surprisingly so, since the evidence of his true commitment is there, in the archives, albeit far from publicity. Jourdan was indeed a very active collector, in the sense that he patiently crafted a network of suppliers such as merchants and private collectors, as much as he identified sites of interest to find specimens. Drawing a line of separation between how much his collecting practice was personal and how much was professional is difficult. But he always acted as the museum director, on behalf of the administrative authority above

[208] Roger Price, *The French Second Empire: An Anatomy of Political Power* (Cambridge: Cambridge University Press, 2001). For a more recent and cultural approach to the French Second Empire see Fureix and Jarrige, *La modernité désenchantée*; Xavier Mauduit, *Le ministère du faste: la Maison de l'empereur Napoléon III* (Paris: Fayard, 2016).
[209] It seems a regulation was issued which forbade the museum director to have a personal collection. The issue date of such a regulation and its content are yet to be retrieved.
[210] Francisque Fontannes, *Le Muséum d'histoire naturelle de Lyon: notice historique* (Lyon: Georg, 1873).

him, which is to say either the mayor or the prefect when the latter was directly in charge of the municipality of Lyon from 1852 to 1870. This is attested by the reports on Jourdan's activities, declarations of expenses, use of headed writing paper for correspondence. But at the same time, Jourdan appeared very autonomous in his actions, and to have been trusted by the municipal and prefectoral authorities, since there are no records of conflicts.

C. Connecting directors ?

Correspondence in administrative context fails to document networks of museum directors. It seems working out a supply network functioned more or less on a sociability inspired by the eighteenth century, based on recommendations and gifts, but it is a striking fact indeed that there should be so little private correspondence from museum directors. This is all the more surprising as some of their private papers were sometimes kept, and were therefore not considered altogether unimportant, like in the case of Cailliaud. So those epistolary relations might have not existed at all.

There were some attempts, still, at establishing connections, and even between 'municipal naturalists' like Cailliaud, in Nantes, and Moquin-Tandon, the director of the Toulouse botanical garden. The two men started an exchange with Cailliaud sending a set of shells to Moquin-Tandon in 1840. But the connection never resulted in anything, as it appears Moquin-Tandon never responded to Cailliaud's proposal to exchange shells for eggs.[211] Naturalists of the late eighteenth century, like the well-documented case of Hermann in Strasbourg, used to rely extensively on epistolary strategies: in order to establish a contact with correspondents, to make requests to them, Hermann developed 'strategies of generosity', elaborated specific paper technologies such as checklists in order to control the objects coming in, the whole process being framed by a very precise code of sociability, itself expected to be respected by the book.[212] But in contrast with those practices, there is little comparable in the networking activities of museum directors. The significant difference in the available sources points to changed practices of collecting, where writing letters did subsist as a parallel form of contact, but where letters were not the type of media on which museum communication hinged.

Coming back to Jourdan specifically, as a municipal servant, his collecting practices were strongly underpinned by the construction of a network of suppliers, for which he dedicated a lot of time to travelling. Nevertheless, because the information

[211] MNHN - Ms 3273, it. 11, Cailliaud to Moquin-Tandon, 1840.
[212] Rusque, 'Le Dialogue des objets. Fabrique et circulation des savoirs naturalistes : le cas des collections de Jean Hermann (1738-1800)', 191–200.

is scattered, it is not possible to exhaustively reconstruct the connections between travelling and establishing contact.

D. Were there director collectors?

Curatorship became a way to have a scientific career. Over time, as the two generations of directors of museums show, the figure of the keeper of the collection evolved from a self-taught expert with a strong practical knowledge built possibly on the field, to university-trained directors.[213] Jourdan or Cailliaud incarnated those bridging profiles opening towards "museum men", a group of professionalised scientists with increased scientific and social roles.[214] The French specificity lay in the municipalisation of the museum directorship, which induced a strong administrative oversight on their activities.

The many examples from the three cities, also themselves changing across time, evidenced one clear pattern, which is the gradual separation of the collector *per se* and the collector for the museum. Being a collector was initially a competency, in times when the definition of the work of the museum director was not quite settled and no clear qualifications were designed for it. Owning a collection and having experience of collecting and curating a collection seemed to be a common denominator among museum directors. They however also seemed to be issued from similar social backgrounds, namely from an educated milieu of physicians or merchants, or a small bourgeoisie, like Dubuisson. Their different skills, like knowledge of chemistry for Dubuisson, or passion for ornithology, in the case of Mouton-Fontenille, nevertheless contributed to small changes in the everyday practice of managing the museum: being a collector in fact refers to a broad category which in practice resisted generalisation.

Another conclusion lies in the changed landscape of collectors in the nineteenth century. The range of protagonists of the economy of natural history further demonstrated the democratisation of collecting, which was no longer a privilege of the princes or the aristocracy, and even denotes a craze for collectionism.[215] In that

[213] Robert Kohler discusses curatorial careers in the context of natural history field collecting in Robert E. Kohler, *All Creatures: Naturalists, Collectors, and Biodiversity, 1850-1950* (Princeton: Princeton University Press, 2006), 205–215.

[214] Lynn Nyhart explains how, after 1880, "museum men" transformed the management of collections, the presentation to the public and the meaning of collections from having a classificatory to biological message: Lynn K. Nyhart, *Modern Nature: The Rise of the Biological Perspective in Germany* (Chicago: University of Chicago Press, 2009), 201–2. The expression "museum men" was borrowed from Victoria E. M. Cain, 'Nature under Glass: Popular Science, Professional Illusion and the Transformation of American Natural History Museums, 1870–1940' (Columbia University, 2006), esp. 58–72. The notion was reworked and presented in Karen A. Rader and Victoria E. M. Cain, *Life on Display: Revolutionizing U.S. Museums of Science and Natural History in the Twentieth Century* (Chicago: The University of Chicago Press, 2014), esp. 18-19.

[215] Black, *On Exhibit: Victorians and Their Museums*.

context, the museum collector-director appeared as someone who became an administrator, at a confluence between many actors, among whom the two principal ones were the Mayor and the private collector. The following pages will further investigate the relations and differences between those profiles.

With the departure of Jourdan and Cailliaud ended a period of relative intellectual freedom and independence in the descriptions of roles of directors of museums. Educated the old way, on the field. The institutionalisation of the Ministry of Public Instruction in 1832 and the deployment of a network of Faculties of sciences in the provinces had given way to stronger "preoccupations of qualifications, honourable conduct and efficient service to the region or state." Enrolment and education in the faculties and the strengthening of higher education could feed the "army of educational administrators", in perfect correspondence with "the bourgeois taste for cultural distinction, safe morality and career making".[216]

CONCLUSIONS

The term 'collection' should not be mistakenly understood as the designation of a coherent set of objects designed by a collector, which would be acquired as a whole by a city museum. Quite on the contrary, the *collection* was used as the default term for a *group* of objects, regardless of the number, and regardless of coherence. The generalisation of the term *collection* seems to echo the success of an activity which is neither the rich nobleman's fancy activity, nor the exclusive activity of a restricted group of professionals proceeding in the hidden places of their offices. Indeed, the individuals intervening in the process of collecting are very diverse and range from the minister to the mine worker. Having said that, this socially diverse company of individuals would come together in a dynamic commerce of naturalist objects, which went far beyond the individual scholars and reveals the fluctuating pattern of the social circulation of natural objects. At the same time, the social hierarchies are clearly not negated, since they are the working mechanisms of ascendency - for instance in claiming the workers' findings. The economic exchange certainly did not even out their relations. The records from the acquisition process show that collecting, be it for the collection of a museum or a private collector, is a place for socially mixed relations and perhaps makes the collection of natural objects a boundary-object.[217]

[216] Fox, *The Savant and the State*, 95.
[217] Pascale Trompette and Dominique Vinck, 'Revisiting the Notion of Boundary Object', *Revue d'anthropologie Des Connaissances* 3, no. 1 (2009): 3–25.

The history of museums likes to emphasise the work of one person, the museum director, through the cutting-out of entire sections of time in which one person would have been in charge of every other operation conducted in the museum. Even though the museum director was the one who designed, to a significant extent, what the collection was composed of and how it was displayed, it would be wrong to consider the museum collection as the result of the sole actions of one character. The museum collection was a composite collection. Understanding the peculiarity of the museum collection lies in grasping the numerous meanings, values, and objectives assigned to the objects by collectors who envisioned their collections and their futures in different or even opposing ways.

The multiplicity of collections and collectors also meant that the temporality of the museum inscribed itself no real beginning and no real end: it was a moving object, which resulted from the actions of what can also be considered a variety of contributors - despite the fact that it was not necessarily their intention to contribute to the museum collection: how did Monconys, in seventeenth-century Lyon, express the will to collect for the museum while the museum idea of the nineteenth century was not even formulated? Or Lapeyrouse: he wished to have a public teaching collection but does not seem to have specifically expressed any wishes for his collection to form a public museum. In spite of this, there has been an ongoing claim that those collections were foundational for current museums: it is important to question such claims over their memory and historicise the diversity of the processes of collecting, and particularly, the diversity of intention beyond collecting.

Chapter 2
Bureaucracy of nature

It was not uncommon for museums of natural history to see their names vary according to person and time: "cabinet of natural history" was probably the term most used until the middle of the nineteenth century at least. In Lyon, however, the naming of the museum had stabilised into "museum of natural history" since the arrival of Jourdan in 1832: a way to emphasise the contrast from the previous "cabinet's" labyrinthine start.[1]

In the minutes of a decree sent out by the prefecture, the inscription on the top left-hand corner of the document specified the branch of administration to which the decree applied. The text in question read: "Fine-Arts. Museum of Geology. Decree authorising the provision of sixteen hundred francs for the conservateur of the museum of zoology to use on the acquisition of diverse objects".[2] The choice of words may be surprisingly erratic: why would a museum of geology depend on a curator of zoology to interfere in the Arts department and purchase objects? The muddled annotation in fact referred to a much clearer reality. "Fine arts" concerned a place, the Palais Saint-Pierre, the Lyon municipal compound museum. The geology and zoology museums designated one site, the museum of natural history, hosted at the very same Palais Saint-Pierre and directed by Jourdan, a professor of zoology who conducted publicly funded geological survey campaigns. It may have generated some level of confusion to the municipal clerks in charge of document transit.

Bearing in mind that the museum fell under the administrative authority of the municipality, this points to two issues. It first highlights the extent to which the main manifestation of the museum to municipal services was through paper rather than

[1] See Chapter 3, 1, A, c. Lyon: from Les Terreaux to La Déserte and back, 195.

[2] "Beaux-Arts. Musée de Géologie. Arrêté qui met une somme de seize-cent francs à la disposition du conservateur du musée de zoologie pour acquisition de divers objets." AML - 78WP17, prefectoral decree (minutes), 15 July 1859.

taxidermied animals or the squeaky wooden floors of crammed galleries. A second point of tension lay in the issue of how much the administration knew about what was going on there. Particularly, it raises the question of the place and visibility of the museum in the administrative, political, economic, and social entity which the municipality represented. The museum was only one piece in the institutional jigsaw puzzle, but it gathered increasing attention as one of the material tokens of the symbolic functions of the city.

It is beyond anecdotal that a considerable portion of the available documentation on the history museum lies in municipal archives: studying those places of knowledge requires delving into masses of administrative paperwork. Before becoming historical sources, the municipal documents were instruments of paper serving purposes of communication between the central services of the municipality and the museum. Resulting from correspondence and informational strategies, their content is very useful as well to assess the nature of the relationships between the services, especially in terms of power distribution and negotiation. They inform us about the place of the natural history museum in the municipality and about the modalities of its management.

The municipality, altogether contained in the persona of the mayor, was the emanation of the state, and this resulted from a process of "*étatisation*" started well before the French Revolution.[3] The history of *communes* is traditionally made to have originated from national plans of administrative homogenization. The national scale of reading often limits the evolution of municipalities to a series of bills passed from 1789 onwards, seconded by the teleological idea that it paved the way to democracy. The history of communal power, of the ancient origins of the city, be it reconstructed, was also a popular topic in the nineteenth century. In practice, it negated the outright endorsement of the *commune* as an emanation of the state and rather claimed emergence from local culture.[4] The times were those of recomposition of local power, after some communities had been cut into pieces. Toulouse held important grudges against the state, which had removed the power of Languedoc from its hands to limit it to a department seven times smaller than the territory it used to rule over.[5]

Scientific institutions like the learned academies and more generally the web of establishments concerned with the circulation and production of science in the provinces might be considered as having some level of independence.[6] That was true, with regards to central power located in Paris, but the situation in the provincial cities

[3] Maurice Agulhon, 'La mairie', in *Les Lieux de mémoire*, ed. Pierre Nora, vol. 1 (Paris: Gallimard, 1984), 180.
[4] Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale*.
[5] See also Chapter 1,1, B, b. Toulouse and the *École Spéciale des Arts et des Sciences*: compensating the wronged capital city of Languedoc, p. 69.
[6] Fox, *The Savant and the State*.

was more complex. On the one hand, their relative independence was paradoxically induced by the limited resources allowed to the local communities and their concentration in the hands of the administration and society of a highly centralised state. With little more than indirect taxation and hands tied regarding financial liberty, the communes did not have much leeway until the 1860s.[7] Conversely, the museums, which were under the control of the municipality, were controlled with a firm grip. Cities had no means of properly supporting the museums yet somehow managed to do so with the little means they had. The authority of the municipality was hardly ever discussed. The only moment it occurred was when the municipality itself protested against it. While the establishment of the *communes* suggested the possibility for renewed administrative autonomy, municipal power remained largely under the control of the centralised state throughout a good first half of the nineteenth century, and despite a series of bills.[8]

The museum of natural history, in the provinces, fell under the jurisdiction of the municipalities. This, we have seen in the previous chapter, was the result of the development of local cabinets of natural history to absorb the demand for the local densification of teaching institutions at the level of cities, hence the attribution of the management of the cabinets. The mayors, agents of the state and heads of local security, were trusted with the responsibility of safeguarding the local nation's *patrimoine*.[9]

The history of the relationship between the municipal power and the natural history museum in the nineteenth century is symptomatic of the tension between being the executer of orders from above and, conversely, being in practical charge of the on-site, local, almost mundane problems of the everyday in urban contexts which were particularly vulnerable.[10] Although perhaps a marginal aspect of the field of action over which the municipality ruled, the matter of museum management provides a micro-scale case which is not only informative about the highly bureaucratic

[7] Pinol and Walter, *La ville contemporaine jusqu'à la Seconde Guerre mondiale*, 256. Authors recall that in Lyon, Marseille, Bordeaux, Toulouse, Saint-Étienne, the *octroi* (indirect taxation on incoming goods) provided for two thirds of the municipal income in the middle of the nineteenth century.

[8] See Ibid., 241–42. The Municipal Bill of 1789 opened up new administrative autonomy. The Directory (1795-1799) established a more controlled model of mayorship where the position was one piece of the national administrative machinery: municipal council became consultative. From 1831, if mayors were still appointed by the executive power, they had to be members of the municipal council elected by censitary suffrage (1/5 of male population). The grip of central governement remained important, which the approbation of all budgetary decisions was a notable example of. Under the Second Empire, more financial autonomy was granted to municipalities in the the 1860s.

[9] The mayor was also the head of the municipal police forces. See also Christine Mayr, *Zwischen Dorf und Staat: Amtspraxis und Amtsstil französischer, luxemburgischer und deutscher Landgemeindebürgermeister im 19. Jahrhundert: ein mikrohistorischer Vergleich* (Frankfurt am Main: Peter Lang, 2006), 11; Pinol and Walter, *La ville contemporaine jusqu'à la Seconde Guerre mondiale*, 246–52.

[10] Pinol and Walter, *La ville contemporaine jusqu'à la Seconde Guerre mondiale*, 246. Pinol insisted on the policy of prevention of risk by mayors who were in charge of public assistance, health and instruction, amongst others.

dimension of the museum's existence, as with any municipal services. More interestingly, it casts light on parallel paths followed and co-constructed by actors of the local government and actors of the natural history collections in territorialising their authority: the political power leant over the scientific justification which in turn obtained its support. In the end, the natural history collections were not a useless burden: they contributed to the construction of a scientific discourse on the region, supported by a scientific agenda, elaborated upon by the local actors.

The natural history museum was an opportunity. Although embedded in a hierarchical structure where the mayor commanded over the museum, the relationships between local power and the museum were not necessarily stiffly vertical. This reading of the bureaucratic dimension of the natural history museum in a more dynamic way calls upon the problem of demarcation of the administrative and scientific work and to reach the higher tier, the fact that the municipality, and especially the mayor and his cabinet, had an interest in the elaboration of scientific programmes defined by "museum men".[11] What comes below, precisely, is a history of the relations between the two that does not deny aspects of hierarchies nor acknowledged authority, but which casts light on the moving nature of the relations of power.[12] Examining circulatory patterns applied to the practice of ruling a natural history museum as well as having to deal with an administrative superior displays a picture of local government which is more complex. As this chapter seeks to show, regardless of their authoritative power in the natural sciences, provincial cities could be places for the development of a scientific agenda, resulting from the interaction between the municipal authority and the museum.[13]

1. OF PAPER AND LESSONS LEARNT: GOVERNING THE MUSEUM

The idea of "apprenticeship" has become a topos of the political history of the nineteenth century. A potent notion with which to analyse the uneasy passage of a people to democracy, it has highlighted the various practical ways in which the shift

[11] Camille Limoges, 'Une "République de Savants" sous l'épreuve du regard administratif: Le Muséum d'Histoire Naturelle 1849-1863', in *Le Muséum au premier siècle de son histoire: [colloque international, Paris, juin 1993*, ed. Claude Blanckaert et al. (Paris: Éd. du Muséum national d'histoire naturelle, 1997), 65–84.
Cain, 'Nature under Glass: Popular Science, Professional Illusion and the Transformation of American Natural History Museums, 1870–1940', 58–72 cited in ; Nyhart, *Modern Nature*, 202.
[12] Senellart, 'Michel Foucault: le problème de l'acceptabilité du pouvoir', 52.
[13] Fages, *Savantes nébuleuses*, 295–302.

was operated.[14] The principal limitation to this approach is that it tends to design a desirable outcome which pre-existed what in fact preceded it, and thereby attempts to relate the path to a future which is envisaged as already known: an ideal which comes to be learnt. If the romantic minds of the nineteenth century were probably guided by some degree of idealism, the study of the bureaucracy of natural history in cities illuminates the importance of circulating knowledge between actors who often originated from a select group of people, usually from the ruling elite: prefect, mayor, possibly committee members to the museum or summoned by the municipal council, members of learned academies, the museum directors. However small this group of actors may have been, it attests to the mechanisms of governance of a public collection of natural history, a type of municipal service which was new to an administration which was itself new and controlled by the prefect, whose authority was largely unstandardised. Mirroring those times of groping for authority, the occasionally transient nature of the natural history cabinet or museum or other, precisely under whatever name it was designated, was not the sign of a failing or unfinished institution. Re-contextualising the natural history collection in the institutional practices of the local in nineteenth-century France is important in order to find out how it was governed, but also to question the place of the museum and of natural history as institutions in a way which unpicks teleological approaches.[15]

A. The omnipresent figure of the mayor

As a municipal institution, the museum's central governing figure was the mayor. The mayor reviewed, approved, disapproved, summoned expertise, signed. The area of his competence revolved essentially around the preservation of public order and being a representative of public authority.[16] Provisions for budget concerned mainly the upkeep of the municipal staff in charge of the administration, police forces, and public instruction, ruling over matters of urbanism in a context of heavy transformation of the urbanscapes, and watching over public real estate.[17]

[14] A classic study is Maurice Agulhon's *La République au village, les populations du Var, de la Révolution à la Seconde République* (Paris: Plon, 1970); An example of a similar study for Italy can be found in Pécout, Gilles, '«La politisation des paysans au XIXe siècle. Réflexions sur l'histoire politique des campagnes françaises', *Histoire et Sociétés rurales* 2 (1994): 91–125; For an overview, see Jean Vigreux, 'Les campagnes françaises et la politique (1830-1914)', *Parlement[s], Revue d'histoire politique* 5, no. 1 (2006): 54–72.!

[15] On the notion of governance of cultural insitutions, see Mélanie Traversier, *Gouverner l'opéra: une histoire politique de la musique à Naples, 1767-1815*, Collection de l'Ecole française de Rome 424 (Rome: École française de Rome, 2009).

[16] Jean-Luc Pinol, Histoire de l'Europe urbaine. Expansion et limite d'un modèle (Paris: Éd. du Seuil, 2003), 175-77.

[17] Pinol and Walter, *La ville contemporaine jusqu'à la Seconde Guerre mondiale*, 246.

Natural history was only a small part of his area of competence, and it decreased further as the range of his responsibilities diversified, especially after the 1850s.[18]

Inversely, the figure of the mayor and the stamp of the municipality were omnipresent in affairs related to the museum. The mayor was the recipient of offers of donations or sale, he signed letters of gratitude to helpers of the museum directors in their surveys, he interfered in the negotiations between the museum of his city and other institutions.[19] He was petitioned for every other matter, for instance to mediate a conflict, often calling upon his wisdom. He validated the budgets, opposed or accepted the detailed demands for the extraordinary subsidising of a piece of furniture or an important collection. Every decision made with regards to the collection involved the municipal authority and the involvement of the mayor.

A mediator, a judge, a custodian of public order, a local representative: the municipality embodied in the mayor was polysemic, but fairly stable and hardly ever contested. The men occupying the shoes of the function would be less permanent and their turnover was often revealing of the political changes at national level.[20]

Was the consolidation of the museum related in some way to the stability of mayorship? There cannot be such a simple parallel. The greater stability achieved in some moments in Nantes and Lyon, especially under the mayorship of Ferdinand Favre (1832-1848; 1852-1866), or later the rule of Claude-Marius Vaïsse (1853-1864), helped where the very shaky situation of Toulouse certainly did not help as interlocutors would have to be contacted and convinced every other year (see for instance the failed plan of 1836). In this latter case of Toulouse, there was an average of two mayors per year, with instances of changes literally every day in times of extreme political trouble, and with long terms usually going up to a maximum of two years, which is less than the length of a councillor's term after 1831.

At the level of individuals, the engagement of the mayor could manifest itself in several forms, especially intellectual. Naturalists and political elites shared similar forms of sociabilities. Emmanuel Gilibert, the director of the Lyon cabinet of natural history, had also been a short-lived mayor during the Revolution (1793).[21] Philippe Picot de Lapeyrouse had been appointed to mayorship for six years between 1800 and 1806, a period in which he famously battled to preserve higher education in Toulouse

[18] Ibid., 252.

[19] See for instance donation related documentation: AMN - 2R569, "Muséum d'histoire naturelle. Correspondance, recherches scientifiques: correspondance, rapports d'activité, comptes-rendus d'explorations minéralogiques, notes. 1806-1947"; Cailliaud requested from the mayor that he thanked Célestin Vrignaud, owner of the woods he surveyed, for the hospitality offered to Cailliaud: AMN - 2R569, Cailliaud to the Mayor of Nantes, 31 October 1849.

[20] For an exhaustive list of mayors in function in Lyon, Nantes and Toulouse over the period, see Appendix E: Chronology of Mayors of Lyon, Nantes & Toulouse, p. 435.

[21] Jean-Emmanuel Gilibert, *Gilibert à ses concitoyens. Lettre de justification. Des prisons de St-Joseph, le 5 avril 1793* (Imprimerie de Faucheux, 1793).

after the closing of the *écoles centrales*. He petitioned the government in support of the opening of an Ecole Spéciale in Toulouse, blatantly using his position as mayor to cast light on the importance of natural history, and using his probity as an expert of nature to convince the authorities to give preference to Toulouse.[22] In later examples, the mayor of Nantes Ferdinand Favre exemplifies the figure of the enlightened member of the elite, with an important economic and social capital from his family. He was remembered particularly for being an active member of the Société Académique de Nantes, and also an amateur of botany, which led him to oversee important improvements at the botanical garden of Nantes.[23] In Lyon, Claude Jourdan is said to have retired from the museum in order to embrace a political career - in which he was unsuccessful. Edouard Filhol, a specialist of chemistry, and the director of the School of Medicine and Pharmacy until 1866, where he was designated to supervise the creation of the Toulouse museum with three other naturalists, was appointed as mayor from 1867 to 1870. Natural history was indeed a fashionable centre of interest, but in the nineteenth century it was also accessible at different levels of expertise by an urban elite who could afford university education and to connect effectively to build their network and reputation.[24] The inherited construction from the revolutionary years of the political probity of naturalists and higher level of morals for their appreciation of nature may have favoured the careers of naturalists, especially at the start of the period.[25] Inversely, attendance of events and social gatherings with intellectuals and a cultural proximity to the natural sciences also made the museum an important place to protect and promote, for reasons related to public instruction of course, but above all in the perspective of protecting a place which was socially important to them.

The presence of the mayor went beyond engagement in the society of local and further notabilities. Like the edition of several "handbooks" targeting mayors, newly elected and otherwise, suggested, mayorship consisted of pratical activity.[26] It is

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[22] MNHN – Ms 1992, it. 537, De l'établissement des écoles spéciales dans le Midy et en particulier dans le département de la Haute-Garonne, par Philippe Picot Inspecteur des Mines de la République, [1800].

[23] Édouard Dufour, 'Notice nécrologique sur M. le Sénateur Ferdinand Favre', *Annales de la Société Académique de Nantes et de la Loire-Inférieure* 38 (1867): 78–81.

[24] Pietro Corsi, *Fossils and Reputations: A Scientific Correspondence, Pisa, Paris, London, 1853-1857* (Pisa: Pisa University Press, 2008).

[25] Charles Coulston Gillispie, *Science and Polity in France: The Revolutionary and Napoleonic Years* (Princeton: Princeton University Press, 2004); Emma C. Spary, *Utopia's Garden French Natural History from Old Regime to Revolution* (Chicago: University of Chicago Press, 2000); Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*.

[26] See for instance: M. Dumont, *Manuel alphabétique des maires, de leurs adjoints et des commissaires de police*, 6th ed., vol. 3, 3 vols (Paris: Chez Garnery, 1813), https://gallica.bnf.fr/ark:/12148/bpt6k96761591; M. Dumont, *Manuel complet des maires, de leurs adjoints et des commissaires de police*, 8th ed., vol. 1, 2 vols (Paris: Roret, 1825), https://gallica.bnf.fr/ark:/12148/bpt6k63097390; M. Charvillhac and M. Guyot, *Nouveau manuel des maires selon la loi de février 1855.*, vol. 1, 2 vols (Paris: Librairie des villes et des campagnes, 1855), https://gallica.bnf.fr/ark:/12148/bpt6k5849366m; Louis Rondonneau, *Les lois administratives et municipales de la France, ou Manuel théorique et pratique des préfets, des sous-préfets et des maires*, Chez Tourneux, vol. 3, 3 vols (Paris, 1823), https://gallica.bnf.fr/ark:/12148/bpt6k5586755n.

however difficult to grasp the automatic and the ephemeral taking place in offices and all the more so the actual engagement of the mayor in the management of municipal affairs: was he overlooking everyday happenings without any particular link with proceedings? Was he just the hand signing the document at the end of the process? What were his intentions or strategies, and how do they become apparent in bureaucratic documents where the administrator's prudence urged them to expunge all traces of personal engagement?[27] Also, how was it possible to actually make a decision on an object which was as specific as the museum or cabinet of natural history? The practice of municipal administration and the role of the mayor, as an intermediary in a nebula of actors, as well as the extent to which specific knowledge was used and/or developed for that purpose, have been set as the central objects of interrogation here. The physical and bodily engagement of the mayor was not just cosmetic. In times of relatively limited staff numbers working at the mairie, the presence and work of the mayor did not go unnoticed.[28]

The physical engagement and presence of the mayor also conditioned the authority of the decision made as he bore symbolic power. As Nicolas Bourguinat explained, it was most likely to manifest itself through outfit or body language.[29] Yet those signs are difficult to grasp in a type of writing which in all respects aims at suspending itself above time and above short-term temporality. A matter of affront to the mayor Picot de Lapeyrouse in 1800 sheds light on the conception of the body of the mayor and by extension the home of the mayor. Lapeyrouse explained that he was attacked by a passer-by who had pretended to be a person of his entourage in order to access Lapeyrouse's office at his personal residence, after his home had been booed at by a group of youngsters in arms.[30] Lapeyrouse was outraged and stated that "much as it mattered to punish the delicts against simple citizens it was even more essential to ensure the respect owed to the custodians of authority and to prevent with salutary rigour, the enemies of the order and of the laws".[31] The symbolic importance of the mayor and the authority he bore also translated in paper form. The sole signature presence of the mayor suggests his precedence with regards to all others, and

[27] Guy Thuillier, *Pour une histoire de la bureaucratie en France*, vol. 2 (Paris: Comité pour l'histoire économique et financière de la France, 2001), 52–53.

[28] In Toulouse, for 1835 and 1836, slightly less than 30,000 francs were spent on supplies for the *mairie* and employees. Around 5,000 francs can reasonably be removed for supplies, which would allow to pay roughly 25 persons an average of 1,000 francs per annum. Comparatively, salaries for the control and perception in indirect taxation (*octroi*) amounted in 1836 to just over 111,000 francs. AMT - AD42, p. 334, p. 337.

[29] Nicolas Bourguinat, 'Le maire nourricier: renouvellements et déclin d'une figure tutélaire dans la France du XIXe siècle', *Le Mouvement social*, no. 224 (2008): 92.

[30] AMT - 1D10, fo. 51, v., Séance du 30 Floréal, 8e année républicaine.

[31] Original text: "S'il importe de Punir les delits Commis envers de Simples C[itoye]ns, il est Encore Plus Essentiel d'assurer Le Respect du Aux dépositaires de L'autorité et d'effrayer Par une Salutaire Rigueur, Les Ennemis de L'ordre et des lois. (sic.) » Ibid.

it was not solely protocol to express respect for him, for instance by recognising that his word was "just".[32] His authority in the management of the natural history collections is revealed by his summoning and chairing the museum committee, or being the recipient of numerous reports about matters related to those municipal institutions, which both lay strictly in his competence.

B. Regulating the museum

In Lyon and in Nantes, the mayor was, as the frontman of the municipality, the linchpin of the group of actors interacting with the museum. Although this was the main common trait between the two museums, the administrative structure around the museum differed in the way the role of mayor was designed and delineated. The centrality of the figure of the mayor was however not obvious. Valuable sources about the role of the mayor are the regulations of the museums, in print or as projects. Those which could be retrieved provide some insight about the frame of reference the administration lay within.[33] Interestingly, it reveals the significance of negotiation between institutional tiers, namely mayor, prefect and museum, in the process of learning to position the boundaries between one another in a time "incertain in character in which no political formulation appeared durable".[34]

a. Nantes: a museum for three players

In Nantes, after the municipality was handed the responsibility for the museum, the position of the mayor seemed very clear and obvious. His position as the representative of state in charge of ensuring the enforcement of laws and orders locally appeared in a simple way, on the last page of the printed booklet: his signature. The signature responded to the statutory texts excerpted from the municipal register, which themselves signified already that the rules and regulations of the museum, in

[32] AMN - 2R567, [Inventory and estimation of the Buron collection], completed on 17 Frimaire X [08/12/1801].

[33] For Lyon: AD69 - 4T59, *Règlement pour les établissements publics existant dans le bâtiment de Saint-Pierre* [ms], 2 September 1813; Municipalité de Lyon, *Règlement pour les établissements publics existant dans le bâtiment de Saint-Pierre* (Lyon: Imprimerie de Rusand, 1818). AD69 - 4T59, *Règlement pour les établissements publics existant dans le bâtiment de Saint-Pierre* [print], 7 November 1818. This latter document bears an undated, manuscript inscription in pencil "*Ce règlement a été remplacé par un règlement du 1[0] décembre 1852 dont aucun exemplaire ne se trouve dans le dossier.*"; AD69 - AT59, [prefectoral decree; regulations for the former Abbaye de Saint-Pierre], 1 Thermidor X [20 July 1802].
For Nantes: Municipalité de Nantes, *Muséum d'histoire naturelle. Règlement.* (Nantes: Chez Victor Mangin, 1832). AMN - 2R565, *Muséum d'Histoire Naturelle, Règlement* [print], 16 July 1832; AMN - 2R565, *Muséum d'Histoire Naturelle, Règlement* [ms], 15 September 1838.

[34] Pierre Karila-Cohen, 'La masse et la plume: essai sur le charisme préfectoral dans la France du XIXe siècle' (HDR, Université de Paris 1 - Panthéon Sorbonne, 2014), 2.

other words, the definition of its very mode of existence, were in the hands of the municipal representatives.

The 1832 booklet of regulations specified that the overseeing of the museum was to be mediated by a surveillance committee.[35] No specific chapter of the set of regulations had the museum staff precisely listed, but there were indeed one conservator, a janitor and guards.[36] The "assistant conservator", in view of the 1838 revision, was ruled out with a strike of pencil over it.[37] Cailliaud had replaced Dubuisson, who had died in 1836, and no helper was assigned to him. The "conservator" could have found himself right under the authority of the mayor. But the adjunction of a committee blurred the lines of a two-tiered hierarchy split between mayor and conservator with the intermediary level of the committee. The latter was quite certainly designated to *supervise* the museum and its workers. If the competence of the committee lay essentially in its scientific authority, it also suggests that the *conservateur* - precisely not a director - was to be kept under control like any other servant of the municipality. Additionally, the conservateur's authority was not complete and required validation. Generalising from this situation is tempting. This might however be measures peculiar to the circumstances of Nantes, where a strong-headed character of Dubuisson, without a bourgeois and academic background perhaps led to some velleities of greater control. From the year 1849 onwards however, Cailliaud started signing "director-conservator".[38] While the reasons for this change are obscure, it indicated increased autonomy from both committee and mayor.

The committee's position on the hierarchical ladder was not clear, and most certainly it was designed to counterbalance the power of Dubuisson. Additionally, the committee was also a way to satisfy the local scientific community by multiplying positions of authority in relation with the museum. With no additional expenses for the municipality, since the service of committee members was complimentary, the opening of four positions for each of the three branches (Geology and Mineralogy; Vertebrates; Invertebrates) allowed an extra twelve experts to be acknowledged as such.

The 1832 first committee was composed after invitations sent by the mayor were replied to. The nominees did however not take the invitation as compulsory and some

[35] AMN - 2R565, *Muséum d'Histoire Naturelle, Règlement* [print], 16 July 1832, p. 2-5; Municipalité de Nantes, *Muséum d'histoire naturelle. Règlement.*
[36] AMN - 2R565, *Muséum d'Histoire Naturelle, Règlement* [print], 16 July 1832, p. 7.
[37] AMN - 2R565, ibid., p. 5. For the newer 1838 version, see AMN - 2R565, *Muséum d'Histoire Naturelle, Règlement* [ms], 15 September 1838.
[38] AMN - 2R565, État sommaire de l'emploi de la somme de huit-cent francs destinée à l'entretien du musée d'histoire naturelle pour l'année 1848, 20 June 1849.

of them declined politely the offer made to them. Pesneau cited his insufficient resources to sit at the committee, pointing to the fact that this was an honorary activity.[39] Import feared his competence was too scarce to be fit for the position.[40] Vaudouer and Radigon declared they were too old and their health on the decline.[41] Tollemare accepted with the promise of studying substantially, fearing he might not know enough about the subject of Natural History.[42] Eventually, the committee elected by the deliberation of June 1832 was composed of the following: Bertrand-Geslin, Ernest, Lorieux, Marion de Procé, Import, Prion, Richer, Vaudouer, Gaillard et Radigon, with Tollemare as Secretary and Portier as President.[43] The committee gathered even those who had declined the offer, and relied essentially on the skills of private collectors, who nurtured an amateur collectionism. Some, however, were renowned specialists of the field, and natives of the city, like Charles Bertrand-Geslin. A common denominator was therefore some knowledge of natural history, in order to participate in the administration of the municipal institution. A main function of the committee was to also visibly take part in the scientific organisation of the museum, which is evidenced by its division into sections matching the branches of the museum. This organisation into branches had not been among the initial proposals of the municipal council and was immediately submitted for approval to the mayor.[44]

Being appointed as a member of the museum committee did not necessarily spark sheer enthusiasm. And the actual activity of the members was not free of tensions. At one point, they opposed not only the *conservateur*, they also clearly stood as group to challenge the authority of the mayor. After the death of Dubuisson, the nomination of Cailliaud as his successor appeared obvious to the mayor, which was a decision the committee disagreed with, by virtue of the national laws.[45] One must concede that the national regulations would have been very conveniently in favour of the committee, had they had a candidate of their own they wished to take the place occupied by Cailliaud. Putting a close to this conflictual moment, the members of the committee resigned collectively.[46] This example shows how the museum of natural history integrated very well into a cartography of urban political dispute between members of the notabilities.

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[39] AMN - 2R566, Pesneau to the Mayor of Nantes, 19 December 1831.
[40] AMN - 2R566, Import to the Mayor of Nantes, 10 December 1831.
[41] AMN - 2R566, Radigon to the Mayor of Nantes, 20 December 1831; Vaudouer to the Mayor of Nantes, 9 December 1831.
[42] AMN - 2R566, Tollemare to the Mayor of Nantes, 9 December 1831.
[43] AMN - 2R566, The Supervising Committee to the Mayor of Nantes, 18 June 1832.
[44] AMN - 2R566: The Supervising Committee of the Cabinet of Natural History to the Mayor of Nantes, 13 January 1832. Confirmation found in AMN - 2R566, Municipal decree, 6 July 1832.
[45] Derostaing Derivas, 'Notice sur le musée d'histoire naturelle de la Ville de Nantes'.
[46] Ibid., 137.

b. Lyon: museum and power games

The situation of Lyon reached additional complexity owing to the many turbulences it encountered in terms of centrally-made decisions regarding the institutional organisation of the municipal authority. Between 1796 and 1805, the city was divided into three Northern, Southern and Western districts. The attempt to undermine the influence of the Mairie of Lyon was taken to another stage with the total dissolution of the function of mayor of Lyon from 1852 to 1870. The municipal and prefectoral rules ended up concentrated in the hands of one person, namely Vaïsse (1853-1864) followed by Chevreau (1864-1870).[47] This concentration of power even materialised with the transfer of the prefectoral services inside the City Hall at Place des Terreaux, a decision made by Vaïsse. Those changes, although counterbalanced by a relative political stability at the level of mayorship over the same period, caused the components of the administration to adapt and readapt to the changing adminsitrative order.

Again, the rules and regulations of the museum are revealing of this process, and they point to the site of the Palais Saint-Pierre as a place of the definition of municipal authority. The regulations for the Palais Saint-Pierre were elaborated in 1802, ca. 1813 and possibly in the 1850s, and most of the documentation is kept at the Archives Départementales, in charge of keeping prefectoral papers.[48] The reason for the location of the archival material does, again, echo the history of the museum: established as a municipal institution through exceptional, contextual ways, the status of the museum was confirmed as the municipality itself strengthened. The 1813 regulations stated that the mayor was responsible for "the supervision and the administration of the establishment" in accordance with the fact that *communes* should take care of public instruction. The mayor appointed the director of the Conservatoire des Arts, at the Palais Saint-Pierre, who reported to him directly. The director would then look after the appointment of a janitor, a guard, a porter and a housekeeper in charge of cleaning especially. He would be the point of contact for professors involved in teaching at the Conservatoire. The professor of natural history was an exception because he was also in charge of curating the cabinet of natural history, which was awaiting the end of the works for its destination at the Palais Saint-Pierre to be finalised, in the 1820s.

The mayor was responsible for most of the production of data regarding the Conservatoire: objects were acquired in his name, he would decide on repairs to be

[47] On the history of Lyon, see: Françoise Bayard et al., eds., *Histoire de Lyon: des origines à nos jours* (Lyon: Éd. lyonnaises d'art et d'histoire, 2007); Latreille, *Histoire de Lyon et du Lyonnais*.
[48] A note in shelf number ADR - 4T59 indicates the existence of another set of regulations which could not be retrieved in the set of prefectoral papers used here.

made based on the proposal of the director, who would also write a report on the activities and happenings at the conservatoire every two weeks. The mayor would also embody the supreme authority to grant authorisation for accessing the room housing the machines related to the industry of silk or textiles which the Palais hosted.

This position at the highest point of the Conservatoire des Arts was only relative, although it was itself the result of negotiations with the prefecture. The mayor was indeed designated as the head of the Conservatoire, yet under the supervision of the prefect. In 1800, the regulations designed a frame of governance which aimed for collegiality, and by all means, division of power. The mayor was responsible for the Conservatoire, under the supervision of the prefect, who also decided that four "citizens" would assist the mayor. One of them would be a head curator for the museum ("*muséum*"), which then referred to the art gallery, while other collections were not dealt with specifically regarding curatorship. Finally, the mayor was the person designated to produce, sign and submit the reports about the conservatoire's activities. A strategic place, the conservatoire required careful governing.

The place of collections of natural history, whether *per se* or in association with other collections and their value in terms of legacy, bore substantial symbolic power which placed it, albeit indirectly, in its role as exchange value in games of power at the scale of the city in a period of definition of its political and administrative boundaries.

C. The prefect: the shadow player of the museum?

A paradox only in appearance, the administrative convergence towards the mayor was real, but that only helped the departmental authority, through the figure of the prefect, to keep control over the institution. The mayor of the Southern Division, André-Paul Sain-Rousset (1799-1805; 1812-1813), authored thirty pages of "observations" in which he made a case for increased autonomy for the municipal administration the mayor represented.[49] A remarkable stance inviting the amplification of the role of the mayor in which the Conservatoire des Arts and its governance served as pretexts to demand wider leeway.

Whichever activities are considered, the practice of museum administration shows a lot of groping in the dark along the chain of work and decision. The figure of the prefect was somehow ever-present in the everyday life of the museum. A function

[49] ADR - 4T59, Observations du Maire de la division du midi de la Ville de Lyon, sur l'arrété du Citoyen Conseiller d'Etat, Préfet du département du Rhône, du 1er Thermidor [an X], pour l'Execution de celui des Consuls du 23 Germinal Dernier. Nota: the 23 Germinal X decree transferred the property of the Palais Saint-Pierre to the municipality of Lyon.

invented by First Consul Napoléon Bonaparte in 1800, the prefects were meant to form a network of trusted civil servants sent to each *département* where they would embody the central authority. A symbol of Bonaparte and later Napoleon I's controlling grip, consignment of power was one thing, but authority did not simply flow out of regulations: it was a role also in the making which can only be grasped through the study of practices of power, in a nineteenth century in which administrative knowledge was ever so brittle.[50] In troubled times as much as in moments of peace, the prefect's role was essentially to be the local eyes and ears of the central authority, and therefore to publish reports and statistical information about the *département*.[51] The senses of the prefect were not solely turned towards the authorities based in the capital city: scrutinised at the scale of the provinces, the prefect was altogether the only familiar and identifiable figure issued from the corps of senior civil servants.[52] Sitting between the hammer and the anvil, the role of the prefect was intriguingly ambivalent.[53] The intervention of the prefect of Loire-Inférieure regarding the cabinet of natural history located in Nantes provides a useful example for these tensions.

a. The unwanted museum

The example of Nantes illustrates a nearly stereotypical case of feud between mayor and prefect in 1806, about the transfer of property of the museum of natural history. The conflict emerged from a prefectoral decree issued on 3 January 1806.[54] The text yielded the property of the cabinet of natural history of Nantes, namely the collection purchased from Buron in 1802, whose keeper had been Dubuisson. Dubuisson remained attached to the collection and was placed at the service of the cabinet as a keeper. The conditions for this transfer were precisely to keep Dubuisson in his position and provide the necessary funds to maintain a keeper and the increase of the collections every year. In addition to this, the municipality was expected to redeem a sum of 12,949 francs corresponding to the third instalment of the purchase, as well as the rent for the apartment in which the collection was temporarily stored. This was an extravagant decision, the mayor of Nantes Jean-Baptiste Bertrand-Geslin (1805-1813, 1815) replied: the municipality could not bear the financial burden of a

[50] For a detailed analysis of the passage from power to authority for the prefect, see Karila-Cohen, 'La masse et la plume', 25–57.
[51] On the history of nineteenth century prefects see especially Pierre Karila-Cohen, *L'état des esprits: l'invention de l'enquête politique en France (1814-1848)* (Rennes: Presses Universitaires de Rennes, 2008), 13–20; Michel Biard, *Les lilliputiens de la centralisation: des intendants aux préfets, les hésitations d'un modèle français*, Collection 'La chose publique' (Seyssel: Champ Vallon, 2007), 265–317.
[52] Christophe Charle, ed., *Les hauts fonctionnaires en France au XIXe siècle* (Paris: Gallimard, 1980), 79–151.
[53] HANOTAUX Gabriel, « Impressions de France. La ville moyenne – Laon », *Revue des deux mondes*, LXXXIe année, t. II, 1901, 14-15, cited Karila-Cohen, 'La masse et la plume', 33.
[54] AMN - 2R567, Extrait des registres de la Préfecture du département, 3 January 1806.

purchase decided at departmental level which in practice was beyond their means.[55] Unconvinced by the suggestion that the transfer was in fact a "present", the mayor also contested the authoritarian nature of the decision, about which he and the council had not been consulted.[56] The ensuing arm wrestling between mayor and prefect reached a level of appeasement when the mayor accepted the arguments of the prefect. Referring to a decision taken at ministry level that all establishments of public utility should be put under the administration of the municipality, and topped with the supervision of the prefecture, the prefect obtained the acceptance of the mayor to register the decree.[57] The situation must have fluctuated for a few more years, since the payment of the 12,949 francs was made in 1808, and the transfer of property was eventually finalised in 1811.[58]

The conflict resonated seven years later on the occasion of a petition initiated by Dubuisson in 1813. The keeper of the cabinet had not been paid in 1807 and 1808, the years in which the municipality and préfecture fought over the ownership of the cabinet. The ministry of the Interior, to whose validation the budget was subject, had rejected the request for the payment of two years of arrears of Dubuisson's salary. Dubuisson was asked to turn to the municipality to make a decision.[59] After many years prevaricating, the municipal council rejected Dubuisson's request.[60]

b. Polite exertion of authority

This conflict fuelled by the attribution of responsibility for the expenses, present and future bound, engaged in the purchase of the Buron cabinet highlights how the museum, at this stage, was envisaged as a public institution. As such, it was a component of the administrative machine just like other institutions. This resulted not only from its status, but is revealed, in practice, by the way it served as a combat zone for key local political figures. A place for negotiating authorities, political as well as scientific, the feud over the museum shows the moving and interactive dimensions of the construction and consolidation of the powers of the two leading institutions at local scale.

The centrality of the figure of the mayor appears more clearly when when comparative light from other sources of local power is shed on the administration of the museum. The silhouette of the presence of the prefect, especially, shows significant

[55] AMN - 2R567, The Mayor of Nantes to the Prefect of Loire-Inférieure, 9 January 1806.
[56] AMN - 2R567, The Prefect of Loire-Inférieure to the Mayor of Nantes, 4 January 1806.
[57] AMN - 2R567, The Prefect of Loire-Inférieure to the Mayor of Nantes, 21 January 1806.
[58] AMN - 2R567, Saint-Aignan, Mayor of Nantes, argued that the transfer was only enacted with a decree from 11 July 1811. This was used to reject Dubuisson's claim. AMN - 5R566, [Draft report from the committee in charge of examining the request of Dubuisson], [1818].
[59] AMN - 2R566, Dubuisson to the Mayor of Nantes, 15 December 1813.
[60] AMN - 5R566, [Report from the committee in charge of examining the request of Dubuisson], [1818x].

distance or rather, forbearing endorsement of his authority. His presence was hardly ever manifest, but for the validation or contesting of budgetary provisions; he could resurface occasionally, but usually in a forceful manner.[61]

In the landscape of institutions embraced at the national scale, the cabinet of natural history of Nantes received hardly any importance. Mostly in the blind spot of the central authorities, its case only came to the fore when the Prefect of Loire Inférieure required some information or endorsement. Belleville, for instance, contacted the ministry to inform them of the reluctance of Nantes municipality, asking them for guarantees to help the decree on the museum acquisition be successfully registered.[62] Under the guise of information, the prefect duly informed the highest level of government about local disobedience towards what the prefect insisted was the will of the state, not his own. In a gentler manner, the prefect confessed he had not sent the mayor's strongly disapproving letter to the Ministry of Interior, arguing that the minister, unlike himself, was not as "penetrated of the purity of [the mayor's] intentions", in an astute claim to being protective.

The style and actions of the prefect Belleville were, as gentle as they may have seemed, aimed at recalling the place of the administrative servant that was the mayor:[63]

> "I delayed my response to the letter I was honoured to receive from you on the 9th of this month, because I was hoping that the thoughts that I presented to you in *viva voce* would persuade you to register my decree from the 3rd and to not maintain the motives which had you withhold the execution of the registration. Those motives may be summarised in five different articles:
> The failing justification of the will of His Excellency the Minister of the Interior for the transfer to the *commune* of the property of the cabinet of natural history.
> The fear that the municipality be compelled in the future to reimburse the payment made by the administration for the account of the acquisition of this establishment.
> The perpetuation of Dubuisson in the place of conservator of the cabinet.
> The contradiction, detrimental to your attributions, which by assigning you with the responsibility of the maintenance of the cabinet, also preclude that you replace the keeper."[64]

[61] Pierre Karila-Cohen insisted on the way the image of omnipotence of prefects was also a construct from his opponents at the time. p. 26 'La masse et la plume', 26.
[62] AMN - 2R567, The Prefect of Loire-Inférieure to the Mayor of Nantes, 21 January 1806.
[63] George, Jocelyne. *Histoire des maires de 1789 à 1939*. Paris, France: Plon, 1989, 53-87.
[64] "J'ai différé à répondre à la lettre que vous m'avez fait l'honneur de m'écrire le 9 de ce mois, parceque j'espérois (sic) que les réflexions que, Je vous ai présentées de Vive Voix, vous détermineroient (sic) à enregistrer mon arrêté du 3 du courant et à ne pas insister Sur les motifs qui Vous ont porté à différer son exécution. ces motifs peuvent se résumer en cinq articles différents.
Le défaut de Justification de la Volonté de Son Excellence le Ministre de l'Intérieur, pour la transmission à la commune de la propriété du cabinet d'histoire naturelle.
La crainte que la municipalité ne soit obligée par la Suite de rembourser les sommes payées par l'administration à compte de l'acquisition de cet établissement.
Le maintien de M. Dubuisson à la place de conservateur du cabinet.

In the diplomatic style of the excerpt from late January 1806 and several weeks into negotiations already, the mayor was commanded by the prefect to register his decision.[65] The style of the text is clear and authoritative in the sense that it does not allow for doubt: his objections and motives for refusing registration were heard, but now the mayor should register the decree, and should acknowledge the decision. The manifestation of hierarchical authority did take the form of oral discussions and physical presence, though the exact content of the conversation the prefect and the mayor had beforehand is not clear. The conversation, in *viva voce*, between the two men was determining: the prefect considered the exposition of his argument, loud and clear, was strong enough to impose on the mayor. The prefectoral authority, eventually, reached its full expression in the written form which served as minutes for a personal intervention. This was meant to sweep away all resistance of the mayor contesting the registration of the act. However violent the accusations could be, they would always be wrapped in fitting style: governing emotions and keeping up with protocol was not just cosmetic. Rather, it signified that the relations were framed within an institution and from the formality of the responses on each side resulted their authoritative force.[66]

But this episode which deeply marked the history of the natural history museum of Nantes should not be recorded as the implacable authority of the prefect on the mayor. The frictions between two major figures of the local political scene appear in shared and similar polite, often rhetorical, language, and if their discourses were not inspired by the same intentions, because their functions were different, their respective authorities were in fact in the course of being formed by means of these same interrelations: the prefect himself was not always certain of the limits of his authority, despite that fact that he was locally the warrant of the application of similar and homogenous law throughout the territory.[67]

The rocky relations between the mayor and the prefect over the natural history cabinet, above all, point to the difference of institutional scale in the appreciation of a

La contradiction attentatoire à Vos attributions qui en vous chargeant de l'entretien du cabinet, vous interdit la faculté de changer le conservateur." AMN - 2R567: The Prefect of Loire-Inférieure to the Mayor of Nantes, 21 January 1806

[65] AMN - 2R567: Extrait des registres de la Préfecture du département, 3 January 1806.

[66] Yves Déloye, 'Le protocole ou l'ombre du pouvoir politique. Sociologie historique de l'obéissance politique en France', in *Le protocole ou la mise en forme de l'ordre politique*, ed. Claudine Haroche, Olivier Ihl, and Yves Déloye (Paris: L'Harmattan, 1996), 51.

[67] "Je crois aussi que, d'après les règlemens sur les fonctions des Préfets et des maires, Je n'ai point excédé les bornes de l'autorité attribuée à la place que j'ai l'honneur d'occuper, ni blessé le pouvoir de M. le Maire, auquel je m'empresse dans toutes les circonstances de témoigner les égards qu'il mérite.
Au surplus J'affirme à Votre Excellence que M. le Maire et moi n'avons d'autre passion que celle de bien fair. J'ai eu l'unique intention d'exécuter les ordres de Votre Excellence, M. le Maire désire également s'y conformer": AMN - 2R567, Belleville, Prefect of Loire-Inférieure to the Minister of the Interior.

rule made a few streets away but validated in Paris, reachable in four days for mail.[68] 12,949 francs and an estimated cost of 3,800 francs *per annum* were inconsequential from the viewpoint of the Ministry of the Interior.[69] To the minister, the acquisition of a cabinet worth 36,000 francs for a third of its price equated to a gift to the city, not to mention it was a convenient way to relieve the department from its burden. In a way that was probably not only a posture of opposition, Bertrand-Geslin judged the finances of the city were too limited to support this form of plundering. While the state and its representatives could not openly be called into question, the prefect was an easier target for speculating about the fallacy of his intentions and asserting that his argumentation was "specious".[70]

The argumentation of both prefect and minister, possibly repeating each other's words, also underlines the fact that the prestige of having such a cabinet of natural history, when used as an argument by the authority, was not really effective:

> "The *mairie* acquires, in return for 12,900 francs, a property worth 37,000 francs, whose value cannot be appreciated if one does not consider the rarity of such a collection, the embellishment its acquisition would bring to the city, the utility for those among your people who cultivate the arts or engage in this sort of study."[71]

The style is somewhat condescending and induced in itself a hierarchical relationship of the central government helping the periphery. The response from the *mairie* was a lot more pragmatic: Bertrand-Geslin demanded that he be provided with a certificate of property and adequate guarantees that the département would not be entitled, in the future, to claim for the reimbursement of the first two instalments. He insisted, besides, that there were more pressing matters to subsidise:

> This disposition would have been hardly natural because a *commune*, whose resources are infinitely more scarce that what she would require for urgent needs, cannot be, without being consulted at least, forced into the purchase of a cabinet of natural history manifestly voted by the assembly of the *conseil général du département*."[72]

The use of the conditional form and the designation using the indefinite article "a" implies a distanciation from an object, the collection. The arguments about

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[68] The city hall hosted in Hôtel de Derval was a few streets away from the building of the Prefecture on the Erdre embankment. Data on mail delivery times are provided for 1795 in Serge Bonin et al., eds., *Atlas de la Révolution française. 1, Routes et communications*, vol. 1 (Paris: Éditions EHESS, 1987), 40.

[69] An estimate of the future costs had been joined to the set of documents related to the case: AMN - 2R567, *Observations sur les dépens (sic.) afaire (sic.) pour le Cabinet d'histoire naturelle*, undated [1806].

[70] AMN - 5R566, [Report from the committee in charge of examining the request of Dubuisson], [1818?].

[71] "La mairie acquiert, pour 12,900 francs, une propriété estimée 37,000 francs et dont la valeur est inappréciable, si on considère la rareté d'une telle collection, l'embellissement que son acquisition procure à la commune, l'utilité que peuvent en retirer ceux de vos administrés qui cultivent les arts ou se livrent à se genre d'études". AMN - 2R567, the Prefect of Loire-Inférieure to the Mayor of Nantes, 4 January 1806.

[72] "Cette disposition n'aurait que de bien naturel car une commune dont les ressources sont infiniment moindres que les besoins urgens qu'elle ressent, ne peut sans avoir été consultée au moins, être obligée à l'acquisition d'un cabinet d'histoire naturelle qu'aurait voté l'assemblée du conseil g[énér]al du département.": AMN - 2R567, the Mayor of Nantes to the Prefect of Loire-Inférieure, 9 January 1806.

embellishment and the outstanding value of the collection were not retained either: the mayor's disinterest in the collection was made manifest.

Also, a source of conflicting views was precisely the question of "utility", which was put forward to designate the municipality as more relevant. Pointing to the closure of the écoles centrales, a departmental institution, the prefect insisted on the irrelevance of keeping a collection of natural history at the replacing Lycée since it did not offer natural history classes. The collection was visited by the curious, which indeed included some travellers, but for the majority, the prefect claimed, they were inhabitants of Nantes: the collection only served the "ornament" of the city of Nantes and thus was not to weigh upon the budget of the department anymore.[73] Again, this was mistaken according to the mayor of Nantes: the collection comprised objects and a mineralogical map which would be much more useful to the department surveyors.[74] Bertrand-Geslin's objections fell on deaf ears, but the exchange underlines a perception of the territorial inscription of the collection which catches the attention. The dispute over the responsibility of the cabinet was hinged on the population of citizens it would be "useful" to. This group of people was inscribed at the scale of the département when the collection was attached to the école centrale. Now that the école had closed, the collection served the city of Nantes as a monument for visitors and as a service of public instruction for the population of Nantes. For the sake of the argumentation, Nantes and the *département* were regarded as separate entities, regardless of human geography: some naturalists living outside of Nantes but residing in the department might have found it useful too… This, however, did not matter. This piece of ornament, in the prefectoral discourse, served Nantes exclusively.

This is an essential twist, in the discourse elaborated to make the Nantes officials accept the deal, because transfer was not simply a change of property. Symbolically too, the cabinet of natural history shifted meanings and as much as it was made to be attributed to the city of Nantes, it became a local service to be taken care of by the city exclusively. Along those lines, in 1808 the ministry authorised Dubuisson to carry on his mineralogical enquiries but stated up front that no funds would provided because it remained a local enterprise.[75] More than an echo, the dispute reveals the practical debut of the rising regionalist debate which awakened after 1814.[76] With the diplomatic and logistical help of the prefect, the transfer of ownership of an unwanted collection heralded a clear distanciation by central authorities from and the distinct inscription of the local territory within the scope of the new museum.

[73] AMN - 2R567, the Prefect of Loire-Inférieure to the Mayor of Nantes, 4 January 1806.
[74] AMN - 2R567, the Mayor of Nantes to the Prefect of Loire-Inférieure (copy), 9 January 1806.
[75] AMN - 2R569, it. 3, the Minister of the Interior to the Prefect of Loire-Inférieure, 28 June 1808.
[76] AMN - 2R565, the Mayor of Bordeaux to the Mayor of Nantes, 30 November 1841.

D. Paper as a governing instrument

On 12 April 1864, Jourdan was compelled to provide an explanation to Senator Vaïsse, prefect, for a claim that had been deposited by Ferron, an enamel worker, about the delayed payment for enamel eyes used in taxidermic preparations.[77] Payment of the 200 francs was due on 8 April and Ferron had indeed filed a demand the following day. The problem preoccupying the prefectoral services was not delayed payment, but suspicions that Jourdan had kept the money issued to pay Ferron. Jourdan justified, however, the amount was certainly not in his possession: the money order was still sitting on a desk in the offices of the city hall. The meanders leading to the payment were mesmerising. Jourdan, in the name of the mayor, must have placed an order for the museum before 8 April of a certain quantity of enamel eyes, worth 200 francs. According to customary administrative practices, the seller addressed a receipt of settled payment to Jourdan. After that, Jourdan would have had to request a money order which was issued in the offices of the city of Lyon for Jourdan or an assistant to fetch. The money order would then have been put in the post to reach Ferron "120 leagues away from [Lyon]".[78] The purchase of supplies specific to preparations could reach high degrees of complexity when specialist producers were located far from Lyon. The act of purchase in itself was more than the inscription in the register: it required numerous operations and intermediaries, which made the museum workers actually cross the square (Place des Terreaux) to collect documents and thereby to connect the two types of administrations, museums and city.

In Nantes and Lyon, Cailliaud and Jourdan, respectively, were given relatively free rein in their policies of acquisition, as long as they followed the discussed and established budgetary lines. Supplies were made, works were ordered, and the mayor stepped in at the moment of payment. An example from Nantes reveals another typical document issued by the museum which points towards the grouping of purchases and overall payment.

The cleaning and maintaining of the museum necessitated accessories and supplies for which the janitor would pay up front and thereafter make a claim for reimbursement. The document was elaborated by himself in a writing denoting lesser assurance. It was then submitted to Cailliaud who apposed his signature. The document then reached the committee president, here François-Nicolas Pihan-Dufeillay.[79] After that, the cabinet of the mayor finalised the approval with the

[77] MHNL - DP-J, "Journal de Jourdan", p. 82-83, "Lettre à M. le Sénateur relative à une plainte de Mr. Ferron pour un prétendu retard de paiement", 12 April 1864.
[78] "À 120 lieues d'ici". One league was equivalent to ca. four kilometres.
[79] Pihan-Dufeillay was a physician and the Director of the School of Medicine in Nantes.

inscription "bon" and a signature of the mayor. The money order could then be delivered to the janitor.[80]

a. Crafting the museum authority of the mayor

The construction of the authority of the mayor, the savant responsible for the

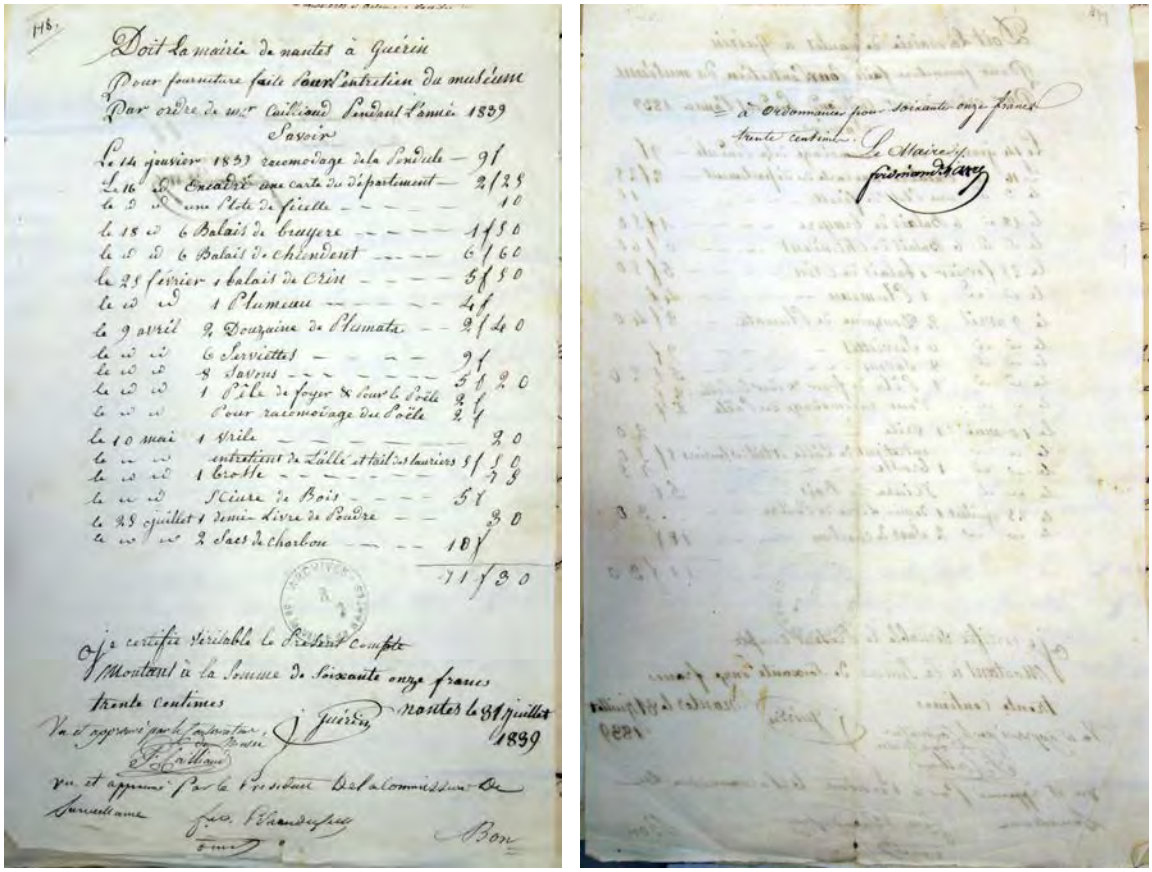

Figure 8 - Claim for payment of Guérin, janitor at the Nantes museum, 1839. AMN

museum, could take place in relations happening "at the most insignificant level [*au ras du sol*] of banality of the everyday" involving numerous arrangements between numerous protagonists, contrary to what teleological perspective may suggest.[81] By drawing attention to short-term temporality, to everyday happenings in the life of the museum, and to the slightly slower processes of the setting-up of the administrative framework structuring and supervising the museum, I would like to shed light on the mechanisms associated with the progressive control taken over the museum by the city. The term should be here understood mainly in the political and administrative sense of 'municipality', which designates one layer of the urban space where the

[80] AMN - 2R565, [Declaration of expenses paid upfront by Guérin for the year 1939], 31 July 1839.
[81] Emmanuel Droit and Pierre Karila-Cohen, *Qu'est-ce que l'autorité? France-Allemagne(s), XIXe-XXe siècles* (Paris: MSH Paris, 2016), 5.

museum is institutionalised, which corresponds, I argue, to the appropriation of the museum and of natural knowledge.

The development of museum science in the cities is mainly documented by administrative sources. Delphine Gardey has studied the inflation of "public writing" in the light of industrial development and recalls how the act and product of writing had long been imprinted in the culture of administration.[82] It is important to take it upon ourselves to appreciate the physical operation necessary to writing, the time, space and instruments necessary to it. These attitudes and movements of the body were part, too, of the making of the museum, and underpin most of what follows.[83] Again, it was not an effortless process, and required personal engagement with the object. This approach brings meaningfulness to administrative sources and should be preventive of taking them as empty statements: they constitute an important aspect of the tangibility of the museum.[84]

Turning our heads towards the mayor again, his office was the place where physical engagement took place, by reading and signing a document. As an example, a lengthy report on mineralogical survey submitted in 1811 by Dubuisson, director of the Museum of Nantes, conveyed numerous details, also very specifically scientific, about his trips in the Loire-Inférieure and their outcome. The document carried the signature of the mayor at the bottom of the page, a sign that he had read and endorsed it in the name of the city.[85] One can easily picture the mayor reading, be it quickly, the document, by holding it in his hand and then writing his name. This ephemeral, perhaps unimportant, moment translates as actual contact with the matter, and time dedicated to thinking, assessing, judging if the motivations there exposed were convincing or not. As a matter of fact, the action of deciding came with a series of invisible gestures which can be reconstructed. The physical contact points to the convergence of a role with an object. Indeed, the mayor could in fact be several individuals altogether: a similar document to the one presented above could be read and signed by a deputee mayor for instance, which also poses the question of the preliminary work of the mayor's secretary and how the tasks were segmented. By all means, the authority is the mayor's, and responsibility falls to him. Signing and the signature bore his authority, but also the guarantee as the custodian of public order,

[82] Delphine Gardey, *Écrire, calculer, classer: comment une révolution de papier a transformé les sociétés contemporaines, 1800-1940* (Paris: La Découverte, 2008), 19.
[83] Ibid., 75.
[84] Dinah Ribard and Nicolas Schapira, eds., *On ne peut pas tout réduire à des stratégies: pratiques d'écritures et trajectoires sociales* (Paris: Presses universitaires de France, 2013).
[85] AMN - 2R569, it. 7, Dubuisson to the Mayor of Nantes, 'Notice sur les substances minérales que j'ai eu occasion d'observer dans le courant de 1811 sur divers points du département d'après l'ordre que m'en avait donné le Mayor de Nantes', 10 December 1811.

of legitimate management of a public institution, which a museum of natural history was.

b. Lines of demarcation

Demarcation between administration and science was not a question, from the perspective of paper. But the numerous conflicts between the supervising committee, or the piqued tone of Jourdan, who felt insulted by the accusation of theft of the money destined to enamel eyes, say otherwise. The professors of the Muséum National d'Histoire Naturelle in Paris, between 1849 and 1863, feared very much that the implementation of a committee would trouble a savant production of knowledge by introducing foreign administrative techniques, which could be summarised as the fear of non-science mingling with science and affecting its purity.[86]

Isabelle Laboulais has highlighted the importance of communication between services related to administrative knowledge and scientific knowledge with the example of the perforation of the walls separating the two services at the Maison des Mines in Paris.[87] In Nantes, museum and city hall were neighbouring but separated by a short distance. Wall opening was not a solution, but paper documents served as a loom shuttle coming back and forth from museum to the office of the mayor, weaving solid links between the two places. Bureaucratic procedures very much participated in the elaboration of the museum of paper, a twin to the museum of objects.[88]

While the paper shuttled between the museum and the city hall focused attention on the relationship between museum and power, the content of the documents also raises questions about the permeability of knowledge related to nature on the one hand, and the administrative knowledge on the other. Drawing strict lines between those two spheres would be unreasonable: Dagognet has already demonstrated how the practices of administration to tame diversity are next of kin to those used in the natural sciences: the techniques of register, inventory, catalogue, assignment of identity are part of a shared culture of inscription.[89]

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[86] Limoges, 'Une "République de Savants" sous l'épreuve du regard administratif: Le Muséum d'Histoire Naturelle 1849-1863'.

[87] Laboulais, *La Maison des mines: la genèse révolutionnaire d'un corps d'ingénieurs civils (1794-1814)*, 13; 40–46. The telling example of the wall perforation was noted by Vincent Denis and Pierre-Yves Lacour, 'La logistique des savoirs', *Genèses*, no. 102 (2016): 115, https://doi.org/10.3917/gen.102.0107.

[88] On the historiography of bureaucratic tools, see Laure Quennouëlle, 'Où va l'histoire de l'État ?', *Le Mouvement Social* 200, no. 3 (2002): 73–79, https://doi.org/10.3917/lms.200.0073. An original paper in French about the dialogue between bureaucratic tools and natural history can be found in: Denis and Lacour, 'La logistique des savoirs' which dwells on ; Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005); Lorraine Daston, 'The Sciences of the Archive', *Osiris* 27, no. 1 (2012): 156–87, https://doi.org/10.1086/667826.

[89] Dagognet's *Pour une théorie général des formes*, 1975 (chater 2) was cited in Limoges, 'Une "République de Savants" sous l'épreuve du regard administratif: Le Muséum d'Histoire Naturelle 1849-1863', 72. B. Kafka,

The administrative holders of authority found their roles to be defined, once the thin layer of codification is removed, by practice and confrontation with real life situations. Together with naturalists, either museum directors or members of a supervising committee, they formed a pool of actors who handled the life of the museum, which was itself, as the previous sections have shown, a moving and relatively fugitive institution, especially in the first third of the nineteenth century. Their elbow room was limited, but the disinterest of central government for those established in the provinces certainly provided some degree of liberty on the ground.[90]

Museums, like the institutional framework, were new as public institutions. The question of Bertrand-Geslin to Belleville in 1806 conveys the unfamiliarity of the matter: why should municipalities have a cabinet of natural history?[91] Handbooks and helpers published to support mayors and other local officials in responding to their duties were silent about the question of museums. Their content was mainly based on official bills, which shows that the legislation itself was seldom vocal about this question. Lessons of governing a museum had to be learnt, on bureaucratic grounds. These were traceable in the interactions between those figures composing the pool of actors.

c. Mediating the museum

If the municipal administration was to govern the museum, it was recommended that the mayor develop a practical knowledge of the place. This at least was the vision nurtured by the museum directors who invited the mayor to come and tour the galleries on a regular basis. The objective was for the mayor to see and observe the practical situation. Jourdan recalled how the mayor had visited the new gallery of mineralogy and had "signalled himself" some of the degradations which needed repair.[92] In Nantes, Dubuisson requested the visit of the mayor often in case of conflict.

> "Ever since the fortunate city of Nantes has been administered by you, I have not had the pleasure to possess (sic.) you at the *Muséum*. The demands which you request from me in your last letter necessitate that I urge you to indicate your preferred date and time in order to visit this establishment together and comprehend if the demands which you made in your letter were executable within the interval of time so narrow you allocated. I would be ever so satisfied if you complied with my request for you would acquire more exact

'The Imaginary State: Paperwork and Political Thought in France, 1789-1860' (Doctoral thesis, Stanford University, 2004).

[90] Jérôme Lamy demonstrated how the observatory was left aside from centralising plans and instead of retreating, it opened to the rest of the city, with the opening of astronomy classes, esp. See: Jérôme Lamy, *L'observatoire de Toulouse aux XVIIIe et XIXe siècles: archéologie d'un espace savant* (Rennes: Presses universitaires de Rennes, 2007), 255–305.

[91] See Chapter 2, 1. Of paper and lessons learnt: governing the museum, p. 126.

[92] AML - 78WP017, Jourdan to the Mayor of Lyon, 15 July 1839.

> knowledge of the importance of such an establishment, which many people take the liberty of judging without knowing."[93]

The invitation is hardly polite: Dubuisson's style was clumsy and his command of the language was limited to a point in which he appeared lacking deference to his superior.[94] His missive however illuminates the perceived lack of understanding of the situation of the museum: "knowledge" of the institution was to be built empirically, and like seeing the collections was necessary to learn about natural history, learning about the museum required one to experience it through the senses. Given the repeated invitations, the mayor of Nantes visited rarely.[95]

The natural history museum was not the centre of municipal attention and the mayor would develop his knowledge about the museum through the reading of reports about the museum activities. Writing could be compulsory, like in Lyon. It would usually come as a counterpart for the justification for specific funding, like the mineralogical campaigns of Dubuisson. From 1811 to 1823, Dubuisson submitted fourteen two- to three-page reports on "diverse mineral substances" he had "observed in various points of the *département*".[96] They contained locational and mineralogical information, sometimes worded in very specific terms, with little attempts to adapt the language. In exchange for proof of good practice and scientific expertise, asserted through specific wording, neutralised style in the form of lists of substances, Dubuisson could justify his claim for payment of the 600 francs allocated yearly for mineralogical surveys.

The reports would otherwise be produced sporadically, usually upon punctual demand from the administration. In 1866, the museum of Nantes stood at a turning point as it was expected to be transferred into a new locale. This symbolic transformation had been under study for several years already.[97] The request for a report on the museum and its "utility" came as the justification for the continuation of the renewal process. The description offered by Cailliaud of the museum activities revolved around several key points which summarise his vision, perhaps generalisable

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[93] "Depuis que la Ville de Nantes a le bonheur d'être administrée par Vous. Je n'ai pas eu le plaisir de vous posséder au Muséum, les demandes que vous me faites par Votre dernière lettre, me mette dans la nécécité, de vous prier de mindiquer le Jour et l'heure dont vous pourez disposer, pour que nous puissions visiter ensemble cet etablissement, et vous pénétrer si les demandes que vous me faites dans votre lettre sont executables pendant un laps de temps aussi exigu que celui que vous assignéz, Je serais dautant plus satisfait que Vous obtemperiez à ma demande que vous acquereréz une connoissance plus exacte de l'importance de cet Etablissement, que beaucoup de Jans savisent de juger sans le connoître.": AMN - 2R565, Dubuisson to the Mayor of Nantes, 11 February 1834.

[94] Dubuisson was placed in apprenticeship at the age of 13 and was most probably self-taught in his literacy: Pihan-Dufeillay, 'Notice biographique du F.-R.-A. Dubuisson, Conservateur du Muséum d'Histoire Naturelle de Nantes', 199.

[95] AMN - 2R569, fo. 22, Dubuisson to the Mayor of Nantes, 10 November 1824.

[96] AMN - 2R569, fo. 7-12,14-20, 25, "Notice des différentes substances minérales (…)" for the years 1811, 1812, 1813, 1814, 1815,1816,1818,1819,1820,1821,1822,1823,1824,1825.

[97] See Chapter 3, 3. In the future of the city: the imagined museum, p. 213.

to municipal museums in general, of what the city's collection was useful for.[98] The policy of acquisition came first, with emphasis on recent important additions like the bequest of the Bertrand-Geslin cabinet. It was followed by a presentation of activities of research, focused principally on mineralogical surveys, and complemented with longer comments of the actual utility of such or such a sample to the industrious minds of Nantes. The third aspect, teaching and natural classes, served to prove utility to a wider public of the students and professors of Zoology and Chemistry of the Ecole des Sciences, thus demonstrating a beneficial inscription of the museum in the scientific landscape of the city. Size and influence also mattered: keeping them for last, Cailliaud insisted on the number and diversity of specimens (mineralogy, in this case) and the recognition from peers contained in letters of savants. Eventually, the museum served to "strike the eyes and gather useful knowledge", perhaps a *topos* of empirical learning from the superior forces of nature, but certainly still an effective argument.[99]

As Cailliaud noted at the start of his report, in diplomatic fashion, the authorities were probably already well-informed of the ways in which the museum mattered before reading his text. The inscription of those points onto paper equated to materialising knowledge through paper record. The mayor was mainly interested, in fact, in knowledge about the museum as institution. The report was an essential piece in the process: through the pedagogical translation performed by Cailliaud by means of selecting the most sensible elements for the ears and eyes of the mayor, the mediation between the two places could operate. As the translator, Cailliaud's writings were pivotal in the government of the museum, which lay essentially in explaining time and time again that the museum was "useful".

d. Horizontal collaborations: mayor vs mayor; prefect vs prefect

Lessons on museum administration could be taken horizontally, from colleagues in positions of responsibility in other cities of France. One reason for seeking the assistance of another mayor was in the context of conflict resolution. In 1841, the regulations of the museum of Nantes were to be modified upon the request of Cailliaud to reinstate a Saturday closure necessary for works of maintenance.[100] The mayor, Ferdinand Favre (mayor of Nantes 1835-1847, 1852-1865), initially opposed this measure, arguing that Saturdays were the only day convenient for landowners ("*propriétaires*") to visit the collections.[101] He was also piqued because the decision of

[98] AMN - 2R565, Cailliaud to the Mayor of Nantes, 25 July 1866.
[99] Rusque, 'Le Dialogue des objets. Fabrique et circulation des savoirs naturalistes : le cas des collections de Jean Hermann (1738-1800)', 451–91.
[100] AMN - 2R565, Cailliaud to the Mayor of Nantes, 24 September 1841.
[101] For the complete list of Mayors, see Appendix E: Chronology of Mayors of Lyon, Nantes & Toulouse, p. 435.

the modification had been taken without consulting him in the first place. The mayor decided to interrogate the mayor of Bordeaux about regulations in general and especially open days at "his" museum of Bordeaux. His counterpart cordially replied that no formalised regulations existed, but provided the elements of a customary code of conduct with regards to the collections in vigour in Bordeaux.[102] The museum was open two days a week, Thursdays and Sundays. Assuredly, Favre therefore found no objection to closing the museum on Saturdays, as Bordeaux also did.

Favre was accustomed to seeking advice from among his colleagues, as he also sent out queries about the botanical garden. He sent a very precise list of questions to a selection of colleagues from Bordeaux, Lyon, Angers, Tours, Rennes and Rouen about the botanical garden. The questions were related to the organisation of the garden and the space allocated to different zones (nursery, school, landscaped garden), technical issues such as water supplies, questions related to staff and their attributions and so on. Interestingly, the mayor referred to the "experience" of misdemeanour which could therefore be prevented.[103] Judging from the available responses, the mayors of Rennes and Caen alone wrote back. Their responses consisted essentially of sending the regulation books for their own gardens.[104]

This type of interaction was often conducted between officials from equal categories. For instance, in 1820 the Prefect of Rhône, Albert de Lezay-Marnésia, was approached by the prefect of Bouches-du-Rhône, Christophe de Villeneuve-Bargemon (1815-1829), to request some advice on the construction of a new building.[105] The city of Marseille, he wrote, was about to have a new locale constructed for the *Musée*. He had heard about the renovated museum of Lyon, "remarkable in every respect" and thought it could serve as a guide for the Marseille constructions. Consenting to his request, the prefect requested Antoine-Marie Chenavard, Head Architect, to elaborate the requested documents. They provided a map of the building used to host the museums but declined any possible help with new foundations as Lyon's museum was installed in extant premises, showing some misunderstanding in the initial information Villeneuve-Bargimon had been given.

[102] AMN - 2R565, the Mayor of Bordeaux to the Mayor of Nantes, 30 November 1841.
[103] AMN - 1O16152: The Mayor of Nantes to the mayors of Bordeaux, Lyon, Angers, Tours, Rennes, Rouen, 30 January 1835.
[104] AMN - 1O16153: "Règlement de police pour le jardin des plantes de Rennes", 1808; "Règlement pour la Jardin Botanique de la Ville de Caen" [n.d.]
[105] 'La ville de Marseille est sur le point de faire construire un local pour y translater le Musée, qui se trouvé présentement dans une église qu'on désireroit rendre au service du Culte. J'ai été informé que la Vile de Lyon avait depuis peu réédifié un musée sur un plan remarquable sous tous les rapports, et j'ai pensé que vous voudriez bien me communiquer, afin qu'il pût servir de règle aux constructions qui doivent se faire ici. Je vous serai dont personnellement reconnaissant de me faire parvenir un plan du musée du Lyon, avec les coupes et élévations, accompagné d'un aperçu de la dépense portée au devis.": ADR - 4T/61, Prefect of Bouches-du-Rhône to the Prefect of Rhône, 21 May 1820.

The municipalisation of natural history museums had generated a relatively developed circulation of knowledge about museums between cities, but it did also turn mayors into potential targets for transactions related to objects of natural history.[106] This in turn developed a form of competition between cities, which the naturalist owners of cabinets used to raise the stakes. Examples included Dubuisson warning that he would sell his collection to the city of Poitiers if Nantes did not make a decision regarding the purchase of his collection, failed many times already.[107] Charles Bertrand-Geslin, besides, had designated several cities as the recipient of his collections as a means to ensure that the conditions of his will were respected.[108] A fruitful way to convince a municipality to opt for the purchase of a naturalist's collection of objects was to insist on what a good buy it was: Jourdan recalled, with a pinch of irony, how a bulky whale skeleton without adequate storage area had been, nevertheless, a bargain for the city of Lyon.[109] A surging competitiveness between cities appeared here and there, casting light on occasions in which municipalities were brought to contention about naturalist collections. If the process continued well after this date, signs of the appropriation of the provincial natural history museums as municipal institutions were manifest after 1830 onwards in Nantes and Lyon.

e. Constructing the defiance

In contrast with naturalist collection owners who were contemporaries of Lapeyrouse, the spatial range of supply for information and collection objects, in the case of municipal museums, had shrunk to the inside of the national territory, and even to a regional one, as the donations to Toulouse show. The municipalisation of the museums also cut the savants from their wider network, inaccessible owing to lack of means and invisible because not in the perspective of officials whose sight was curbed by the territory of which they were in charge. Even Jourdan, who was at the head of a relatively wealthy institution, seldom made acquisitions across the border.[110]

Therefore, all eyes were turned towards Paris and the occasional *envois* or extraordinary "shippings". The overall register of shippings from 1830 to 1858 shows that the number of demands exceeded actual responses. *Envois* followed a request initiated by a mayor or a naturalist in charge of a collection, and they were assessed

[106] See Appendix F: Donors of collections in Toulouse, 1819-1868, p. 437.
[107] AMN - 2R568, Dubuisson to the Mayor of Nantes, 13 July 1825 and 20 July 1825.
[108] The other cities were Nantes, Rennes, Le Mans, Angers, with a preference for Nantes. See AMN - 2R567 - 'Consentement de la famille de Charles Bertrand-Geslin à l'exécution de ses dernières volontés', 2 November 1863. In 1866, the son of Charles Bertrand-Geslin shared his discontent with the fact that the collections of his father were still preserved in ill-conditions. See AMN - 2R567, Henri Bertrand-Geslin to the Mayor of Nantes, 10 août 1866.
[109] AML - 78WP017, Jourdan to the Mayor of Lyon, 15 July 1839.
[110] See Chapter 4,1. A visit to the masters? Travelling to London, Paris and Rome, p. 253 and 2. To the mountains, p. 275.

by a committee who took the decision to grant the *envoi* or not. The requests for Toulouse, for instance, were placed from the Faculty of Science, without any intervention of the mayor during this period: a natural history existed, but it was the property of the faculty and did not involve the municipality. In Nantes, the requests were often made jointly between the mayor and museum director. The intervention of Gabriel Prunelle (mayor of Lyon 1830-1835; *député* 1830-1839) appeared in black and white in the case of Lyon. A qualitative examination of the information contained in the register shows that *envois* ("shippings") were concentrated in the 1830s and thereafter became sporadic.[111]

Lyon kept a register of objects arriving from Paris. One notebook, possibly registered as *Catalogue des objets envoyés par le Muséum de Paris*, misleadingly suggests that an inventory of all incoming objects was kept.[112] The notebook contained various notes and lists from the period of Jourdan, preceded by a very long catalogue of objects effectively sent by Paris. The list was written all at once in clean handwriting: it did not serve as an accession catalogue which was updated on a regular basis. Rather, it was the record of one set of incoming objects which was unfortunately not dated.[113] Perhaps some elucidation to this catalogue may be found when put in relation to a second notebook[114]. The first page contains a one-page table summarising a group of 6,218 specimens from all branches of natural history, followed by what looks like the primary inventory of the shipped objects from Paris, prepared by Gabriel Bibron, an assistant naturalist at the Muséum National.[115] Some 1,500 of them had been given at no cost by the Muséum. Both notebooks were then reused for other purposes, especially the recording of purchases. In addition, the heavily used aspect of the second one seems to confirm the hypothesis of a notebook in portable size, a convenient format to take notes on objects while unpacking boxes or shelving them.

What those notebooks indicate about the history of objects sent by the Muséum National is how shippings from Paris were in the majority, at least in the case of Lyon, the result of specific orders obtained against payment, and also that the key intermediary was Jourdan himself. Both notebooks were written up in the early 1830s, when he was the young new director of the museum who had been entrusted by Prunelle with the development of the Lyon museum. A quantitative study at national scale is lacking to us, but provisional conclusions tend to point towards the limitedness

[111] MNHN - AM625, Registre des demandes d'objets d'histoire naturelle pour les Musées des département et pour divers établissements d'Instruction publique (...), ouvert en 1836 remontant à l'année 1831.
[112] CCEC - CO-CON, "1793-1834".
[113] The date indications on the volume, written in ballpoint pen on surgical tape placed in the twentieth century, are but plausible.
[114] CCEC - CO-CON, "1832-1834".
[115] The information is contained in CCEC - CO-CON, "1832-1834". A specialist of reptiles, which Jourdan studied keenly in the 1830s, Bibron is likely to have been a contact of the recently appointed museum director.

of opportunities for shippings from the Paris Muséum and their perceptible drying-out after 1840. The situation of Lyon, where industrial development substantially increased the city's financial autonomy at municipal level, definitely singled out Jourdan's museum with respect to Nantes or the non-existent museum of Toulouse.

Conversely, some *envois* could be exceptional. When he came back from his "Expedition to the Northern Seas", Prince Napoléon Bonaparte and his team brought with them an important collection of objects. Cities could request the attribution of part of those "scientific collections". The city of Toulouse requested that some of the objects be given to the municipality. In 1856 a letter from the Palais Royal announced that there were only a few objects, and certainly not enough to satisfy all the demands from all the cities of the empire which requested some. On top of that, the message underlined, most of those objects were already promised to the Muséum National in Paris.[116] In late April of 1857, Toulouse was eventually notified of the news: the Emperor had offered a few objects destined for the "Museum of Ethnography" of Toulouse.[117] Thirteen specimens of zoology, five specimens of mineralogy, and forty-five molluscs were prepared for Toulouse, leaving the responsibility to them to look after the postage and shipping of the objects.[118] The Secretary did not fail to mention that prompt collection of the gift would be advisable for reasons of conservation. The gift was relative: transportation of objects from Paris to Toulouse was expensive. Repayment was obtained in symbolic value, with this small group of natural objects drawn out from a lot destined for Paris, certainly a token of the imperial appreciation towards Toulouse.

The imperial gift underlines how the development of a collection resided sometimes in the manifestation of plain adhesion to the regime, and by all means through political intercession. Prunelle, under whose mayorship Jourdan was appointed, notably helped several times in unlocking access to objects which otherwise would have been out of reach. A member of parliament (*député*) since 1830, Prunelle had led the committee leading to the purchase of the Gillet-Laumont cabinet intended for the Muséum National. In so doing, he had also arranged for the natural history museum of Lyon to obtain most of the doubles from the said collection.[119]

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[116] AMT - 3D132, Hubaine, Personal Secretary of the Emperor to the Mayor of Toulouse, 25 December 1856.

[117] The services of the Emperor were visibly confused with the name: Toulouse possessed a gallery of ethnography following the bequest of Rocquemaurel (see Chapter 1, B. Donors of collections and the collective collection, p. 79) but did not have such a separate museum.

[118] AMT - 3D132, Objets recueillis par S.A.I. le Prince Napoléon dans son voyage des mers du nord, en 185~~5~~6 et donnés par S.A.I. au Musée de Toulouse, [1857]. The catalogue came with a note handwritten by Hubaine and signed by Napoleon III.
AMT - 3D132, Hubaine, Personal Secretary of the Emperor to the Mayor of Toulouse, 25 April 1857.

[119] AML - 78WP017, Minutes of the municipal council, 16 July 1835; AML - 78WP021, Jourdan to the Mayor of Nantes, [1835?]

Intercession by the mayor was plainly requested by Jourdan in 1847, in order to resolve the embarrassing situation in which the museum of Lyon had acquired the skin of an elephant prepared for them by the Muséum National. Lyon was in debt to the tune of 1,000 francs, about which Isidore Geoffroy Saint-Hilaire wished to inform Terme, mayor of Lyon, on his passage through Paris.[120] Summoned to provide an explanation for the situation, Jourdan admitted that the museum was not in a position to pay the requested amount, and requested that a subsidy be asked from the University.[121] Over six months later, Brongniart and Milne-Edwards reiterated their demand, turning to the mayor directly. The rest of the story is not known.[122]

Relations with Paris, in terms of gifts, were weaved with defiance, opportunely constructed on those occasions of exchange mishaps. Was it snobbish of Mouton-Fontenille to deplore the acquisition of such bad quality birds, ill-prepared and already damaged upon reception, or was the shipped lot from Paris effectively of lesser quality?[123]

Uneasy relations could be expressed in the opposite situation, like the refusal to lend a specimen to Paris, for fear that it would never come back. In spite of the insistence of the donator of the specimen and the renewed guarantees of the Muséum National to hand back the object afterward, the Nantes museum repeatedly declined to lend a kangaroo. Possibly just an excuse, Dubuisson stated that the kangaroo was not in a situation to be transported for such a long journey and would certainly have been damaged, thereby ending the negotiations. [124]

Suspicion regarding Paris resulted in both lingering memories of conflicts, usually around financial difficulty, and the construction of a situation of scarcity resulting from the centralised organisation of resources useful to the naturalists, which was inscribed in the administrative hierarchy.[125] Therefore, competition between cities was also hinged on the capacity of local officials and representatives of the state to negotiate, usually through physical presence, with the central scientific, for instance the Muséum National, and political authorities located in Paris.

One of the strengths of scientific development in nineteenth-century France is often described as the important public support it was given.[126] Consequently, the

[120] AML - 78WP017, [note from Isidore Geoffroy Saint Hilaire requesting an interview with Terme], 18 August [1846?].
[121] AML - 78WP017, Jourdan to the Mayor of Lyon, 15 October 1846.
[122] AML - 78WP017, Brongniard and Milne-Edwards to the Mayor of Lyon, 21 March 1847.
[123] AML - 78WP021, Mouton-Fontenille to the Mayor of Lyon, 11 April 1820.
[124] AMN - 2R565: Dubuisson to the Mayor of Nantes, 21 August 1825.
[125] AMN - 2R565, Mémoire des travaux faits par Genon pour la Muséum d'histoire naturelle de Nantes. 1835, by Genon, 15 May 1836.
[126] Gillispie, *Science and Polity in France*; Fox, *The Savant and the State*.

production of science in Britain suffered from the weakness of the state.[127] The development of municipal museums in the French provinces was, in this respect, paradoxical. Of little interest to the central authorities, provincial collections were often abandoned to communities which hardly knew, beyond a small group of local naturalists, how to administer such an object. In parallel to local authorities in the process of delineating their competences, municipalities were also very limited in terms of the financial means allocated to maintain a museum. The paradox lay in the fact that out of centralising homogenisation, the museums were turned into public municipal institutions but their development from afar from, and perhaps against, central political authorities led to the construction of institutions solidly rooted in their cities.

2. ADMINISTRATIVE GRIP AND COLLECTING

The fabricated marriage of convenience, at least initially, between the municipal administration and the natural history collection did have strong effects. Just as the municipal administration of the museum affected the culture of and ways of governing the museum, it also impacted the practice of collecting, and especially field practices. "National institution and customs have shaped the very nature of the field sciences in ways that historians have barely begun to explore," Henrika Kuklick and Robert Kohler wrote in 1996.[128] In the past twenty-five years or so, French scholarship has contributed in a compelling way to the exploration of the interaction between state knowledge ("*savoirs d'Etat*") and scientific knowledge ("*savoirs savants*"), hence drawing attention to the practical framework of the execution of scientific enquiry, at the boundary between engineering and research.[129]

A. Travelling and mapping: an administrative approach to data collection

The revolutionary French territory was one eminently conceptual and ideological, and as such it was the object of intensive reflection on how to rationalise

[127] Simon J. Knell, *The culture of English geology, 1815-1851: a science revealed through its collecting*, Ashgate (Aldershot, 2000); John V. Pickstone, 'Les révolutions analytiques et les synthèses du modernisme', in *Histoire des sciences et des savoirs. Modernité et globalisation*, ed. Kapil Raj and H. Otto Sibum, vol. 2 (Paris: Éd. du Seuil, 2015), 41.
[128] Henrika Kuklick and Robert E. Kohler, 'Science in the Field - Introduction', *Osiris* 11 (1996): 10.
[129] Marie-Noëlle Bourguet et al., eds., *L'invention scientifique de la Méditerranée: Égypte, Morée, Algérie*, 77 (Paris: Éditions EHESS, 1998); Laboulais, *La Maison des mines: la genèse révolutionnaire d'un corps d'ingénieurs civils (1794-1814)*.

it.[130] During the French Revolution, most of the administrative framework of the Ancien Régime was smashed, given new names and new shapes in an obstinate will to give a new start to the society. All city privileges were removed, and for instance, all localities were framed under one common entity, regardless of size or quality, *la commune*.[131] Most of these developments on proceedings to reach administrative and political homogeneity were heavily centralised in Paris, which maintained and reinforced its position as the administration centre of calculation. The ministers in general, and particularly, the Minister of the Interior became important end stations for the collected data on the new *départements*, with the development of departmental statistics and surveys on 'l'état des esprits', especially under the French First Empire and the Restoration.[132]

Départements, in particular, provided a new framework for the collection of data about the economy, the demography or natural resources, also known as statistics (*la statistique*). Marie-Noëlle Bourguet has shown the importance of the tradition, at the turn of the nineteenth century, of describing the provinces in order to submit accounts to higher tiers of the government.[133] This centralised procedure was constitutive of the territorial formation of France with the collaboration of the elites, locally. The trend was pursued in the early nineteenth century with a plan of statistical enquiries requested from newly established prefects in order to establish a clear view of the state of the French territory in its newly extended borders.[134] Similarly, engineers, who were publicly hired servants of the state, were also expected to proceed to *tournées* and *courses géologiques* in order to gather information about mineral resources, in this case. It was mainly an administrative gesture, and the engineers of the turn of the nineteenth century were sometimes bitterly opposed to being assigned with a field of study responding to administrative constraints rather than scientific rationale.[135] '*Les courses*' had therefore long been exercises of surveying the territory, assisted by the local elite, both for scientific and administrative purposes.

Museum activities were largely constrained by the administrative and geographical limits of the department and formed a rationale which guided research projects and conceived nature at the scale of that *département*. The publication of a

[130] Ozouf-Marignier, *La formation des départements: la représentation du territoire français à la fin du XVIIIe siècle*.
[131] Bernard Lepetit, *Les villes dans la France moderne (1740-1840)* (Paris: Albin Michel, 1988), 23.
[132] Marie-Noëlle Bourguet, *Déchiffrer la France: la statistique départementale à l'époque napoléonienne* (Paris: Editions des archives contemporaines, 1989); Karila-Cohen, *L'état des esprits: l'invention de l'enquête politique en France (1814-1848)*; Pierre Karila-Cohen, 'État et enquête au XIXe siècle: d'une autorité à l'autre', *Romantisme*, no. 149 (2010): 25–37.
[133] Bourguet, *Déchiffrer la France*.
[134] Karila-Cohen, *L'état des esprits: l'invention de l'enquête politique en France (1814-1848)*.
[135] Laboulais, *La Maison des mines: la genèse révolutionnaire d'un corps d'ingénieurs civils (1794-1814)*.

series of geological descriptions of departments, usually as a supplement to the edition of a geological map of the given department, is a good example of this constraint.

In comparison with other points of the French territory, museum directors were hardly comparable with the other public servants assigned with the study of departmental geology. A French corps had been designed for precisely this purpose: the mine engineers, and they indeed authored most of the geological descriptions of departments.[136] By means of a circular letter possibly uttered by the Ministry of the Interior, departmental effort was requested and the geological enquiry was thereby relayed by prefectoral services and the General Council, the departmental assembly.[137] The general geological map of France, co-ordinated by Elie de Beaumont and Dufrénoy, had been published in 1840 after half a decade of investigation which had principally relied on the work of cohorts of mine engineers. Now greater detail on local geology was the centre of attention, and some even expected that it would serve the interest of inhabitants of the *départements* by eventually casting light on the specific departmental resources and providing enough detail about them, therefore serving agriculture and mineral exploitation.[138]

In spite of their lesser numbers, geological maps produced by individuals who were not mine engineers were also made. The administrative framework is hazier but

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136 These examples are issued from the Thiollière collection especially, which constituted an important book collection on geology and palaeontology kept at the Palais Saint-Pierre library possibly from the 1850s onwards: Eugène de Fourcy, *Carte géologique du Finistère* (Paris: Imprimerie de Fain et Thunot, 1844), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001103317041; Eugène de Fourcy, *Carte géologique des Côtes-du-Nord* (Paris: Imprimerie de Fain et Thunot, 1844), http://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001101711088; Mathieu Cacarrié, *Description géologique du Département de Maine-et-Loire* (Angers: Imprimerie de Cosnier et Lachèse, 1845), http://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001101154693; C. Boulanger, *Statistique géologique et minéralurgique du département de l'Allier* (Moulins: Imprimerie Desrosiez, 1844), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001100243075; Jean-Ludovic Guillebot, *Légende explicative de la carte géologique du département de la Côte-d'Or* (Paris: Imprimerie Impériale, 1853), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001100243109; H. Résal, *Statistique géologique, minérologique et métallurgique des départements du Doubs et du Jura* (Besançon: Dodivers et Cie, 1864), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001100243158.

137 See the introduction to Félix de Boucheporn, *Explication de la carte géologique du département du Tarn* (Paris: Imprimerie Nationale, 1848), vii–lxi, https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001101190291;Fourcy, Carte géologique du Finistère, v–xiii; Fourcy, Carte géologique des Côtes-du-Nord, v–18.

138 The impetus for and the funding of the geological map of French *départements* would require further clarification, but at this stage the incentive seems to have come from the *Mines*. Boucheporn indeed explained how his own geological enquiry of the Tarn stemmed from the 1820s and 1830s project of a *Carte Géologique de France* initiated by Brochant de Villiers and later by Élie de Beaumont and Dufrénoy: Boucheporn, *Explication de la carte géologique du département du Tarn*, i–iii.; The budgetary records in Lyon for the the 1860s appeal to circular letter of 30 August 1825 for "Recherche ~~de mines ou encouragement pour les cartes et géologiques~~ *minéralogiques dans le bassin du Rhône* (sic.)" for the annual expenditure of 1,200 francs for minerological research. The exact content of this circular letter nr the emitter could be identified, but I hypothesise that Brochant's project translated into regulated funding at the level of départements to allow local engineers to conduct the research: ADR - 3N33-38, Departmental budget, 1859-1864. See also Isabelle Laboulais, 'Aux origines de la carte géologique de France: retour sur les productions cartographiques du corps des Mines au cours du premier XIXe siècle', in *Les ingénieurs des Mines: cultures, pouvoirs, pratiques : colloque des 7 et 8 octobre 2010*, ed. Bruno Belhoste and Anne-Françoise Garçon (Paris: Comité pour l'histoire économique et financière de la France, 2012), 19–31.

nonetheless suggests a general interest from the scholarly communities, with local academies of science leading the way. Cases of the geological maps of Seine-Inférieure in 1832 and Dauphiné (namely Drôme, Isère, Hautes-Alpes) in 1860 were conducted respectively by Antoine Passy, the prefect of Eure, and Member of the Rouen Academy of Science, and by Charles Lory, a professor of the Grenoble Faculty of Science.[139]

Among the odd ones out stood Cailliaud's geological map of Loire-Inférieure. The Nantes museum director published a very short piece, less than twenty pages long, in 1861. His description of the geology of his *département* of Loire-Inférieure offers a puzzling look at how certain types of rocks would be "missing" from the *département*, in Cailliaud's words, like for instance white chalk which yet present across the Loire river basin.[140] Quite on the contrary, granites were described as so abundant that it was even difficult to delineate their fields and earmark certain localities for their study or exploitation.[141] The quality of Loire Inférieure's granites was also underlined, like its resistance to 'the destruction of time': the good nature of the department was hereby demonstrated. It looks as if a department would ideally be a miniature of world geology and provide for samples of every existing kind of mineral. While the framework of the presentation follows a stratigraphic reading of resources, which guarantees exhaustiveness, moving through all strata of the geological time scale from primary to tertiary era, the *Carte géologique de la Loire-Inférieure* is hardly more than a checklist of the availability and deficiency of certain rocks.

A quick comparison with the geology of Tarn and the contemporary geology of Dauphiné make it very clear that Cailliaud's publication is comparatively superficial. Boucheporn and Lory's descriptions are at least a hundred pages long. Both works are not only extremely cautious in underlining all the local specificities and detail, but are also genuine geology manuals, destined for anyone with an interest in the topic, whether for industrious purposes (Boucheporn) or for the love of geological science and amateur contribution to it (Lory). Their methodologies too, are different. Boucheporn followed the usual guidelines of listing elements in order of the geological timescale. Lory contested the relevance of this method by explaining how it did not make sense in terms of local coherence, because it segmented terrains too much and

[139] Antoine Passy, *Description géologique du Département de la Seine-Inférieure* (Rouen: Imprimer de Nicétas Périaux, 1832), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001102681181; Charles Lory, *Description géologique du Dauphiné (Isère, Drôme, Hautes-Alpes) : pour servir à l'explication de la carte géologique de cette province* (Paris; Grenoble: Savy; Merle et Cie; Maisonville et Fils Jourdan, 1860), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001008660677.
[140] Frédéric Cailliaud, *Carte géologique du département de la Loire-inférieure* (Paris: Savy, 1861), 18, http://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001100247019.
[141] Ibid., 8.

especially "natural geological regions" which made sense by essence and allowed for the establishment of connections between minerals.[142]

It is unlikely that the somewhat arid outcome of Cailliaud's surveys resulted from his disregard for the task. Cailliaud's archives attest that he actually spent quite a lot of time working on this map.[143] More likely, he concentrated his effort on the actual map, while the text supplement was only meant to be an accessory, which certainly would not overtake the map's importance.[144]

The travels of the museum directors were effectively marked by the tradition of surveying the territory, as part of the utilitarian dream to collect knowledge, take command of nature, and develop control of both resources and man himself, as described by Bourguet. It was a dream, Bourguet insists, that was not of aristocratic nature, but the product of a "*pensée gestionnaire*", a notion of management.[145]

The tensions between science and administration, how the administration claims to subordinate science and make it utilitarian is quite visible here, especially in the case of Lory with his stance on local geological entities.[146] But it also shows how the paradigm of the geological map had spread, providing an intellectual framework that guided local surveys and research in different territories. This is also testified to by Mouton-Fontenille's request for funding for a survey of Rhone's geology.[147]

What is more, the surveying projects were already shaped by administrative constraints and conceived themselves inside departmental limits, as the interest for those matters by the departmental learned societies testifies.

B. Travelling by duty

Travelling for collecting was a task expected from the museum director. Of course, it was a comfortable position for a botany lover, to be working on subsidy as a museum keeper or professor of botany. However, despite the fact that collecting practices, that is the methods and instruments, were similar to amateur or non-

[142] Lory, *Description géologique du Dauphiné (Isère, Drôme, Hautes-Alpes) : pour servir à l'explication de la carte géologique de cette province*, 9.
[143] MHNN - Cailliaud 8.
[144] The engineer of the Mines Boucheporn drew a clear hierarchy between the map, the cross-sections and the commentary: the visual representation of the geological data in the form of map was granted foremost importance, well before the commentary: "C'est sur la carte même et sur ces profils que l'intérêt principal du travail doit donc, nous le pensons, se concentrer; le texte explicatif ne vient qu'en second lieu, il n'est en quelque sorte qu'accessoire; il ne convient d'y chercher d'ailleurs d'autre mérite que la clarté et l'exactitude": Boucheporn, *Explication de la carte géologique du département du Tarn*, iv.
[145] Marie-Noëlle Bourguet quotes Daniel Roche, *Le siècle des Lumières en province*, p. 350-394 in Bourguet, *Déchiffrer la France*, 38.
[146] Laboulais, 'Aux origines de la carte géologique de France: retour sur les productions cartographiques du corps des Mines au cours du premier XIXe siècle'.
[147] AML - 78WP021, Mouton-Fontenille to the Mayor of Lyon, 22 December 1829.

institutional botany, the imprint of institutional expectations, requests and norms was particularly strong in giving shape to the scientific practices of staff members attached to a municipal museum.

In fact, travelling was routinely part of the ordinary management of the museum. The administrative framework around travel is even responsible for providing much of the documentation about museums, most of which is not about research notes or activities: it is about costs, expenses, paying upfront and reimbursements. Sometimes one is lucky and comes across some report on a survey written with the hope of obtaining further continuation of research credits.

Travelling could happen in diversified situations, including for personal reasons. In 1830, Balbis, the director of the garden in Lyon, applied for permission to spend his holiday in his hometown in Italy, at a time when his health was already rapidly decaying.[148] Because he was serving a municipal institution, Balbis was expected to turn to the administration in charge to obtain authorisation. In this case, it was necessary to justify non-presence, rather than being away.

Travelling also concerned museum helpers. In Lyon, Déjean, who seconded an ageing Gilibert and then later replaced him as director of both the Cabinet and the Botanical Garden, requested permission to go to Montpellier. His request leant on three main arguments: the garden of Montpellier was particularly rich, largely owing to the presence of a renowned Faculty of Medicine; he had some local contacts; it was located at an acceptable distance from Lyon.[149] The structure of this argumentation is a common one: it argues with insistence that the trip would cause only limited expense for the municipality while altogether being a golden opportunity. The trip is presented as a one-off opportunity to visit a prestigious place, prestige which is also expected to reflect back onto their own collections, whether by establishing connections or by bringing back some symbolic tokens, like specimen objects. This last example also reveals the tenuous boundary between professional mission and personal matters, where obviously the funded trip would serve the personal capital of Déjean, while also putting his existing social capital at the service of the municipality.

[148] AML - 78WP021, Balbis to the Mayor of Lyon, 14 August 1826
[149] AML - 78WP021, Déjean to the Mayor of Lyon, 20 February 1818.

3. THE ELABORATION OF A DISCOURSE OF THE TERRITORY

A. The particular case of mineralogy and geology

Earth sciences are key to understanding the making of the museum. With the focus of attention shifting from collecting minerals to collecting fossils, the museum collections reveal evolving centres of interest and rationale in the Earth sciences. In doing so, they also provide a better understanding the relationship of the museum to the outdoor.

The history of geology has generated wide attention and many quality monographs trace the history of a discipline which in many ways has stood at a crossroads between other sciences: born from its relation to physics, developed in parallel to the historical sciences, and after drawing from different areas of science, separated out into various branches, like palaeontology and prehistorical studies.[150] Geology in the nineteenth century was really about the evolution of conflicting views about the study of the surface of the planet and the evolving paradigms of geology.[151] The early nineteenth-century paradigm of geology was marked by a historical reading of the shaping of the earth, which also contrasted with mineralogical attention to the specific and the detailed. It proposed to offer an overarching earth history. This led to the development of a search for 'three-dimensionality', that is to say an attempt to uncover the elevations and depths of the earth, especially through the development of stratigraphy, which subsequently drove attention to mountains and led to considering matters of slope and inclination, until the matter of ice-sheets was actually put forward towards the end of the century.[152]

This picture-perfect line of the evolution of geological science is scarcely realistic: of course, it was not linear, of course there were superpositions,

[150] On the relationship with physics, see Mott T. Greene, 'Geology', in *The Modern Biological and Earth Sciences*, ed. Peter J. Bowler and John V. Pickstone, vol. 6, Cambridge History of Science (Cambridge: Cambridge University Press, 2009), 167–84. On the connection with the (pre-)historical sciences, see Adrian Currie, *Rock, Bone, and Ruin: An Optimist's Guide to the Historical Sciences*, Life and Mind: Philosophical Issues in Biology and Psychology (Cambridge: The MIT Press, 2018); Arnaud Hurel, ed., *Dans l'épaisseur du temps: archéologues & géologues inventent la préhistoire* (Paris: Museum National d'Histoire Naturelle, 2011).

[151] A glimpse of conflicting views can be found in Greene, 'Geology'.

[152] For an introduction to the modern era geological sciences, Ibid. Other key references on the history of geology are Gabriel Gohau, *Histoire de la géologie* (Paris: La Découverte, 1987); Mott T. Greene, *Geology in the Nineteenth Century: Changing Views of a Changing World* (Ithaca: Cornell University Press, 1982); Roy Porter, *The making of geology: earth science in Britain, 1660-1815* (Cambridge: Cambridge University Press, 1977); Robert A Stafford, *Scientist of Empire: Sir Roderick Murchison, Scientific Exploration and Victorian Imperialism* (Cambridge: Cambridge University Press, 2002); Hugh Torrens, *The Practice of British Geology, 1750-1850* (Aldershot: Ashgate, 2002).

juxtapositions, layers of ideas, theories, personal *idées fixes*, political opinions, contextual differences in the approach to geology.

Time, patience and collective effort were indeed the driving forces of the falling-together of the geological jigsaw puzzle. Although Brongniart and Cuvier's essay on the mineralogical geography of Paris was ground-breaking when released in 1810, it resulted from decades of patient collecting and bringing-together of the separated pieces, which led to a gradual construction of the function of fossils as tools for placing the cursor of time.[153] Particularly important was their role in allowing the dating-back of layers, since it was then established that fossils could be an indicator of the age of a layer. Fossils became evidence of the history of the earth, and this affected the rationale of collecting, and the type of objects which were collected, in order to pursue the building of earth history understanding.[154] The diffusion of Brongniart and Cuvier's exploration of the Parisian Basin reached Lyon and inspired archaeologist Artaud.[155] But more importantly, their work developed into a model useful for the measurement of the antiquity of a city. Such use as a benchmark to quantify the grandeur of a city also fed velleity to research in that direction, which Jourdan did not fail to pursue.[156]

"This puzzle-solving activity may be imagined by analogy with a pile of richly patterned quilts that have been rumpled, wrinkled, and folded and then cut repeatedly with scissors to remove large sections. The puzzle is to discover, without being able to move or physically unfold the quilts, their original size and the details of their patterns before they were crumpled and cut." Mott Greene's perfect description of the main difficulty of geological work is extremely telling of the necessity of collective effort, together with persevering field observation and confrontations of findings and scattered elements.[157]

Once they had been granted with meaning, fossils became a must-have for a museum collection, in their mission to provide the compulsory tools for 'the advancement of science', as contemporaries would have it. However, the nature of this science was heavily territorialised, and as we will see below, the objective of provincial museum collecting would not be only the elaboration of a general science of the earth, but alternatively the provision of a regional history of the formation of the surface, with all its specificities, as well as the demonstration of the region's own peculiar exemplary value in the wider history of the earth.

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153 Van Damme, *Métropoles de papier*, 33–47.
154 Martin J. S. Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (University of Chicago Press, 2005).
155 Van Damme, *Métropoles de papier*, 39.
156 Ibid., 45.
157 Greene, 'Geology', 175.

This triggered, like in botany, a substantial effort of mobility in order to inventory the *département*'s geology before others - but never exclusively. Unlike distant expeditions, the geological trips were inscribed in a geography of displacement. Yet they testify to the lingering tradition of outdoor sampling and also to the global applicability of nineteenth century scientific analysis.[158] The cases developed below will focus on two separate examples, which also belong to two different time periods: François Dubuisson's mobile collecting for the Nantes museum, mainly between 1810 and 1836, and Claude Jourdan's geological inventory of the Rhône river basin from the 1830s to 1869. Both examples further confirm the importance of displacement in order to centralise the scattered evidence of mineral samples. But they also show differences. The cases do not document individuals embarking for the unknown; quite on the contrary, the patterns of mobility show something closer to the customary, the known-about and the usual being applied to travelling, for instance in the way the routes can be apprehended. They are also small groups of people travelling, if not solitary wanderings, like in the case of Dubuisson. This contrasts notably with the more publicised and sometimes glamourised expeditions taking place simultaneously, but again, it bears witness to the importance and necessity, even, of field trips, and also to a certain taste for the outdoor.

Eventually, and beyond matters of taste, local geological travels made ends meet means, to quote Roy MacLeod.[159] Namely, the scientific problem of mineralogical surveys came to match with a geopolitical opportunity. In effect, and this is what underpins all the examples below, the effort to gather and elaborate knowledge was in tune with the perspectives of the national and local political instances. The latter were interested in finding out about the region of which their city was the provincial capital, sometimes with the unambiguous intention to evidence themselves as the 'natural capital' of the identified region. In a context when scientific exploration of lands far away from Europe and oceans 'became of age', museum directors worked towards 'the completion of detail' about the micro-scale. To twist MacLeod's words, "knowledge of Europe was no longer sufficient to explain the world": indeed, knowledge about the local, the provincial and the nearby mattered and needed to be built up.[160]

[158] Klemun and Spring, *Expeditions as experiments: practising observation and documentation*, 12–25, 2–6; Roy MacLeod, 'Discovery and Exploration', in *The Modern Biological and Earth Sciences*, ed. Peter J. Bowler and John V. Pickstone, vol. 6, Cambridge History of Science (Cambridge: Cambridge University Press, 2009), 34–59.
[159] MacLeod, 'Discovery and Exploration'.
[160] Ibid., 40.

B. Introductory counterpoint: Toulouse and Sansan

It was nothing incongruous to suggest that the city of Toulouse claim for purchase of the palaeontological field of Sansan, as advised by Professor Joly, the Dean of the Faculty of Science. The plot of land had been discovered by geologist Edouard Lartet, native of the Midi and a former student at the Faculty of Law in Toulouse, where he had initiated excavations in the early 1830s.

> "I too, Monsieur le Maire, have longed for the riches which belong to us already by the right of Nature, since they were found in meridional grounds; at the risk of provoking many a susceptible character, or even hostility against me, I thought it was my duty to not let this opportunity escape us and tell you that Toulouse may soon have in her possession, if she so wishes, this treasure disputed by Paris and London [...]"[161]

With some assurance, Joly asserts the 'natural right' of Toulouse to claim for the fossil field and again, can hardly conceal his pride to be challenging the two established capital cities of natural history, Paris and London. His argumentation in favour of the acquisition of the piece of land, estimated to be worth 4,000 to 5,000 francs, is hinged on the utmost quality of the Garonne valley with regards to other regions of France and even in Europe, in terms of how it can help establish the "authentic history of the globe, of which only the novel is known to date".[162]

This example is neither extreme nor surprising. On the contrary, it translates very well the manner in which cities can become centres of appropriation of a certain piece of land by means of the development of scientific enquiry. In that sense, mineralogical travels and surveys, also with the purpose of collecting, are certainly symbolically exemplary of taking possession of regional territories, through the sampling and collecting of that territory's very earth.

C. Inventorying the Rhone: thirty years of harvesting fossils for the Lyon museum

As the director of the Natural History Museum in Lyon from 1832 to 1869, an important part of Jourdan's activities was to organise harvesting sprees in order to bring the museum collection to an ideal level of exhaustiveness.[163] In spite of a primary interest in zoology, and considerable deriving effort in the setting-up of a renewed

[161] Original text: "Moi aussi, Monsieur le Maire, j'ai convoité ces richesses qui nous appartiennent déjà par droit de Nature, puisqu'elles ont été trouvées sur le sol méridional; j'ai pensé, au risque de soulever contre moi bien des susceptibilités, bien des inimitiés peut-être, qu'il était de mon devoir de ne point laisser échapper cette occasion de vous dire que Toulouse peut avoir bientôt en sa possession, si elle le veut, ce trésor que Paris et Londres se disputent à l'envi.[…]": AMT - 3D132, Nicolas Joly to the Mayor of Toulouse, 28 August 1845.
[162] Ibid.
[163] This is noticeable in most of the notices justifying scientific trips, see CCEC - JE, "Journal d'entrées"and Appendix H: Overview of Jourdan's scientific trips, p. 445.

zoology gallery, Jourdan's focus soon moved to fossils.[164] How he came to be so interested in the palaeontology and geology of the Lyon region is not clear, as it was neither clearly commissioned nor expressed as a plan. One could easily assume that he was influenced by his colleague Artaud's own practice, an archaeologist and also the director of the commanding structure of the Palais des Arts, who had proceeded to make a very close inventory of Lyon's ancient Roman remains. Artaud especially took advantage of the extensive road, tunnel, and railway works in many points of the city to conduct excavations or at least pick up objects unearthed by the workers.[165] The use of the urban underground as a close-by, accessible and scientifically exploitable resource is very much contained in Jourdan's perception of Lyon as a cemetery of ancient elephants.[166] The metaphor was used in a report on his research to the prefect in 1859 in order to convince the council to pursue funding.[167] Despite the incongruous lyricism of the expression, it was most certainly used for its argumentative force. But above all, it denotes a strong perception of the invisible and buried historical materiality of the city of Lyon, whose essence was already there, steeped in a very distant past. The depths of the city were part of its being. And this is where, possibly, the scientific met with political aspirations: by focusing on the territory, and even exploring the very soil and underground of it, by collecting what was the root of the city, and a testimony of its necessity, the gathering of fossils was providing politically usable discourse on Lyon. By focusing on geology and the underground, Jourdan thereby also ensured funding for his research.

a. Documenting the scientific trips: the *Journal d'Entrées*

Inventorying the Rhone's geology and palaeontology entailed a lot of travelling and moving to places. Natural history practices had made it customary to go outdoors to pick up missing pieces of the collection. The travelling practices of Jourdan were customary in the sense that most of his research was far from that of an explorer: on the contrary, his travelling destinations were elaborated from closely identified places and map out a pattern which is that of targeted resources and especially, targeted intermediaries.

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[164] Étienne Chinard, *Discours prononcé à la séance d'ouverture de la galerie de zoologie du musée d'histoire naturelle du palais Saint-Pierre* (Lyon: Veuve Ayné, 1837).

[165] François Artaud, *Lyon souterrain, ou Observations archéologiques et géologiques, faites dans cette ville depuis 1794 jusqu'en 1836* (Lyon: Monfalcon, 1846).

[166] "Les restes d'Elephant fossile sont surtout abondants aux environs de notre Ville et plus encore au sein de notre ville même. Lyon semble avoir été un véritable cimetière d'Eléphants ; on ne creuse nulle part sans en rencontrer les restes ; nous comptons aujourd'hui plus de vingt endroits où l'on en a trouvé dans la circonscription territoriale actuelle de notre Ville.": CCEC - DP-J,"Journal de Jourdan", p. 45, "Rapport sur les recherches géologiques et paléontologiques faites dans le Bassin du Rhône par Mr. le Professeur Jourdan", 9 August 1859.

[167] Ibid.

The patterns of his travels can be reconstructed from a very important source, which covers a bit less than the thirty years of his being at the head of the Natural History Museum of Lyon. The *Journal d'entrées* was started in 1843 and extended even after his resignation from his position, in 1869.[168] This document can be completed with the use of the register containing the transcripts of Jourdan's main administrative correspondence from 1854 to 1864, and the lists of expenses erratically preserved in the municipal archives of the museum.[169]

The journal was initiated for keeping a record of all entries of objects into the collection. The specific volume could then systematise what used to be piles of separate sheets. But soon after, the granting of special credits for the study of the River Rhône Basin, namely ca. 2,000 francs per annum, triggered the recording of all trips pertaining to collecting in the framework of the special credits' framework. The volume therefore evolved into a very thorough register of all expenses, rather than just a list of incoming objects. It documents not only new additions to the collections, but also the names of intermediaries and anonymous suppliers, as well as places of purchase or collecting and dates. The volume appears to be messy at its start: moments of hesitations certainly occurred as to the purposes and methods of registering the information on the pages. The structure and type of information recorded then became homogeneous from the very late 1850s onwards.

The change of target is made evident from the template changes, which for instance in 1846 clearly emphasised the name of the supplier, then the quality of the object and the cost in three successive columns (Figure 9). This organisation in the form of a table was gradually lost in favour of emphasising the general object leading to an expense, followed by the actual cost, and where relevant, which budget heading it would fall under. Rather than a table organised in rows with clearly separate categories, the later version rather kept the structure of administrative minutes, with succinct pieces of information and key references in the left-hand corner. The unabridged detail of the operation would then be handwritten in the body of the page (Figure 10).[170]

The recent re-binding of the volume certainly altered the original form of the document, but it does not prevent understanding of the general scope of the source. Pages were rebound and certain documents were most probably displaced from their original location in the volume. They must have been left in the volume at the time of

[168] CCEC - JE, "Journal d'entrées".
[169] CCEC - DP-J, "Journal de Jourdan", 1854-1864; AML - 78WP017.
[170] The template of the *journal* was given up on immediately after Lortet's arrival. The pre-printed template page started under Lortet in 1870 continued to be in use until the mid 1950s.

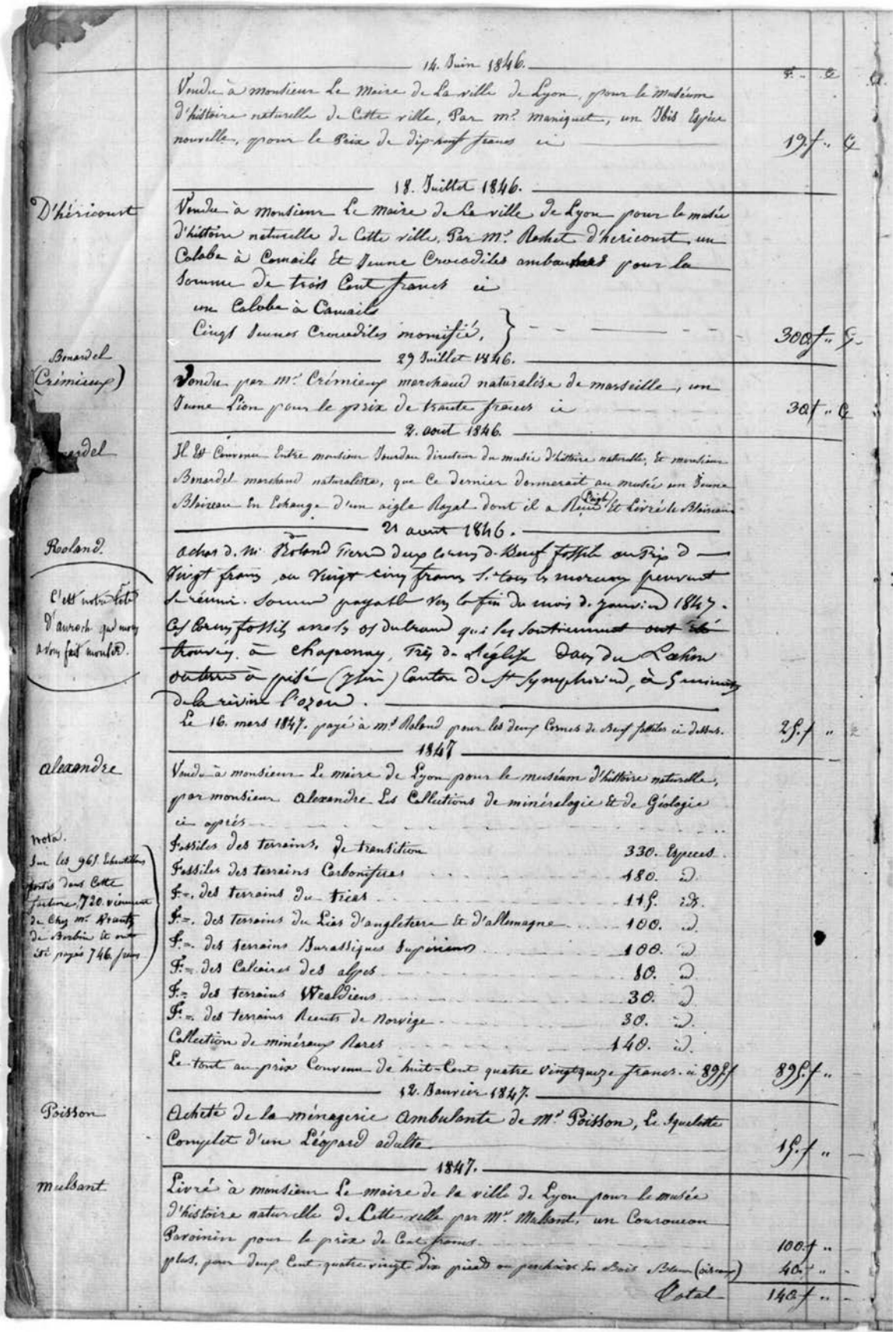
use, but unlike other receipts, they were not added to the proper file for conservation.[171]

The size of the volume would make it unfit for transportation on location during the scientific trips. Who would carry such a big book up the mountain slopes and back? Therefore, in some cases, some suppliers' signatures were copied onto the register. The contractual document was reproduced, and the handwritten signature shown with a play with (non) italicisation (Figure 11). Those cases were not systematic and the rationale for choosing this other receipt to be copied fails to appear clear. Were they important, specific suppliers, or specific places? By all means, most of the volume is a synthesis of copied information in other records, in other forms. The name 'Journal d'entrée' was not a random one, even if possibly given afterwards. Indeed, the assumption that the name of the volume would be a subsequent distortion of its initial purpose would be 'overwriting' how the process of collecting was considered: as an eminently official and controlled process, especially because it was a matter of transfer of property, and especially, a matter of appropriation by a public entity.

Generally speaking, it is unclear as to whose hand noted down the information on the volume. The handwriting is fairly homogeneous throughout the volume, but that might be the result of a clerk's formalised handwriting for administrative purposes. Would Jourdan have a similar, normalised handwriting? There seems to be occasional play with italicisation to emphasise the different steps of a record, which would be the detail of the expenses on the one hand, followed by the declaration of Jourdan that he had indeed spent that amount for that given purpose.

The records of Jourdan's collecting activities did evolve throughout his directorship but overall show great stability in the sense that they were continuously produced, and if the detail of accounting for activities became more technical over time, the principles were always the same: Jourdan, in person, was liable for the expenses made by the museum and was expected to justify every coin spent. The normalised handwriting, the consistent organisation of the table of expenses, the systematic collection of proof of purchase, and the later reference to numbered mandates or budget headings were the tangible performance of the strong administrative framework by which Jourdan's activities were constrained.

[171] AML - 78WP017.



14. Juin 1846.

Vendu à monsieur Le Maire de La ville de Lyon, pour le Muséum d'histoire naturelle de Cette ville, Par Mr. Manigaut, un Ibis Espèce nouvelle, pour le Prix de dix-sept francs ci — 17f.. C

18. Juillet 1846.

D'hericourt — Vendu à Monsieur Le Maire de la ville de Lyon pour le Musée d'histoire naturelle de Cette ville, Par Mr. Robert d'hericourt, un Calobe à Camaïl et Jeune Crocodiles embaumés pour la Somme de trois Cent francs ci
un Calobe à Camaïl
Cinq Jeunes Crocodiles momifiés, — 300f.. C

29 Juillet 1846.

Bonardel (Crémieux) — Vendu par Mr. Crémieux marchand naturaliste de marseille, un Jeune Lion pour le prix de trente francs ci — 30f.. C

2. Août 1846.

Bonardel — Il est convenu Entre monsieur Jourdan directeur du musée d'histoire naturelle, et monsieur Bonardel marchand naturaliste, que Ce dernier donnerait au musée un Jeune Bluireau en échange d'un aigle Royal dont il a Reçu et Livré le Bluireau

21 août 1846.

Roland. — Achat de Mr. Roland Pierre deux Cornes de Bœuf fossile au Prix de Vingt francs, ou Vingt cinq francs si tous les morceaux peuvent se réunir. Somme payable Vers la fin du mois de Janvier 1847.

C'est notre Roland d'aurait pu mieux avoir fait mieux.

Ces Bœufs fossiles avaits été dit trouvés à Chaponnay, Près de l'église dans du Lahon ou terre à pisé (argile) Canton de St Symphorien, à Jumiège de la rivière l'Ozon.

Le 16. mars 1847. payé à Mr. Roland pour les deux Cornes de Bœuf fossiles ci dessus. — 25f..

1847

alexandre — Vendu à monsieur Le maire de Lyon pour le muséum d'histoire naturelle, par monsieur Alexandre Les Collections de minéralogie et de Géologie ci après

Fossiles des terrains de transition	330.	Espèces
Fossiles des terrains Carbonifères	180.	id.
F.s des terrains du Trias	115.	id.
F.s des terrains du Lias d'angleterre et d'allemagne	100.	id.
F.s des terrains Jurassiques Supérieurs	100.	id.
F.s des Calcaires des alpes	80.	id.
F.s des terrains Wealdiens	30.	id.
F.s des terrains Neuts de Norvège	30.	id.
Collections de minéraux Rares	140.	id.

Le tout au prix Convenu de huit-Cent quatre vingt quinze francs. ci 895f — 895f..

Note. Sur les 965 échantillons portés dans Cette facture, 720. viennent de chez Mr. Krantz du Bordin et ont été payés 746 francs

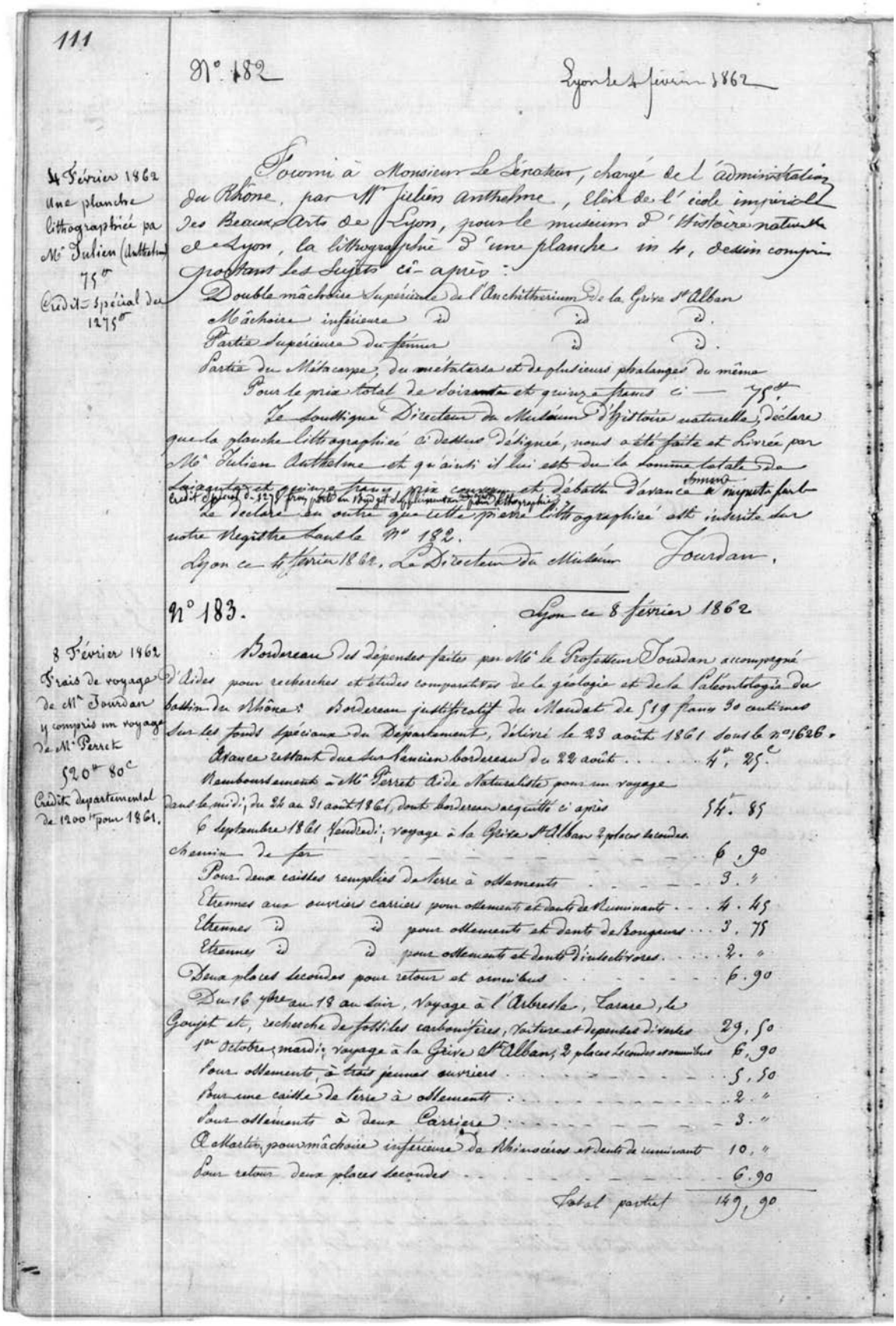
12. Janvier 1847.

Poisson — Achetés de la ménagerie ambulante de Mr. Poisson, Le Squelette Complet d'un Léopard adulte — 15f..

1847.

Meubant — Livré à monsieur Le maire de la ville de Lyon pour le musée d'histoire naturelle de Cette ville par Mr. Meubant, un Couronon Parroinin pour le prix de Cent francs — 100f..
plus, pour deux Cent quatre-vingt dix pieds en perchoir du Bois Blanc (ciseau) — 40f..
Total — 140f..

Figure 9 - Journal d'entrées before 1852. CCEC



111

N° 182 Lyon le 4 février 1862

4 Février 1862
Une planche lithographiée par Mr Julien (Anthelme)
75f
Crédit spécial de 1275f

Fourni à Monsieur le Sénateur, chargé de l'administration du Rhône, par Mr Julien Anthelme, Elève de l'école impériale des Beaux Arts de Lyon, pour le muséum d'Histoire naturelle de Lyon, la lithographie d'une planche in 4, dessin compris portant les sujets ci-après :

Double mâchoire supérieure de l'Anchitherium de la Grive St Alban
Mâchoire inférieure id id id.
Partie supérieure du fémur id id.
Partie du Métacarpe, du métatarse et de plusieurs phalanges du même
Pour le prix total de soixante et quinze francs ci — 75f.

Je soussigné Directeur du Muséum d'Histoire naturelle, déclare que la planche lithographiée ci dessus désignée, nous a été faite et livrée par Mr Julien Anthelme et qu'ainsi il lui est dû la somme totale de soixante et quinze francs, prix convenu et débattu d'avance à mon imputation
Crédit spécial de 1275 francs porté au Budget supplémentaire pour lithographie
Je déclare en outre que cette pierre lithographiée est inscrite sur notre Registre sous le N° 182.

Lyon ce 4 février 1862. Le Directeur du Muséum Jourdan.

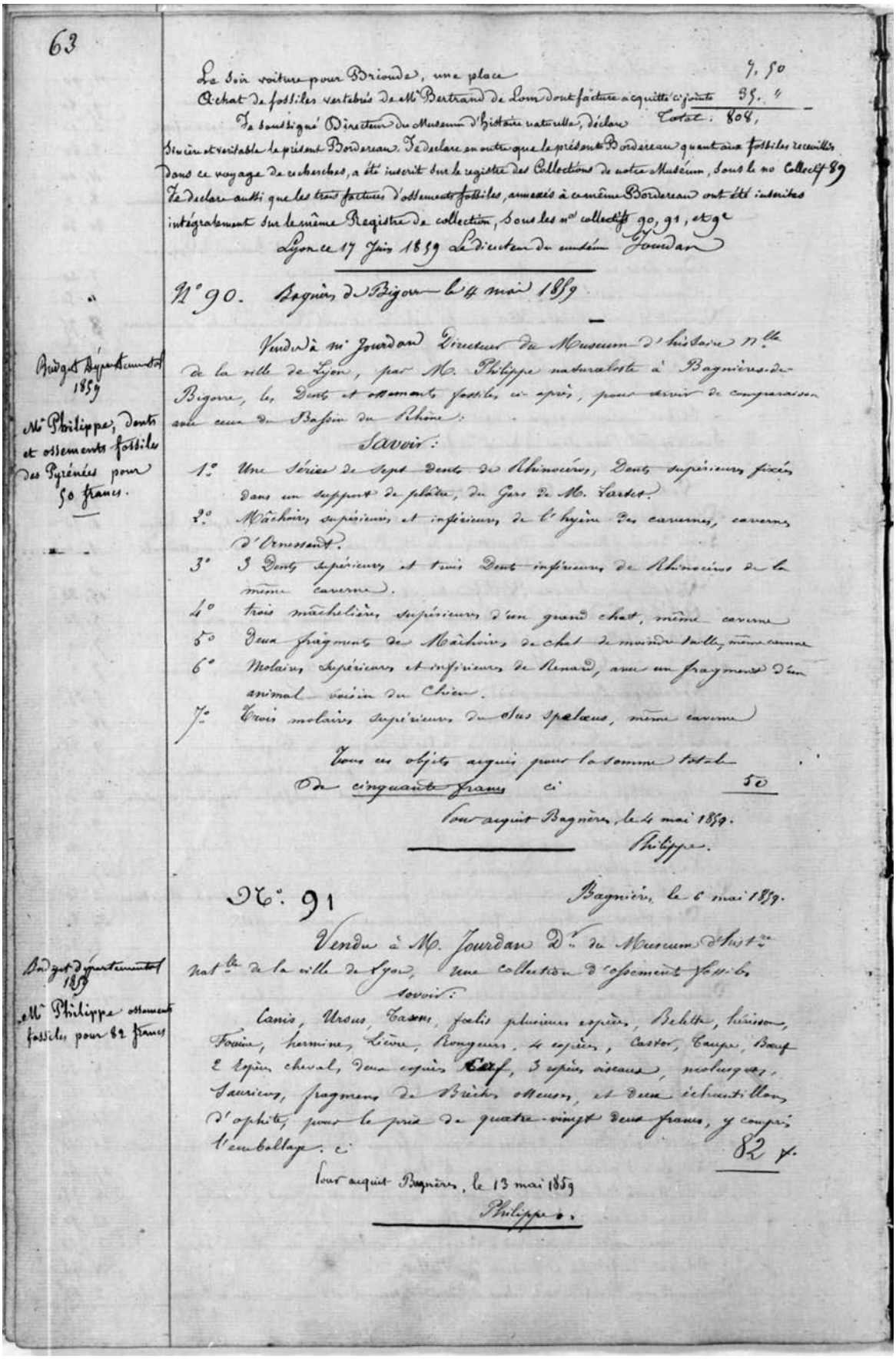
N° 183. Lyon ce 8 février 1862

8 Février 1862
Frais de voyage de Mr Jourdan y compris un voyage de Mr Perret
520f 80c
Crédit départemental de 1200f pour 1861.

Bordereau des dépenses faites par Mr le Professeur Jourdan accompagné d'Aides pour recherches et études comparatives de la géologie et de la Paléontologie du bassin du Rhône : Bordereau justificatif du Mandat de 519 francs 30 centimes sur les fonds spéciaux du Département, délivré le 23 août 1861 sous le n° 1626.

Avance restant due sur l'ancien bordereau du 22 août	4f. 25c
Remboursement à Mr Perret Aide Naturaliste pour un voyage dans le midi, du 24 au 31 août 1861, dont bordereau acquitté ci après	54f. 85
6 septembre 1861 Vendredi ; voyage à la Grive St Alban 2 places secondes chemin de fer	6, 90
Pour deux caisses remplies de terre à ossements	3. "
Etrennes aux ouvriers carriers pour ossements et dents de Ruminants	4. 45
Etrennes id id pour ossements et dents de Rongeurs	3. 75
Etrennes id id pour ossements et dents d'insectivores	2. "
Deux places secondes pour retour et omnibus	6. 90
Du 16 7bre au 18 au soir, voyage à l'Arbresle, Tarare, le Goujet etc, recherche de fossiles carbonifères, voiture et dépenses diverses	29, 50
1er Octobre, mardi ; voyage à la Grive St Alban, 2 places secondes et omnibus	6, 90
Pour ossements, à trois jeunes ouvriers	5, 50
Pour une caisse de terre à ossements	2. "
Pour ossements à deux Carrière	3. "
A Martin, pour mâchoire inférieure de Rhinocéros et dents de ruminants	10, "
Pour retour deux places secondes	6. 90
Total partiel	149, 90

Figure 10 - Journal d'entrées p. 111, 1862. CCEC



63

Le soir voiture pour Brioude, une place 7. 50
Achat de fossiles vertebrés de Mr Bertrand de Lom dont facture acquitté ci jointe 35. "
Total: 808,

Je soussigné Directeur du Museum d'histoire naturelle, déclare sincère et veritable le présent Bordereau. Je declare en outre que le présent Bordereau quant aux fossiles recueillis dans ce voyage de recherches, a été inscrit sur le registre des Collections de notre Muséum, sous le no Collectif 89. Je declare aussi que les trois factures d'ossements fossiles, annexés à ce même Bordereau ont été inscrites intégralement sur le même Registre de collection, sous les nos collectifs 90, 91, et 92

Lyon ce 17 Juin 1859 Le directeur du muséum Jourdan

N° 90. Bagnères de Bigorre le 4 mai 1859

Budget Départemental 1859

Mr Philippe, dents et ossements fossiles des Pyrénées pour 50 francs.

Vendu à Mr Jourdan Directeur du Museum d'histoire Nlle de la ville de Lyon, par M. Philippe naturaliste à Bagnières-de-Bigorre, les Dents et ossements fossiles ci après, pour servir de comparaison avec ceux du Bassin du Rhône:

Savoir:

1° Une Série de sept dents de Rhinocéros, Dents supérieures fixées dans un support de plâtre, du Gers de M. Lartet.
2° Mâchoires supérieures et inférieures de l'hyène des cavernes, cavernes d'Ornessant.
3° 3 Dents supérieures et trois Dents inférieures de Rhinocéros de la même caverne.
4° trois mâchelières supérieures d'un grand chat, même caverne
5° Deux fragments de Mâchoires de chat de moindre taille, même caverne
6° Molaires supérieures et inférieures de Renard, avec un fragment d'un animal voisin du Chien.
7° Trois molaires supérieures du Sus spelæus, même caverne

Tous ces objets acquis pour la somme totale de cinquante francs ci 50

Pour acquit Bagnères, le 4 mai 1859.
Philippe.

N°. 91 Bagnières, le 6 mai 1859.

Budget départemental 1859

Mr Philippe ossements fossiles pour 82 francs

Vendu à M. Jourdan Dr du Museum d'histre natlle de la ville de Lyon, une collection d'ossements fossiles

savoir:

Canis, Ursus, Taxus, foelis plusieurs espèces, Belette, hérisson, Fouine, hermine, Lièvre, Rongeurs, 4 espèces, Castor, Taupe, Bœuf 2 espèces cheval, deux espèces Cerf, 3 espèces oiseaux, mollusques, Sauriens, fragmens de Brèches osseuses, et deux échantillons d'ophite, pour le prix de quatre-vingt deux francs, y compris l'emballage. ci 82 f.

Pour acquit Bagnères, le 13 mai 1859
Philippe.

Figure 11 - Journal d'entrées p. 63, 1859. CCEC

b. Funding for the inventory of the Rhone: collecting under control

As a municipal institution, the economy of the museum depended on the city budget.[172] In Lyon, the ample economic latitude provided by a soaring textile industry was certainly an asset for the development of the museum collection. Altogether, Jourdan was also a sagacious municipal servant, knowing when the right strings needed be pulled in order to unlock special funding and enhance both the staff working conditions and the museum collection.

Outside of the regular expenses of the museum, Jourdan could count on some generous support for his travelling activities, which significantly increased when the control of the municipality was passed over to the prefectoral authorities in 1853. Regardless of their financial importance, four missions were recorded between 1832 and 1850, while eighty-eight would be conducted between 1851 and 1869.

Tracing the budgetary trail was not always possible, because the archives of the municipal budget are missing for the period 1853-1871, and some years are not available for the departmental budget.[173] The swinging of local political authority certainly affected access to certain sources, but some information can be retrieved from crossing evidence with what is found in the museum's *journal* and the minutes of Jourdan's correspondence.[174]

Until 1858 at the latest, the travel expenses were taken from the regular credit of the museum, which added up to a comfortable 11,100 francs throughout the 1840s. These were registered under ordinary municipal expenses, in the fifth section dedicated to the 'public instruction and fine arts'.[175] The *Journal* generally justified the travel expenses under the umbrella phrase of "*Voyages de recherches géologiques et paléontologiques*" which appeared as a category of expenses prior negotiated between Jourdan and the municipal authorities.

Municipal and then departmental funding covered a certain number of expenses, especially those related directly to the acquisition of objects (Figure 12 and Figure 13). This included the transportation to the selected site, the material (paper, wooden boxes, rope and so on) used for wrapping the found objects, postage and shipping of the boxes, small rewards for the workers and purchases from encountered dealers. Public funding did not however cover personal expenses such as food and shelter, which remained the financial responsibility of the travellers.

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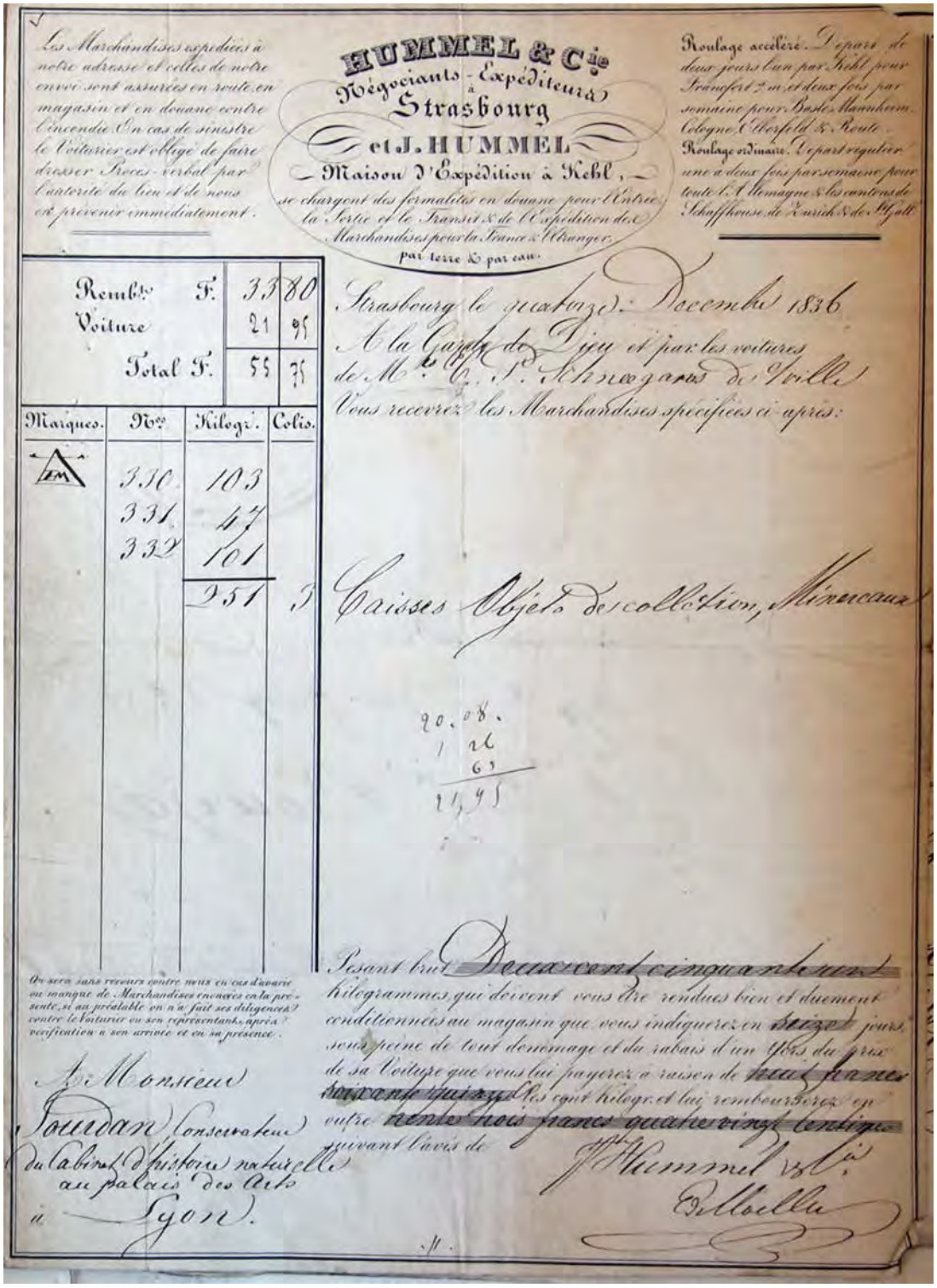
[172] See Chapter 2, 1, A. The omnipresent figure of the mayor, p. 127.
[173] AML - 1403WP039-1403WP043, "Registre du budget et état de dépenses 1816-1878" [excluding 1855-1870, 1872-1877 which could not be retrieved].
[174] CCEC - DP-J, "Journal de Jourdan", 1854-1864, JE, "Journal d'entrées".
[175] AML - 1403WP041-1403WP042, "Registre du budget et état de dépenses", 1821-1828, 1831-1840.



Les Marchandises expediées à notre adresse et celles de notre envoi sont assurées en route, en magasin et en douane contre l'incendie. En cas de sinistre le Voiturier est obligé de faire dresser Proces-verbal par l'autorité du lieu et de nous en prévenir immédiatement.

HUMMEL & Cie
Négociants-Expéditeurs
à
Strasbourg
et J. HUMMEL
Maison d'Expédition à Kehl,
se chargent des formalités en douane pour l'Entrée la Sortie et le Transit & de l'Expédition des Marchandises pour la France & l'Etranger, par terre & par eau.

Roulage accéléré. Départ de deux jours l'un par Kehl pour Francfort 2 m. et deux fois par semaine pour Basle, Mannheim, Cologne, Elberfeld & Route.
Roulage ordinaire. Départ régulier une à deux fois par semaine pour toute l'Allemagne & les cantons de Schaffhouse, de Zurich & de St Gall.

Rembt. F.	33	80
Voiture	21	95
Total F.	55	75

Marques.	Nos.	Kilogr.	Colis.
EM	330	103	
	331	47	
	332	101	
		251	3

Strasbourg le quatorze Decembre 1836
A la Garde de Dieu et par les voitures de Mrs C. P. Schneegans de Wille
Vous recevrez les Marchandises spécifiées ci-après:

Caisses Objets de collection, Minereaux

20.08.
1 26
63
21,95

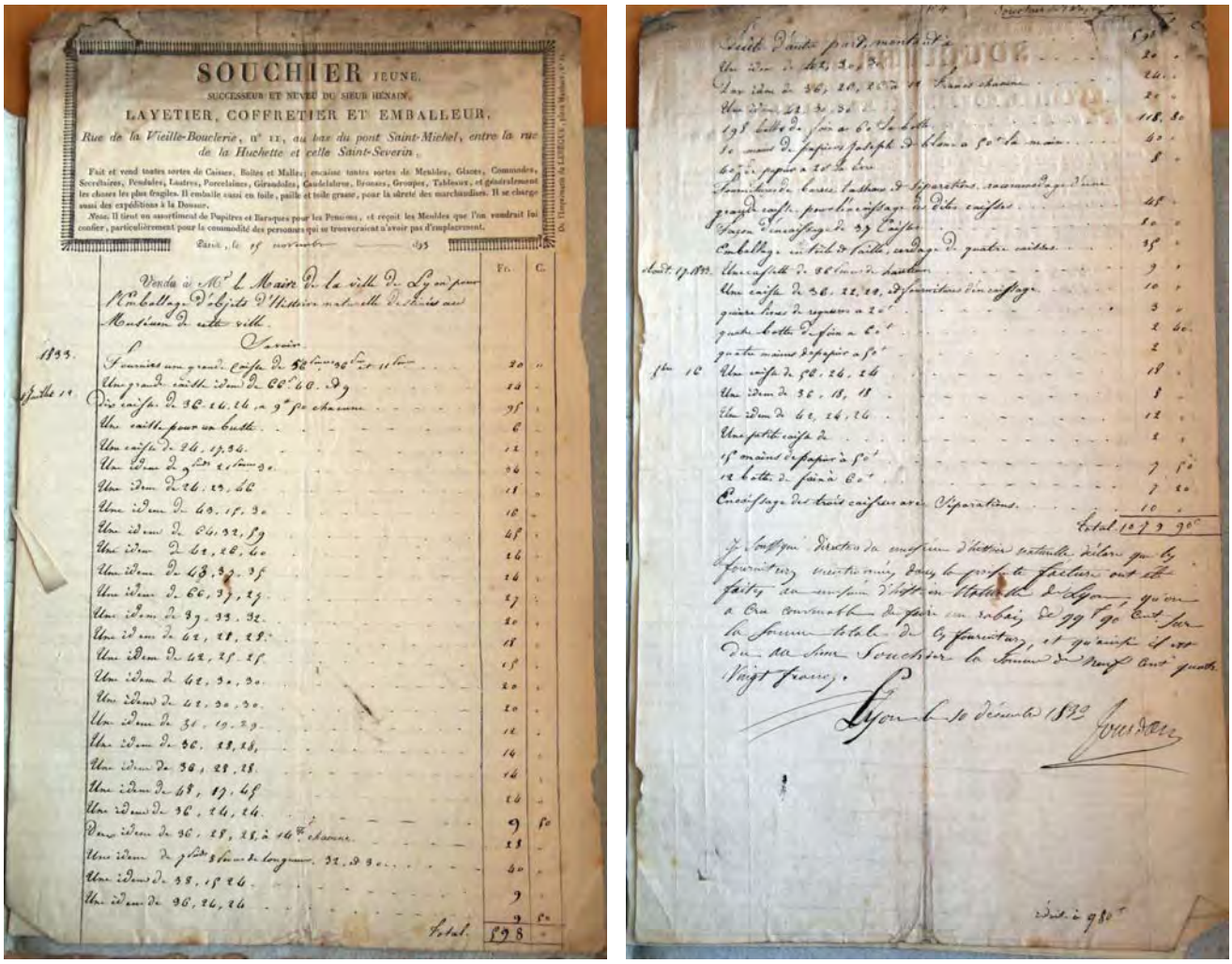
On sera sans recours contre nous en cas d'avarie ou manque de Marchandises enoncées en la présente, si au préalable on n'a fait ses diligences contre le Voiturier ou son représentant, après vérification à son arrivée et en sa présence.

Pesant brut Deux cent cinquante un kilogrammes, qui doivent vous être rendues bien et duement conditionnées au magasin que vous indiquerez en seize jours, sous peine de tout dommage et du rabais d'un tiers du prix de sa Voiture que vous lui payerez à raison de huit francs soixante quinze les cent kilogr. et lui rembourserez en outre trente trois francs quatre vingt centimes suivant l'avis de

J. Hummel & Cie
Bellaville

A Monsieur
Jourdan Conservateur
du Cabinet d'histoire naturelle
au palais des Arts
à Lyon.

Figure 12 - Receipt of the shipping company Hummel, Strasbourg,1836. AML



SOUCHIER JEUNE,
SUCCESSEUR ET NEVEU DU SIEUR HENAIN,
LAYETIER, COFFRETIER ET EMBALLEUR,
Rue de la Vieille-Bouclerie, n° 11, au bas du pont Saint-Michel, entre la rue de la Huchette et celle Saint-Severin.

Fait et vend toutes sortes de Caisses, Boîtes et Malles; encaisse toutes sortes de Meubles, Glaces, Commodes, Secrétaires, Pendules, Lustres, Porcelaines, Girandoles, Candelabres, Bronzes, Groupes, Tableaux, et généralement les choses les plus fragiles. Il emballe sans en foule, paille et toile graisse, pour la sûreté des marchandises. Il se charge aussi des expéditions à la Douane.

Nota: Il tient un assortiment de Pupitres et Bureaux pour les Pensions, et reçoit les Meubles que l'on voudrait lui confier, particulièrement pour la commodité des personnes qui se trouveraient n'avoir pas d'emplacement.

Paris, le 15 novembre 1833

Fr. C.

Vendu à Mr le Maire de la ville de Lyon pour l'emballage d'objets d'histoire naturelle destinés au Muséum de cette ville.

Janvier

1833. Fournies une grande caisse de 52 lignes 36 sur 21 lignes . . . 20 "

Une grande caisse idem de 66. 60. 29 . . . 24 "

Juillet 19 Dix caisses de 36. 24. 24 à 9f pièce chacune . . . 90 "

Une caisse pour un buste . . . 6 "

Une caisse de 24. 19. 34 . . . 12 "

Une idem de 9 pieds 21 lignes 30 . . . 36 "

Une idem de 26. 23. 46 . . . 18 "

Une idem de 43. 15. 30 . . . 18 "

Une idem de 66. 32. 29 . . . 48 "

Une idem de 62. 28. 40 . . . 24 "

Une idem de 48. 32. 35 . . . 24 "

Une idem de 66. 37. 29 . . . 27 "

Une idem de 37. 33. 32 . . . 20 "

Une idem de 62. 28. 28 . . . 18 "

Une idem de 42. 25. 25 . . . 15 "

Une idem de 42. 30. 30 . . . 20 "

Une idem de 42. 30. 30 . . . 20 "

Une idem de 31. 19. 29 . . . 12 "

Une idem de 36. 28. 28 . . . 14 "

Une idem de 36. 28. 28 . . . 14 "

Une idem de 48. 17. 46 . . . 24 "

Une idem de 36. 24. 24 . . . 9 50

Deux idem de 36. 28. 28 à 14f chacune . . . 28 "

Une idem de 7 pieds 8 lignes de longueur. 32. 30 . . . 40 "

Une idem de 38. 15 24 . . . 9 "

Une idem de 36. 24. 24 . . . 9 50

Total. 598 "

Reçu d'autre paiement à compte . . . 50 "

Une idem de 42. 30. 30 . . . 20 "

Deux idem de 36. 20. 20 à 12 francs chacune . . . 24 "

Une idem de 22. 30. 30 . . . 20 "

198 bottes de foin à 60 la botte . . . 118. 80

10 mains de papier pelpt. de blanc à 50c la main . . . 6 "

6 m. de papier à 20c la livre . . . 8 "

Fournitures de caisses, lattons et séparations, nécessaires à une grande caisse pour l'emballage du dito caisses . . . 48 "

Façon d'emballage de 27 Caisses . . . 10 "

Emballage en toile et paille, cordage de quatre caisses . . . 35 "

Août 17 1833 Une caisse de 36 lignes de hauteur . . . 7 "

Une caisse de 36. 22. 22, défournitures d'un emballage . . . 10 "

quatre boîtes de regnaux à 20c . . . 3 "

quatre bottes de foin à 60c . . . 2 40

quatre mains de papier à 50c . . . 2 "

Sept 10 Une caisse de 58. 26. 26 . . . 18 "

Une idem de 36. 18. 18 . . . 8 "

Une idem de 62. 24. 26 . . . 12 "

Une petite caisse de . . . 2 "

15 mains de papier à 50c . . . 7 50

12 bottes de foin à 60c . . . 7 20

Emballage des trois caisses avec séparations . . . 10 "

Total 1073 90c

Je soussigné directeur du muséum d'histoire naturelle déclare que les fournitures mentionnées dans le présent bordereau ont été faites au muséum d'histoire naturelle de Lyon, qu'on a eu convenable de faire un rabais de 99 90 cent. sur la somme totale des fournitures, et qu'ainsi il est dû au sieur Souchier la somme de neuf cent quatre vingt francs.

Lyon le 10 décembre 1833 Jourdan

Dû à 980c

> "The General Council has been devoting for some years now a sum of twelve hundred francs for palaeontological research in the département and the basin of the Rhone. This sum has been destined to supply for travelling expenses rendered necessary by such research and for the expenses occasioned on the explored sites. This sum is also destined to provide for all expenses for boxes, wrapping and shipping of collected materials to Lyon. With regards to the Museum Director, and those of the helpers who accompany him, their expenses are under their own responsibility.[...]
> I should beg your pardon, Monsieur le Sénateur, that I am provinding all of these details, which I thought it was my duty to set out to you very briefly, because you may not have known about them."[176]

It was only late in his career that Jourdan eventually discreetly tried to draw the prefect's attention to what is silently underlined as being an undue strain put on the members of staff taking part in the mission

Whether it was formalised from the years 1850 or not, a formal document does not exist, and there must have been at least a verbal discussion. Pointing to this is the disappearance of letters of requests for the authorisation to travel and therefore to spend public money.[177] From the late 1850s, the municipal budget would continue to fund the regular activities of the museum, but those ordinary credits were supplemented by a "special credit" for "mineralogical research in the Rhone river basin", amounting to 1.200 francs.

> Sous chapitre XVII 'Encouragements et secours'
> Article 10 'Recherche ~~de mines ou encouragement pour les cartes et géologiques~~ *minéralogiques dans le bassin du Rhône* (sic) (circulaire du 30 août 1825). 1,200ff. *Comme en 1858.*[178]

The special credit was made lawfully possible by reference to a circular letter allowing mineralogical research in order to pursue the making of mineralogical maps.[179] It came in addition to other budget headings delivered by the municipality, which especially foresaw spending for drawings and lithography (1,275 francs from 1858 to 1862, then 2,400 francs from 1863 to 1869).[180] Jourdan often referred to one or the other budgetary line indiscriminately which may generate some confusion. However,

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176 Original text: "Depuis plusieurs années, le Conseil Général consacre une somme de douze-cent francs pour des recherches paléontologiques dans le département et le bassin du Rhône. Cette somme est destinée à pouvoir aux frais de transport que nécessitent ces recherches et aux frais de ces recherches sur les lieux mêmes. Cette somme est également destinée à payer tous les frais de caisse, d'emballage, ainsi que l'apport des matériaux recueillis, jusqu'à Lyon. Quant au frais de voyage personnels du Directeur du Muséum, ainsi qu'aux aides qu'il emmène avec lui, ils sont laissés complètement à leur charge. (…) Vous me pardonnerez, Monsieur le Sénateur de vous donner tous ces renseignements, j'ai cru devoir vous les exposer bien sommairement, parce que vous pourriez les ignorer.": CCEC - DP-J,"Journal de Jourdan", p. 100, "Rapport sur les recherches paléontologiques de la fin de 1864 et du commencement de 1865 par Mr le Professeur Jourdan, Directeur du Muséum d'Histoire Naturelle, à l'appui du crédit de 1200 francs porté au sous-chapitre XVII, article 10 du budget départemental", 10 August 1865.
177 AML - 78WP017, Jourdan to the Mayor of Lyon, 12 July 1841.
178 ADR - 3N33, "Budget du département, année 1859".
179 The circular letter could not be retrieved at this stage.
180 ADR - 3N33-40, 1859-1864, 1868, 1870; 3N129-133, "Budget du département", 1864, 1866-1869.

this brings out two aspects of funding: first he was skilful at putting into use the double (municipal and departmental) budgetary structure upon which the museum depended from the 1850s onwards. Also, it shows that Jourdan, in fact, was able to craft a funding system which was tacitly accepted and pre-negotiated. He only needed to demonstrate the correct use of public funding after he had conducted his mission, respecting of course the amount made available to him. He did not fear not being supported, since he often paid upfront, and then requested a reimbursement on the basis of his declaration. The departmental council (*conseil général*) of course had the possibility of keeping an eye on the activities and the relevance of the expenditure, essentially by examining the question of the reconduction of the budget every year.

On an exceptional basis, the outdoor activities of Jourdan could benefit from non-Lyon funding, namely, from the Ministry of Agriculture and from the French Geological Society, in the identified cases.[181] On those occasions particularly, the covering of expenses was permitted by specific missions which would differ from benefitting the museum directly. In the case of the Ministry of Agriculture subsidy, Jourdan was to collect samples of arable soil. Part of these were presumably to be kept in the museum.[182] Sources are scarce, and it is not known, in fact, which procedure Jourdan used to establish contact with the Ministry, especially whether he had recourse to them or whether he was contacted as a local expert in the framework of a national survey of the country's resources for agriculture. The other case occurred with the organisation of the annual meeting of the French Geological Society in 1859. That year, Lyon was chosen to welcome the annual conference of the society. Jourdan, as a member of the group of hosting scholars, represented himself the Natural History Museum, the Faculty of Science and the Societé d'Agriculture, Histoire Naturelle et Arts Utiles. For this purpose, he organised a couple of field trips, especially to the Monts d'Or, a small massif on the western back of the river Saone, just outside Lyon, forming a sedimentary unit on the very edge of the Massif Central. This particular occasion of funding reception shows, additionally, that Jourdan did not think of the Museum as isolated from the rest of the scientific activities in town; and this is why it was recorded. Rather than collecting (even though items were collected), the excursion focused on field practice and sharing knowledge, especially expert knowledge from Lyon naturalists with visitors.

[181] CCEC - CO-JE, "Journal d'entrées", p.74, n° 112, 26 October 1859. "Voyage pour compléter l'étude des terrains tertiaires et surtout des molasses marines, dans le Jura, à cause de leur analogie avec celles des environs de Lyon. Dans ce voyage on a recueilli en outre les terres arables et plusieurs fossiles importants. Une grande partie des frais de ce voyage étant supportée par le Ministère de l'Agriculture, il n'y a de porté en compte que les frais qui ont été rigoureusement afférents aux recherches paléontologiques et aux collections du muséum". See also travel n° T_1859_03 Appendix H: Overview of Jourdan's scientific trips, p. 445.

[182] Arnould Locard, *Muséum d'histoire naturelle. Guide aux collections de zoologie, géologie et minéralogie* (Lyon: Pitrat aîné, 1875).

This of course gave Jourdan the opportunity to shine, but it was also a way to disclose the scientific excellence of Lyon: in this way, the local authorities could be taken onboard. And this is precisely the argument used to address queries for additional support from the departmental instance, on this occasion of the congress of the Geological Society.[183]

c. The reports on the exploration of the Rhone: strategies to overcome clashing categories

The administrative constraint weighed considerably on Jourdan's work and in order to pursue it, he needed not only to show good use of the grant, but was also expected to provide several pages of report to the *Conseil Général* every year, usually in the summer, before the annual budget was submitted to a vote. The reports, which were preserved for the years 1858, 1859, 1860, 1865, 1866 and 1868, cast light on the discursive strategies put in place by Jourdan in the travelling and collecting effort in which he was engaged.[184] The reports submitted by Jourdan attest to the good conduction of the public mission assigned to him and his taking responsibility. But they also display a typical case of navigating between scientific scope on the one hand and effective service of the administration on the other, within a framework established by the administration. Other than the typical line of argument developed by Jourdan, it is noticeable that the point of tension is on the definition of the spatial limits of the area of study and more precisely about the differing appreciation of the meaning of 'Rhône' and its geographical limits.

The reports were addressed to the "Sénateur-Préfet" and the General Council over which he presided, that is, the instance in charge of the *Département*. The same assembly was also in referring authority for the municipality during the cancellation of mayorship in Lyon between 1853 and 1871. The change in organisation of the governance also presumably altered the political scope of the authorities by anchoring and consolidating the local Lyon government's power over the entire *département's* territory. A middle ground was reached between the funding governing bodies and Jourdan's objectives: the renewed ascendency of Lyon in the Rhône *Département* met the museum director's scholarly objectives and accumulative obsessions. Indeed, the

[183] CCEC - DP-J, "Journal de Jourdan", p. 41, Jourdan to the Prefect of Rhône, 8 July 1859.

[184] The reports are scattered in different archives (in chronological order): ADR - T368, [no title], 29 August 1858; CCEC - DP-J,"Journal de Jourdan", p. 43-47, "recherches géologiques et paléontologiques dans le bassin du Rhône", 9 August 1859; CCEC - DP-J,"Journal de Jourdan", p.51-54, "Rapport sur les recherches géologiques et paléontologiques dans le Bassin du Rhône", 4 August1860; CCEC - DP-J, "Journal de Jourdan" p. 100-101, "Rapport sur les recherches géologiques et paléontologiques de la fin de 1864 et du commencement de 1865", 10 August 1865; AML - 78WP017, "Recherches géologiques et paléontologiques dans le département et le bassin du Rhône", 14 August 1866; CCEC - DP-J,"Journal de Jourdan", p.123-124, "Rapport sur les recherches géologiques et paléontologiques durant l'année de 1867", 20 August 1868.

scope was no longer the *city*, but the *Rhône*, namely a substantially wider piece of land to legitimately explore. The trick was however to find an agreement on the delineation of that territory, which was seen as a geological entity by Jourdan, while the General Council mainly defined it through an administrative category. The reports of the geological and palaeontological research undertaken echo very well the tensions between clashing views and attempts to even things out.

Jourdan was probably more used to producing memoirs and speeches for the Societé d'Agriculture, Histoire Naturelle et Arts Utiles, but he certainly possessed a certain skill in manoeuvring the administrative rhetoric to obtain funding. The efficiency of the reports to the General Council is measurable from the fact that for over a decade, the special credits for the study of the Rhone were continued, and hardly even questioned.

The structure of the six reports which were preserved may differ slightly in their overall structure, but the perspective is always the same, namely to provide an informative medium to the members of the General Council so as to obtain the continuation of their support for the special subsidy for the geological and palaeontological study of the Rhone. Noticeably, the level of allegiance expressed in the reports is surprisingly close to the smallest amount. In a letter which was addressed to the Mayor of Lyon in 1836, so much earlier in his career, Jourdan had been much more attentive to underlining the fairness of the mayor's authority by referring to his "uncompromising sense of justice" ("*sévère justice*") to be applied on deciding for museum expenses.[185] When addressing the General Council members, twenty years further along in his career, the style was formal, but one can sense no unnecessary reverence: Jourdan went straight to the point. His texts generally sketched out the outcome of the research programme he had set out. It may have been organised by chronological order of undertakings, or by type of action led. The first is exemplified by the 1858 reports, which enumerated visited places, findings and acquisitions month after month. The latter can be found especially in the 1859 report, where achievements are broken down into two categories: "the purchase of important fossils" and "the geological and palaeontological research of the Rhone". To support his funding requests, Jourdan therefore greatly emphasised two aspects: first the accumulative process of the findings and second, the acquisition of objects by naming impressive specimens like sizeable mammals, and particularly the extinct species like the *deinotherium* or mammoths. The expansion of the collection was however always an important drive for travelling, and lists of gathered objects provided significant

[185] AML - 78WP017, Jourdan to the Mayor of Lyon, 3 April 1836.

evidence of the effectiveness of the publicly funded operations.[186] Other than this, the reports were very much place-based in the sense that locational information of places of research and visits was patently brought to the fore to catch attention. Not only do the reports therefore give a sense of object accumulation, but also of physical hyperactivity across places.

Providing the actual fruit of the research was another strategy of prudence: when it was not just descriptions of maps in the process of making. Jourdan would indeed include proofs of lithographic plates to go with the reports. The members of the council were thereby made able to consider the materiality of the work done without having to rely on their imagination or make time to pay the museum a visit.

Arguably, Jourdan had proved his worth at gathering attention to his activities and highlighting its high-class scientific value. Funding was tacitly secured, and he did not need so much glossing: the factual reality of his research did speak for itself. Not only was his funding re-conducted several years in a row until he stepped back from his functions, but his demands for augmentations of credits and staff were generally given consent by the authorities.[187] Jourdan was very much aware of his dependency on the administrative framework and on decisions made by others, but he also knew how to play around with them to his own advantage. In a note to Verreaux, the well-established naturalist merchant in Paris, he referred to "his" administration and how his hands were tied because of it.[188] In a later note, Jourdan decided to decline the offer made by the naturalist dealer, because his offer consisted only of individual specimens, while Jourdan wanted groups of specimens because they would have come at a cheaper price. Whether this was true or not, the museum director actually appropriated typical standards of administrative exigencies, said to accept only groups of specimens and no individual ones, as an excuse to try and bargain down the price of the specimens.[189] He still appeared somehow trapped between the commercial strategies of one, and the political exigencies of the other, when he eventually purchased a group of bird specimens from his own pocket in order to solve the

[186] In a report to the municipal administration for an 1850 trip to Belgium, the Rhineland and the Ardennes, Jourdan had added a column containing the count of harvested fossils and rocks for every main stop of the field trip. AML - 78WP017, [Report on the trip to the Vosges, Belgium, Bas-Boulonnais, Saône etc., undated [1850?].

[187] Jourdan explained to his contact in Cochinchine how he would request extraordinary funding to to pay him his equally extraordinary pieces of collections. His style was confident about the positive issue of this request: CCEC - DP-J, "Journal de Jourdan", p. 77, Jourdan to Dr. Dérigny, 17 December 1862. Jourdand also succeeded in negotiating a pay raise for his collaborators at the museum: ibid., p. 71, "Extraits des Registres des Arrêtés du Préfet du Département du Rhône", 16 December 1864.

[188] CCEC - DP-J, "Journal de Jourdan", p 106, Jourdan to Verreaux, 7 November 1865.

[189] "Ainsi que j'ai déjà eu l'honneur de vous le dire nous ne pouvons pas acheter isolément nos objets d'histoire naturelle; ces achats isolés ne sont jamais que de rares exceptions. Nos fonds pour acquisitions sont très limités et l'administration refuserait de ratifier nos achats s'ils n'étaient pas dans des conditions de prix les plus ordinairement établis dans les catalogues de commerce." CCEC, DP-J, "Journal de Jourdan", p. 108-110, Jourdan to Parzudaki, 4 December 1865.

situation.[190] This said, Jourdan was also prompt in repeatedly raising the question of the cutting of the museum budget (within the municipal budget) by 2,000 francs after 1848 and the unacceptability that he had to take it upon himself to travel on his own expenses.[191]

Yet the biggest stumbling block was not at all procedural, which as we have seen, Jourdan was happy to overcome. Colliding views instead revealed themselves in the process of demarcation of the area relevant to Jourdan's research of the Rhone: Jourdan and the members of the General Council did indeed not understand 'Rhone' in the same manner. Jourdan's definition of 'Rhone' was framed by a scientific category of the river basin, which implied the study also of the streams tributary to the Rhone and an approach to the river in a geological sense, including the changing of its course over time. Of course, Jourdan also undertook to study the river in its full length, from its source in the Swiss Alps to its delta west of Marseille. A lot of effort was usually put into explaining how each visited site mattered in the geology of the Rhone.

In this excerpt of the 1858 report, Jourdan tackled the problem of the definition of "Rhone" and presented it as a long-standing misunderstanding. His rhetoric was organised around the fact that there were significant geological issues which could not be solved without a visit to specific sites: geological knowledge was presented as a map with blank spaces to which trips were required to be accumulated (just like objects) in order to tend to the completion of knowledge. The sole resources of the *département* were shown as insufficient to carry out the bigger scientific endeavour the Lyon scholars wished to respond to.

> I addressed, a few years ago, to Monsieur le Préfet du Rhône, a report in which I had attempted to establish the impossibility we were in to understand well and by consequence to know well our ancient sedimentary terrains, principally the carboniferous, without the study of terrains of the same age and of the same nature in other points of the Rhone river basin. The language I used in those days, I should employ it again for the study of our more recent terrains. In order to examine the marine sands of the interior of our city, those of Saint Fond and of Fezin, together with those of rivers Saone and Rhone in the commune of Caluire, we need to study those sands of Switzerland and from the South (*Midi*) which are of equal nature and age. By a comparative and simultaneous study, and consequently by a similar study that we may appreciate the origin and the successive durations of the great alluvia which have made our Lyonnais monticules a field of observation harvested in turn by our most distinguished European savants. Restraining to the sole Département du Rhône such a difficult study of the tertiary terrains would render it impossible and certainly completely sterile as well. This study is indeed so difficult that in spite of the

[190] Jourdan accepted to engage his own funds in a transaction with Verreaux, owing to the museum credit being entirely used up: CCEC - DP-J, "Journal de Jourdan", p. 111, Jourdan to Verreaux, 2 August 1866.
[191] As much as he could praise the administration in view of obtaining funding, Jourdan never hesitated to criticise the municipal budget decrease, even in correspondence addressed to third parties. CCEC - DP-J, "Journal de Jourdan", p 35-36, Jourdans to Nodot, Director of the Museum of Dijon, 18 May 1858.

> reiterated research campaigns of our most distinguished savants, as we have said previously, the most interesting questions have remained until now without satisfactory solutions."[192]

In these paragraphs, Jourdan stands for the practice of a comparative approach, which he often put on the table as the justification for trips to other river basins, like the Garonne area, or other mountain ranges, for instance the Pyrenees.[193] He interestingly also underlined the collectiveness of research, and the puzzling nature of research, which adds to the tacit necessity of going outdoors on a field trip - which was not even discussed here. The puzzle is so important that even distinguished scholars from the whole of Europe find it difficult to solve. In allowing trips further than the department, the council participates in solving an important scientific riddle. The flattering rhetoric hardly started here: Jourdan also tried to tickle the pride of the Rhône council members by showing how those places were theirs, with the heavy use of the possessive 'nos' or 'nôtre' ("our", "ours") which was very common. He also insisted on the high interest raised by the Lyon geology at international level by emphasising the centrality of its interest even for *European* scholars. It is already perceivable in the excerpt, but Jourdan fashioned a geology of Lyon which was in fact mirroring the great questions of world geology, and to which holders of authority could relate. Somehow, Lyon and the Rhone river basin were altogether a miniature earth which encapsulated all of the mysteries to be uncovered.

[192] Original text: "J'ai adressé il y a quelques années à Monsieur le Préfet du Rhône, un rapport dans lequel j'essayais d'établir l'impossibilité où nous nous trouvions de bien comprendre et par conséquent de bien connaître nos terrains anciens de sédiment, principalement les carbonifères, si nous n'allions étudier les terrains de même âge et de même nature sur d'autres points du Bassin du Rhône. Le language que je tenais déjà à cette époque éloignée, je suis obligé de le tenir aujourd'hui pour l'étude de nos terrains les plus récents. Pour bien juger les sables marins de l'intérieur de notre ville ; ceux de St Fond et de Fezin, ainsi que ceux des bords de la Saône et du Rhône sur la commune de Caluire ; il nous faut étudier ceux de la Suisse et du midi qui sont de même nature et du même âge. C'est aussi par une étude comparative et simultanée, par conséquent par une étude semblable que nous pouvons apprécier l'origine et la durée successive des grandes alluvions qui font de nos monticules lyonnais un champ d'observation où tour-à-tour viennent moissonner chacun de nos savants européens les plus distingués. Restreindre au seul département du Rhône l'étude si difficile de ses terrains tertiaires, c'était la rendre impossible et certainement complètement stérile. Cette étude est en effet si difficile que malgré les recherches réitérées, ainsi que nous venons de le dire, de nos savants les plus distingués, les points les plus importants sont encore restés jusqu'ici sans solutions satisfaisantes.": ADR - T368, [no title], 29 August 1858.

[193] See travel n°T_1859_01, "Voyage de recherche à l'ouest du basin du Rhône et dans le bassin de la Garonne, en Auvergne, dans l'Allier, à Paris". See Appendix H: Overview of Jourdan's scientific trips, p. 445.

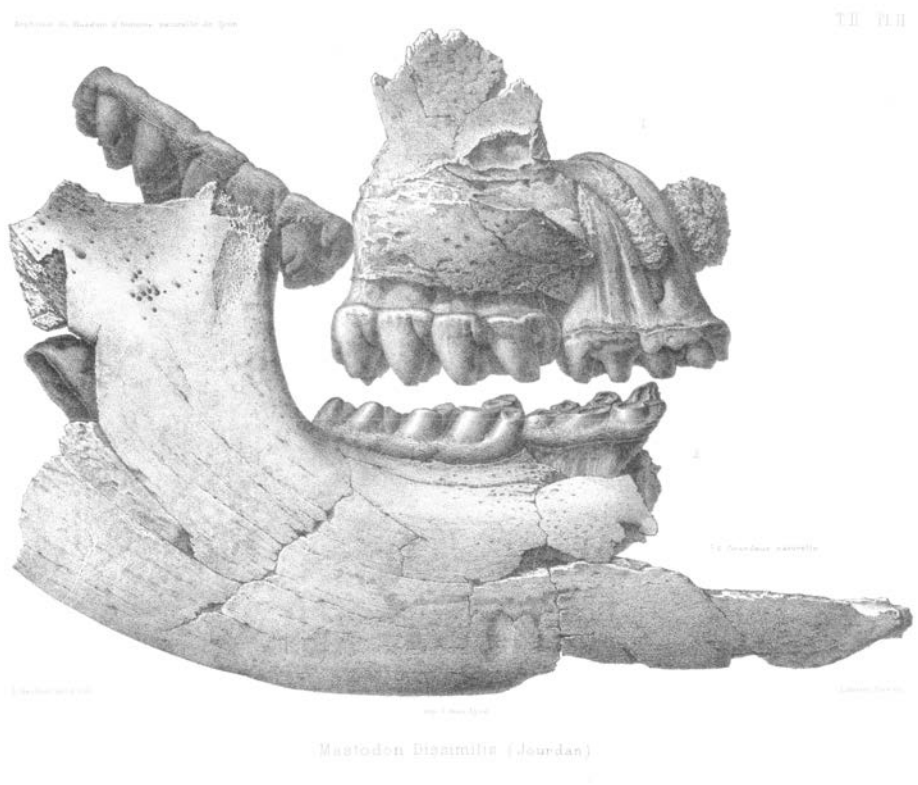

Figure 14 -Mastodon dissimilis*, plate published in Archives Du Muséum d'Histoire Naturelle de Lyon, 1878.*

This is also contained in the way he presented and introduced the geological landscape of the Rhone river. In an important effort of pedagogy, Jourdan's attempt was to provide an understandable and convincing description to non-experts of what the river basin was before in the course of geological times.

> "In a previous report, we had established that at the time of the formation of the medium tertiary terrains, the sea occupied the location where at present rises the great chain of the Jura, the Swiss valley and the basin of the Danube. The French, Piedmontese and Austrian Alps, a lot less considerable than they are today, then formed an archipelago in the middle of the Mediterranean which merged with the Black Sea and were linked to the Ocean through a strait between the Vosges and the Black Forest. Then, at the time of the deposit of the last of the medium tertiary terrains, the sea retreated from Jura and from the Swiss Valley, she stabilised her shores all around our city and further to the north-east, following a line from Neuville to Pont-d'Ain. The *Dinotherium giganteum* used to live on the coast of this sea and it was in our city that the first of their remains was found.
> At the beginning of the formation of the Pliocene terrains, or superior tertiary, the sea operated a new retreat, and she abandoned the vicinity of our city and withdrew to the foot of the hillside of Saint Vallier, Hauterive, Roybon, Saint-Marcellin etc.; a hillside which formed a series of less tall plateaus from Le Pilat to La Moucherolle. These two mountains were considerably less elevated than they are today.
> Later, and thus in times closer to us, the sea retreated for the third time. She abandoned the plains of Valence, Montélimar, La Palud etc. and withdrew to the foot of Mont

> Ventoux and to the south of the little chain which connects Mont Ventoux to the first mountains of the north of the Gard *département*. It was in those times that the volcanoes of central France were at the highest point of their activity and that the last species of mastodonts lived, that is the *Mastodons dissimilis* and *Borsoni*."[194]

Jourdan's take on his description of the Rhone river valley is one that both relies on the familiar, but also embraces the blank spaces left. The geography of the river he was sketching in the report is an attempt to mix a known reality, rendered by the reference to number of contemporary locations, with a geological reality so distant that the studied river did not even exist in its contemporary form: the region was just an area of the repeated expansion and shrinking of the sea. The apprehension of orogeny presented here was typical of the nineteenth century approach of formation of relief understood as large-scale tracts of continental surface rising, being squeezed out, or plunging under the influence of overwhelming forces of nature.[195] The line of argumentation also displays clear interiorisation of the idea of using the present-day morphology of relief and geological patterns as earth's historical archives. The continuous allusion to the Tertiary era, generally identified as the key period for the formation of fossils, was altogether an attempt to draw attention onto what was the most observable part of earth's history. Interestingly, Jourdan made use of the basic methodology of geology to generate a more readable and plausible perception of a reality which was certainly completely foreign to anyone who had never roamed fossil fields. By reshuffling time perception and shrinking different periods into one synchronic description, Jourdan provided a somewhat bizarre map of the Rhone in order to make the unobservable graspable, and especially to gain the adhesion of the

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[194] See Figure 14
Original text: "Dans un précédent rapport, nous avions établi qu'à l'époque de la formation des terrains tertiaires moyens, la mer occupaient les lieux où s'élèvent désormais la grande chaîne du Jura, la vallée de la Suisse, et tout le bassin du Danube. Les Alpes françaises, piémontaises et autrichiennes, bien moins considérables qu'elles ne le sont aujourd'hui, formaient alors un archipel au milieu de la Méditerranée qui se confondait avec la Mer Noire et se liait à l'Océan par un détroit entre les Vosges et les montagnes de la Forêt-Noire. Plus tard, durant le dépôt des derniers terrains tertiaires moyens, la mer s'est retirée du Jura et de la Vallée Suisse, elle a fixé son rivage autour de notre ville et un peu plus au nord-est suivant une ligne dirigée de Neuville à Pont-d'Ain. C'est sur les bords de cette mer que vivaient les Dinotherium giganteum, dont les premiers restes ont été trouvés, il y a près de deux siècles, au sein de notre ville.
Au commencement de la formation des terrains pliocènes, ou tertiaires supérieurs, un nouveau retrait de la mer a eu lieu, elle a abandonné les abords de notre ville et s'est retirée au pied des coteaux de Saint Vallier de Hauterive de Roybon de St Marcellin etc.; coteaux qui formaient une suite de plateaux beaucoup moins élevés du Pilat à la Moucherolle. Ces deux montagnes avaient une élévation bien moindre que celle qu'elles ont aujourd'hui.
Plus tard et par conséquent dans un temps plus rapproché de nous, la mer a fait un troisième retrait elle a abandonné les plaines de Valence, de Montélimart (sic), de la Palud etc et s'est retirée au pied du Mont Ventoux et au sud de la petite chaîne qui relie le Ventoux aux premières montagnes du nord du département du Gard. C'est à cette époque, qu'étaient dans leur plus grande activité les volcans du centre de la France et que vivaient les dernières espèces de mastodonte, les Mastodons, dissimilis et Borsoni.": CCEC - DP-J,"Journal de Jourdan", p. 51-54, "Rapport sur les recherches géologiques et paléontologiques dans le Bassin du Rhône", 4 August 1860.
[195] Greene, 'Geology', 177.

General Council to the scientific inconsistency of limiting the "Rhone" to an administrative category.

The geology of the Rhone was never presented as a sum of finished knowledge. Jourdan quite openly used the conditional tense or referred to the progressive nature of knowledge building. More than a stance for humility, the suspended nature of research was intended to weigh down upon the members of the council and to stimulate their sense of responsibility in the process, as well as possible pride in taking part in the "progress of science". One example is found in these considerations about a lingering uncertainty regarding the age of humankind:

> "Monsieur le Sénateur, the question of antiquity of man at the surface of the earth has been keeping the scholarly world in suspense. In absolute fashion, if one wishes to count numerically each year or century, this question is unsolvable; it may however become explicable once the antiquity of man is studied only relatively to the existence of some great species of animals extinct from our lands since historical times, or one may even say, since our legendary times.
> In the last of the geological epochs, Elephants, Rhinoceroses, Cave Bears, hefty Hyenas, and a big Cat who was related to both the tiger and the Lion lived in our lands. Did man inhabit our lands simultaneously to those great animals disappeared to-date? This grave matter may today be responded to in the affirmative. Facts of coexistence are being increasingly observed and soon there shall be enough evidence so as to rule out any doubt. From these facts, none could be evidenced in the neighbouring area of Lyon. To learn about them, we took it upon ourselves to observe them in the principal locations where they had been encountered. We thus organised the retrieval from the caves at Arcis-près-Tonnerre, and simultaneously, some bones of a cave bear, of Hyaena Spelaea and debris of human pottery in those very caves where the Marquis of Vibraye had harvested one human jaw together with other animal remains similar to those which we found."[196]

Part of the strategy was to demonstrate the centrality of Lyon in the general geological questionnaire. Recent concerns regarding the history and age of

[196] Original text: "Monsieur le Sénateur, une question depuis quelques années tient en éveil le monde savant, c'est celle de l'ancienneté de l'homme à la surface de la terre. D'une manière absolue si l'on veut compter numériquement par année ou par sciècles (sic), cette question est insoluble; mais elle peut le devenir dès que l'ancienneté de l'homme n'est plus étudiée que relativement à l'existence de quelques grandes espèces d'animaux disparus de nos contrées depuis nos temps historiques, on peut même dire depuis nos temps légendaires.
Il existait dans nos pays aux dernières époques géologiques des Elephants, des Rhinocéros, de grands Ours à front bombé, des Hyènes à forte taille et un grand Chat participant à la fois du tigre et du Lion. L'homme vivait-il dans ces mêmes contrées en même temps que ces grands animaux aujourd'hui disparus? C'est là une grave question et l'on peut aujourd'hui y répondre sans trop hésiter par l'affirmative. Les faits de coexistence bien constatés s'accroissent et peut-être que bientôt ils seront assez nombreux pour que le doute ne soit plus possible.
De ces faits, nous n'en avons pas trouvés de bien évidents aux abords de Lyon. Pour nous les apprendre, il nous a fallu aller les reconnaître dans les principaux lieux où on les avait rencontrés. C'est ainsi que nous avons fait recueillir dans les grottes d'Arcis près Tonnerre, et simultanément des os d'ours au front bombé de Hyaena Spelaea et des débris de poteries humaines dans les mêmes grottes où Monsieur le Marquis de Vibraye avait fait récolter une mâchoire humaine accompagnée des restes de ces mêmes animaux que nous y avons trouvés.": AML - 78WP017, "Recherches géologiques et paléontologiques dans le département et le bassin du Rhône", 14 August 1866.

humankind is particularly perceivable in Jourdan's way of referring to accumulations of facts confirming the hypothesis of humans having coexisted with certain giant animals. Not only a key topic in the history of the earth, Lyon's scientific importance was also to be embodied in the proficiency of its scholarship and the comprehensiveness of its collected samples. The museum collection was therefore expected to be an appropriate reflection of the command of recent knowledge acquisition from the scientific community and to reflect the latest scientific progress. The collection was thereby presented by Jourdan as a symbolic token of municipal and departmental pride.

Rather than just making an empty claim, Jourdan *demonstrated* the importance of defining the Rhone as a geological category, rather than according to departmental borders. However, there was an assertion which occurred first in the report to the General Council, and that was that Lyon was, after all, the 'natural capital' of the Rhone river basin. Stating it was apparently enough to establish the authority of the city on that yet undefined territory: Jourdan never cared to make explicit what a "natural capital" was. But nevertheless, it was used as a recurring keyword and a substantial 'selling argument'; in other words, that Lyon was the 'natural capital' of the Rhone was unquestionable.

The responses to Jourdan's report were mainly oral: they were the exchanges between the council members and the detail of them was unsurprisingly never recorded. There was, still, a gentle subtlety in Jourdan's claim which discreetly suggested that if Lyon were the capital of one of the most geologically significant portions of land on earth, was it not also somewhat one of the most overlooked of the capitals of the world? The concept of 'natural capital' was used nearly exclusively in reports to the administration. It did the trick of blending a naturalist's vision with an administrative category which politicians could appropriate. But the notion of natural capital certainly also reflects the contours of a certain perception of what was at stake outside of the museum, how the outside reality of the museum was conceived, and how it fitted into the locale where the museum was situated; in particular, a perception of tamed nature around the city and underlying power relations.

In spite of the successful reconduction of the department funding, and the relative elbow room left to Jourdan to organise his field trips, the quiet feud over the administrative or geological categorisation of the Rhone was brought to an end with the unequivocal decision of the council to limit funding to the exploration of sites within the *département*.

> "At your proposal, the General Council has entered in the 1867 budget of the Département a sum of 1,200 francs for the encouragement of geological research. With regards to this matter, the minutes of the session held 31 August 1866 contain the

> following: 'The Committee of Public Interest, in maintaining this credit, believed it should only apply to geological studies conducted in the Département of Rhône and that has genuine interest for this *département*'.
> Until now the allocated credit would have applied not only to research specifically on this département, but also to research conducted throughout our Rhone basin of which our city is the genuine capital. The Director of the Museum can only regret that the allocated credit may only apply to the district of the département whose limits are but geological and, as it happens, cut across terrains of similar nature in many points which results in their only incomplete study; he must however give way to the decision of the General Council regarding the use of these twelve hundred francs."[197]

What appeared to have been merely reluctance had then become a clear-cut decision made on a recommendation from the Committee for Public Interests, which the General Council followed. The suspicion of geological research conducted by Jourdan not fitting the "real interest of the *département*" was not only a partial dismissal of his work and foregoing attempts to teach and convince the council. Above all, the decision was a claim for the superior interest of utilitarian geological survey in order to inventory usable resources, and in doing so, the council signified to the scholars that if they wished to carry on their research with public funding, they should coincide with the "public interests", which seems to have been understood at that time as the surveying of exploitable resources. Geological knowledge, it seems, was not profitable enough.

CONCLUSIONS: ADMINISTRATING NATURE

Understanding the appropriation of the museum of natural history in the long first half of the nineteenth century cannot be isolated from the important reshuffling of administrative structures during this period. The process of homogenisation of administrative nomenclature and the extreme centralisation transformed representations and the exertion of power. The study of the museum is a good case with which to examine the application of legal framework onto realities and the ways

[197] Original text: "Le Conseil Général, sur votre proposition, a inscrit dans le budget du Département pour 1867 une somme de 1 200 francs pour encouragement aux recherches géologiques. A cet égard le procès-verbal de la séance du 31 aout 1866 porte ce qui suit: 'La Commission des intérêts publics, en maintenant ce crédit, a pensé qu'il ne devait s'appliquer qu'à des études géologiques faites dans le Département du Rhône et ayant un intérêt réel pour ce département.'
Jusqu'ici cette allocation s'appliquait non seulement aux recherches propres au département, mais encore aux recherches faites dans toute l'étendue de notre Bassin du Rhône dont notre chef-lieu est la véritable capitale. Le Directeur du Muséum peut regretter que l'allocation ne puisse plus s'appliquer qu'à la circonscription départementale dont les limites n'ont rien de géologiques et se trouve couper, sur la plupart des points, des terrains de même nature qui sont ainsi incomplètement étudiés ; mais il doit s'incliner devant la prescription du Conseil Général quant à l'emploi des douze-cents francs."
CCEC - DP-J, "Journal de Jourdan", p.123-124, "Rapport sur les recherches géologiques et paléontologiques durant l'année de 1867", 20 August 1868.

in which authority was in fact built. Inversely, this study also helps to understand the growing weight of the museum establishment. The place of the museum in the city administration was equivocal. It could vary from an insignificant line in the budget, as in Nantes, to a trigger for substantial negotiations, as in Lyon. It could even be made invisible, as in Toulouse. Municipal administrations were however seen to concede ever more space to natural history museums, which led to the substantial architectural investments that will be presented in the next chapter.

The dialogue between the authorities of the city administration and that of the museum resulted in continuous negotiations over lines of demarcation between political and scientific territories.[198] This chapter has shown, however, how porous the boundary was. Sets of instruments based on paper logistics, but also discursive strategies, were elaborated in order to establish communication between science and the city. The fact that the museum was a municipal establishment placed this communication into a hierarchical functioning and within a set of state-elaborated regulations. The city administration and the museum were not two separate worlds, political and scientific, occasionally brought to negotiate, but an overarching administrative structure into which the museum institution was gradually inserted.

Museum directors were municipal agents as much as they were scholars. The line of demarcation from the administration needed to be crossed, be it physically though displacement in the city, to obtain funding and support. It was also crossed through research translated into reports, pedagogically elaborated. But it also contributed to the consolidation of the boundary, first by institutionalising a relationship of dominance from the city hall services onto the museum. Second, it also caused museum directors to develop a language which was both understandable and which also proved their own level of expertise in the matter they were occupied with, like Jourdan in his reports to the Sénateur-Préfet. Nature had been scaled into local bureaucracy.

The territorial discourses over the natural did not only create a space of shared language between scholars and holders of local authority, they also led to local forms of administration of nature. In Toulouse, Joly's idea of a native right to ownership of Sansan's palaeontological deposit precisely poses the question of property claims over nature and the legal framework around property of the ground and underground. Playing with the imagination of departmental councillors, telling them stories of lost seas, gigantic mammals and active volcanoes taking place just around the corner was

[198] Reading about strategies in writing was useful for this conclusion: Ribard and Schapira, *On ne peut pas tout réduire à des stratégies*. On lines of demarcation between adminsitrative and scholarly authorities, see Limoges, 'Une "République de Savants" sous l'épreuve du regard administratif: Le Muséum d'Histoire Naturelle 1849-1863'.

not only a way to make the incommensurable relatable. Rather, it contributed to the elaboration of a deep history for the cities by paradoxically un-mythologising it.[199] There were strategic moves made, to obtain political support, or to serve localist revendications based on measurement of grandeur.[200] Bureaucracy of nature was not just about the municipalisation of the museum, papers and regulations in swelling numbers. Ultimately, it also translated into the appropriation of a presumed natural territory under the command of local and urban power.

[199] Martin J. S. Rudwick, *Earth's Deep History: How It Was Discovered and Why It Matters* (Chicago; London: University of Chicago Press, 2014).

[200] Van Damme, *Métropoles de papier*, 15; Van Damme, 'La grandeur d'Édimbourg'. On the nationalist uses of museum objects, and especially natural collections, see Suzanne Elizabeth Zeller, *Inventing Canada: Early Victorian Science and the Idea of a Transcontinental Nation*, Carleton Library Series 214 (Montreal: McGill-Queen's University Press, 2009); Sally Gregory Kohlstedt, 'Place and museum space: The Smithsonian Institution, National Identity and the American West 1846-1896', in *Geographies of nineteenth-century science*, ed. David N. Livingstone and Charles W. J. Withers (Chicago: Chicago University Press, 2011), 399–437; Shaw, *Possessors and Possessed: Museums, Archaeology, and the Visualization of History in the Late Ottoman Empire*, 2; Sharon Macdonald, ed., *The politics of display: museums, science, culture* (London: Routledge, 1998), 6.

Chapter 3
Fitting the museum in the city

By the last third of the nineteenth century, the former Abbaye de Saint-Pierre, the former Hôtel de la Monnaie and the former convent of Carmes Déchaussés proudly hosted, behind their very palatial facades, the museums of natural history of Lyon, Nantes and Toulouse, respectively. As if they had finally found their place after plenty of vicissitudes, the museums were absorbed into the fabric of the city. Knitted into some of the longer-lived sites of the city, the natural history museums materially embraced the symbolism and power of those sites while concomitantly contributing to the remodelling of the meaning of those places where the historic depth of the city had crystallised.[1]

This chapter tells the story of how natural history museums tightened their relations to the urban sites they were built inside. By looking at the inscription of the museum within the cities, facades will be taken down to cast light on the ambiguities of these institutions, oscillating between the planned and the random. Between 1800 and 1870, the locations of natural history collections indeed remained somewhat unresolved: decades of unsettlement in Lyon, marginalised in Toulouse, continuously projected into another locale in Nantes. The history of those collections as expounded in this chapter is also that of the interstices, which considers built material through its

[1] Jean-Claude Perrot, 'Genèse d'une ville moderne: Caen au XVIIIe siècle', *Annales historiques de la Révolution française* 215 (1974): 90. Bernard Lepetit elegantly wrote: "Les sociétés urbaines ne se glissent pas dans des coquilles vides mais procèdent en permanence à une réactualisation et à un changement de sens des formes anciennes" in "Le Temps des villes", 12, cited in Natacha Coquery, *L'espace du pouvoir: de la demeure privée à l'édifice public, Paris 1700-1790* (Paris: Seli Arslan, 2000), 171.

uses.[2] It also wishes to consider the museum as a component of urbanity and of urban culture.[3]

The history of how the museums were fitted into the urban space is also that of the changing urban space of the nineteenth century. In this context, the acceleration of the transformation of the cityscapes deeply changed their visual aspects: streets were straightened out, some *communes* were annexed like in Lyon, land was conquered over river through draining. Cities also grew demographically. If across Europe the explosion of urban population became really manifest after 1850, the examples of Toulouse and Nantes are telling of the adaptations necessary to accommodate a population which, between 1800 and 1850, grew by 25% in Nantes (80,000 to 108,500 inhabitants) and which doubled in Toulouse (52,600 to 103,100 inhabitants). Lyon was a monstruous special case in comparison: the population had increased by 50% since 1831 (149,000 inhabitants) to nearly 300,000 inhabitants in 1856, right after the annexation of Vaise, La Croix-Rousse and La Guillotière. In 1872, the Lyonnais counted 323,000 souls.[4] The question of the building of the museum has therefore to be thought of within a context of cities feeling cramped within their walls.

The transformation of the cities was not only material, but also affected its functions. Cities became the place of projection of modernity, however illusory this was.[5] As such, the traditional division between country and city extended through the multiplication of places of expert and technical knowledge.[6] The concentration of institutions dedicated to science and education in cities was a manifestation of the growing symbolic function which stemmed from and nurtured aspirations for recognition.[7] But knowledge also arose from the responses to the many challenges posed by the vulnerable urban space, such as hygiene and the prevention of epidemics, as well as general logistics of circulation and flows. As much as economic capital flowed into cities in the nineteenth century, symbolic capital was also fuelled by the accumulation of knowledge.[8] By contrast, the countryside was typically designated as backwards and lagging behind, but it also increasingly became a space of protected nature and authenticity, an open air display of collectibles which was to be surveyed by urban and knowing individuals, namely the museum naturalists.

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[2] Alice Ingold, *Négocier la ville: projet urbain, société et fascisme à Milan* (Paris: Éditions EHESS, 2003).

[3] Charlotte Guichard and Bénédicte Savoy, 'Le pouvoir des musées? Patrimoine artistique et naissances des capitales européennes', in *Le temps des capitales culturelles: XVIIIe-XXe siècles*, ed. Christophe Charle (Seyssel: Champ Vallon, 2009), 101–31.

[4] All demographic data was provided by 'Base Cassini (EHESS)', Des villages Cassini aux communes d'aujourd'hui, 2007, http://cassini.ehess.fr/cassini/fr/html/index.htm.

[5] Harvey, *Paris, Capital of Modernity*.

[6] Ingold, *Négocier la ville*; Ingold, 'Expertiser la ville?'

[7] Van Damme, 'La grandeur d'Édimbourg'.

[8] Van Damme and Romano, 'Sciences et villes-mondes, XVIe - XVIIe siècles'; Harvey, *The Urbanization of Capital*; Charle, *Le temps des capitales culturelles*.

The comparison of the museums of Lyon, Nantes and Toulouse provides a contrasting set of examples which illuminate the manifold tensions between the velleity of modernisation and practical realisation. After having considered how the natural museums were assembled and absorbed in bureaucratic traditions, this chapter attempts to unbury the modalities in which a museum was built and more generally to observe how it was appropriated into the substance of the city. In a fragile environment and changing urban materiality, the fitting of the museum recalls, once again, that the museum was never a certainty as such, but rather the result of socialised processes of production of space, which slowly but tightly weaved the fabric of the urban.

1. IN THE INTERSTICES OF THE CITY

A. The changing locations of collections

a. Nantes and the clasped museum

From 1810 to 1875 and the inauguration of the new building in Place de la Monnaie, the museum of natural history of Nantes was located in Rue du Port-Communeau. While it bordered the river Erdre, which was covered over in the second half of the nineteenth century, the entrance was situated on the other side of the block of buildings. Clasped, literally, in-between the walls of neighbouring houses, the 1810 museum building could very easily go unnoticed by the passer-by not specifically looking for it. A small access gate allowed access to the garden, but the official entrance gate was paradoxically at the start of the funnel-like corridor (Figure 17). The side facing the canal was kept closed-up to incorporate a garden within the structure. This organisation recalled the classical aristocratic layout of the courtyard and garden on both sides of a construction. The organisation of premises, however, induced an important divide from the Quai du Marais and the waterways crossing Nantes, for reasons that can be related to the wish to stand apart from activities along the river, which were probably very active and diverse, and possibly loud.

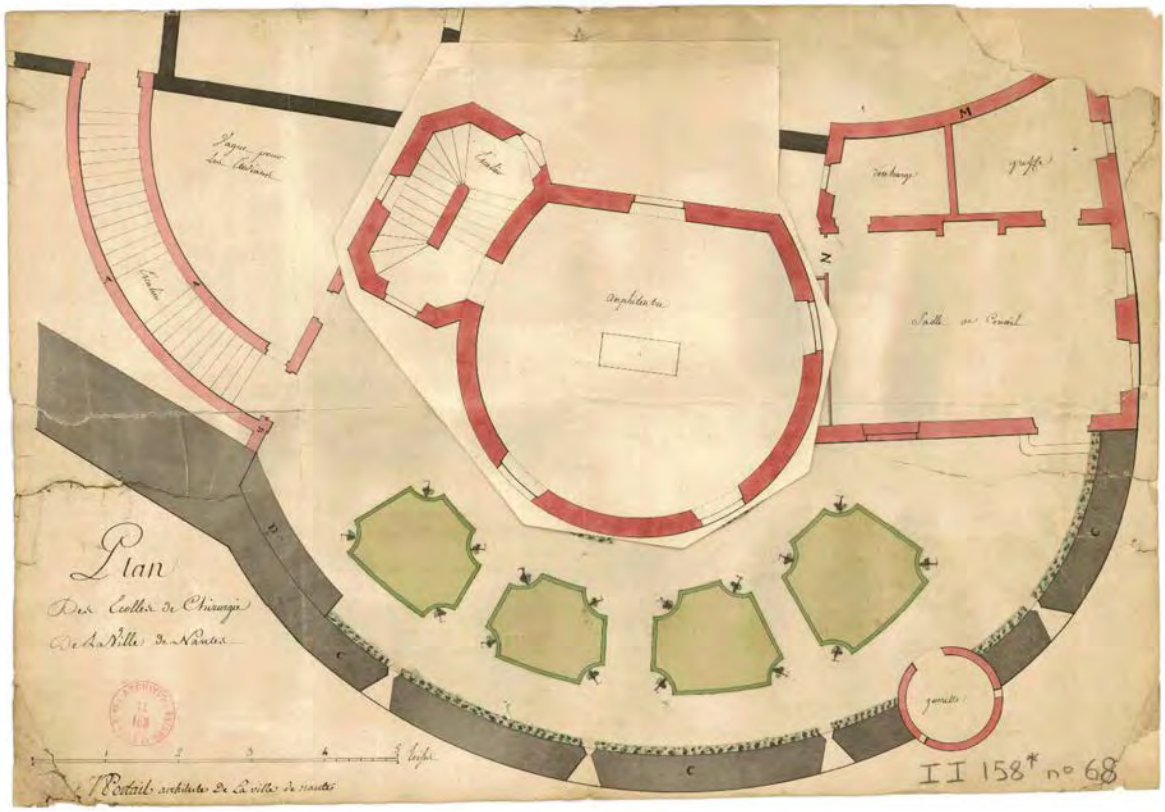

Figure 16 - Plan of the School of Surgeons, formerly in the location of the Nantes museum, undated. AMN

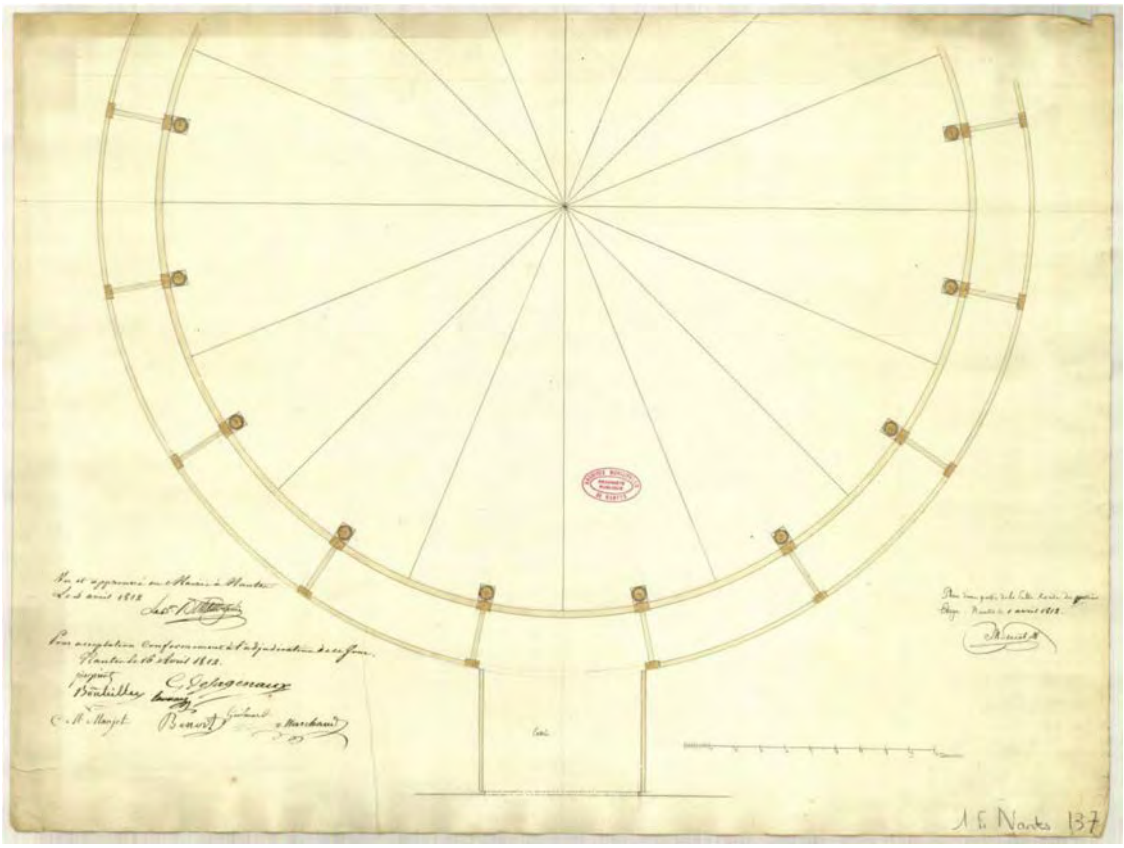

Figure 15 - Architectural plan of the circular room of the Nantes museum, 1812. AMN

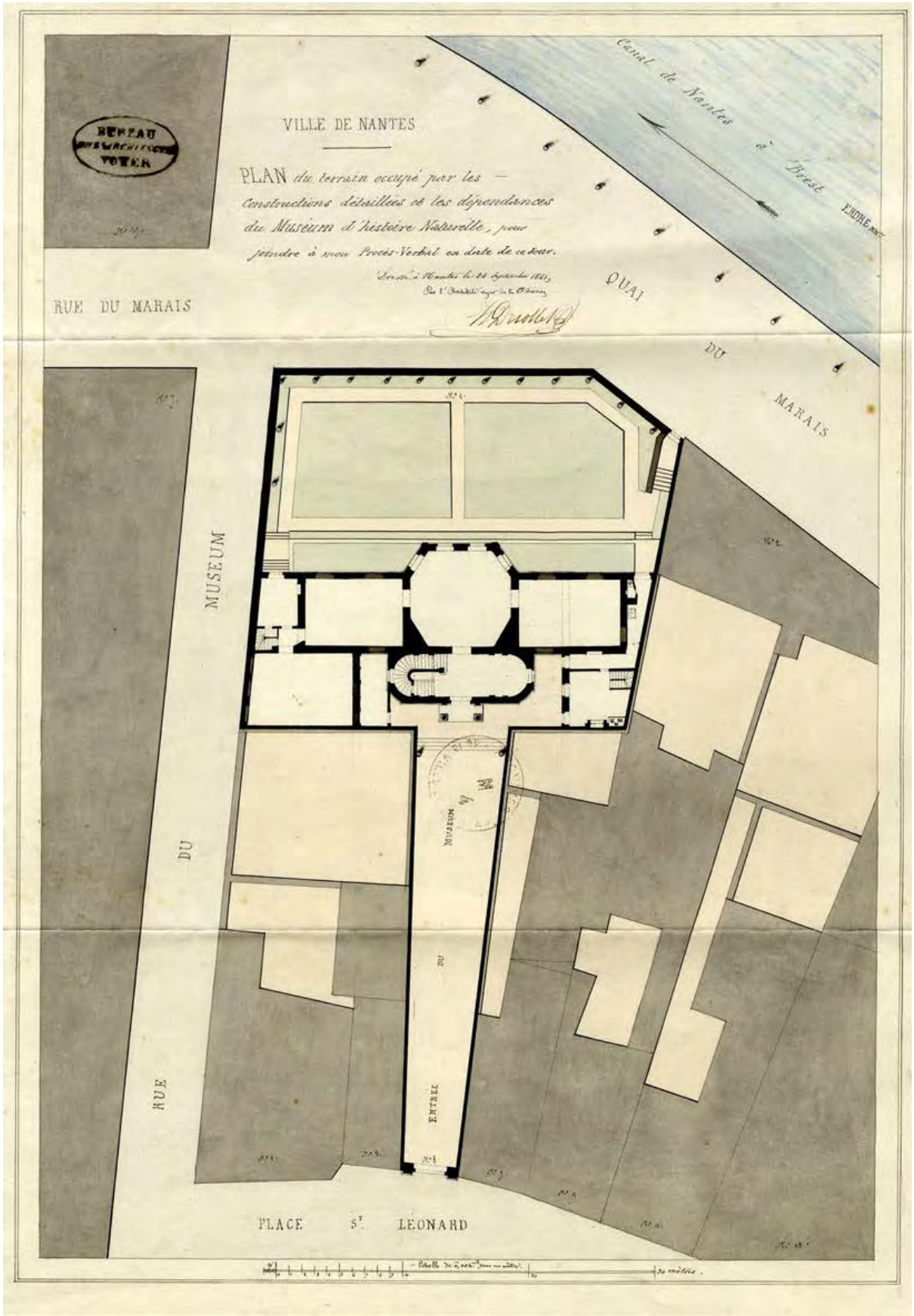

Figure 17 - Layout of the Nantes museum, 1841. AMN

Before the collection was installed within those walls, the Buron collection had remained for several years under the custody of Dubuisson at an apartment in Rue Caylus.[9] While the purchase had taken place in 1802, with the approval of the central government, and presumably following a positive report from Fourcroy, the collection was still in its "temporary" location of Rue Caylus for the inventory conducted in 1806.[10] A rent was due for the occupation of the apartment, as stated in the engagement of the Département de la Loire-Inférieure when the sale was enacted: the occupation of a private locale was often subject to additional expenses.[11] The collection was later given to the municipality in spite of their protesting against the increased expenses it would cause them. Nantes thereafter became the principal actor of the arrangement and opening of the cabinet in Rue Saint-Léonard.

While visitors could already see the cabinet in Rue Caylus, the definitive location for the museum was, following a prefectoral decision, to have it placed at the former school of surgeons (Figure 16). For some time, the locale was also destined for the Society of Arts and Sciences, which decided to opt for meeting at the city hall instead, leaving the entire space to the display of the cabinet.[12] The building was the former School of Anatomy and bore a very peculiar architecture characterised in its design by a circular theatre previously designed for lectures and demonstrations. Not a purpose-built locale, the new premises required important works of architectural translation in order to settle the collection in the building. A challenge was for instance to integrate an unconventionally circular-designed room (Figure 15) into the arrangement plans.[13] Its very theatricality, however, later served to highlight certain collections.[14]

b. Toulouse: the ghost of the museum at the botanical garden

Like Lyon, Toulouse was a case where the former conventual ensemble was to be reused for the sake of opening a museum, after its confiscation and absorption as national property. The first option had gone to the church of the Cordeliers, in Rue des Lois.[15] What was rapidly to become an Arts museum was installed in the

[9] Pihan-Dufeillay, 'Notice biographique du F.-R.-A. Dubuisson, Conservateur du Muséum d'Histoire Naturelle de Nantes'. On the reorganisation of the natural history collections in Nantes see: Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 403–12.
[10] AMN - 2R565, Muséum d'hisoire naturelle. Notice, by Louis Bureau [print], n.d.; ibid., Extrait de registres de la Mairie de Nantes, 1 May 1806.
[11] AMN - 2R567, Prefectoral decree, 18 Ventôse X [9 March 1803].
[12] The motives of the academicians are not mentioned in the source. AMN - 2R565, Prefect Belleville to the Mayor of Nantes, 4 April 1806.
[13] AMN - 1Fi137, 'Plan d'une partie de la Salle Ronde du premier étage', 4 April 1812.
[14] See Chapter 5, 2, B, b. The example of Nantes: classifying nature locally, p. 352.
[15] ADHG 1L1032, it. 15: [Proposal of a museum submitted by Lucas Cadet to the Central Administration of Haute-Garonne], 9 November 1793.

Augustinian convent in 1795, where the natural history section never developed except for bits and pieces added to the gallery in the absence of a dedicated place until the 1840s. About the same period, Philippe Picot de Lapeyrouse is said to have requested a section of the Couvent des Carmes Déchaussés in order to arrange his collection for the purpose of teaching.[16]

The Toulouse case poses the question of the connection with the botanical garden with more acuity than in the two other cities. The two establishments were institutionally separated in Nantes, with individual directorships and little communication between the two. In Lyon, the cabinet and the garden had been under close association under the directorship of botanist Gilibert. But after his death in 1814, it had been considered too much for one person to look after both collections and the two establishments were made independent, a situation which was emphasised by the transfer of the non-botanical collections to Palais Saint-Pierre.

The history of the botanical garden of Toulouse as related by Vergne in 1893-1894 helps understand the possible confusion which was perpetuated about a museum foundation at the time of Lapeyrouse. The very carefully researched investigation about the Jardin des Plantes, abounding with archival references, detailed a tumultuous history of the garden. Even before the nineteenth century, the garden, owned by the Académie des Sciences, Inscriptions et Belles-Lettres, had been settled in several points of the city: at the north-eastern Porte Matabiau, close to the Canal du Midi in the 1720s, then to the Hôtel de la Sénéchaussée in the 1750s which was located in rue des Fleurs after it had been granted to the society.[17] This later location was quite close to the garden of the Carmelites to which it was then transferred.

But the process was slowed down by tergiversations related to land ownership. The departmental authorities decided on the relocation of the garden outside of the walls of the city, at the former convent, in 1794. Such an insitution required a sizeable plot of land, but also buildings to host a cabinet, possibly a herbarium, to organise the classes, and store books and plants in the cold season. The head gardener Ferrière insisted that the botanical garden should be preferred to use the locale the former. The activity of slaughtering and salting pork meat in those very premises would, he feared, damage the building.[18] It was a game of musical chairs: the slaughtering house could have been sent to the Récollets, but it turned out the building had been given away already which led to a last option, the Caraman convent. By the end of 1795, Ferrière and Lapeyrouse had started to reorganise the botanical garden at the former Carmelite convent, where the course of natural history Lapeyrouse ran at the école

[16] Astre, *Le Muséum d'histoire naturelle de Toulouse*, 1949, 20.
[17] Vergne, *Le Jardin des Plantes de Toulouse*, 6–10.
[18] Ibid., 20.

centrale was indeed given. The buildings of the Carmelites, however, remained at the heart of conflicts between opposing parties for many years and it was only after the scalded revolutionary opposition around the fate of the church had simmered down that the building was, eventually, chosen for the opening of the museum of natural history.[19]

The botanical garden cannot be said to have replaced the museum of natural history: Alfred Moquin-Tandon, the director of the botanical garden from 1834 to 1853, was quite assertive of that when he dismissed his home as a suitable place to store and preserve a series of donated birds.[20] The situation was telling, on the one hand, of the wanderings and paradoxical mobility of live species like plants from one place to another within the city. On the other, and despite stormy circumstances, the intra-urban trajectory of the garden and its position, at least to date, alongside the Allée Saint-Michel shows a movement of growing stabilisation of naturalist interest in this area.[21] This led to the development of a form of locational permanence, namely, the neighbourhood became associated with naturalist institutions with the development of the School of Medicine on the side of the Jardin.

The Toulouse situation was peculiar and generated a multi-sited pattern of natural history collections, where objects were stored in the interstices made available by the various institutions with an interest in - or room for - natural objects. In comparison with Nantes and Lyon, this situation lagged longer into the nineteenth century because there was no designated place. Large discussions arose in the municipal council about the digging in and digging out from the botanical garden of a deceased elephant, also raising the question of the use of his remaining skeleton and its storage.[22] Similarly, it was a relief when the veterinary school of Toulouse offered to take care of the bones of a giraffe.[23] The existence of sheer interest for collections of natural history was unquestionable, but the Toulouse naturalists were constrained to accept their dispersion across the urban space, to ensure their preservation. The scattering was however relatively limited to the the area of the Allée Saint-Michel.

c. Lyon: from Les Terreaux to La Déserte and back

Before the nineteenth century, the botanical garden and municipal cabinet of natural history of Lyon had already been separated. Claret de La Tourrette had

[19] Vergne, *Le Jardin des Plantes de Toulouse*, 6–10.
[20] AMT - 3D132, Moquin-Tandon to the Mayor of Nantes, 2 June 1836; Dominique Clos, *Éloge de M. Moquin-Tandon* (Toulouse: Imprimerie Ch. Douladoure; Rouget Frères et Delahaut, successeurs, 1864); Henri Baillon, *Éloge de M. le professeur Moquin-Tandon prononcé par M. H. Baillon, à la séance de rentrée de la Faculté de médecine, le 3 novembre 1864* (Paris: Impr. de A. Parent, 1864).
[21] Allée Saint-Michel corresponds to Allée Jules Guesde in the present day.
[22] AMT - 3D132, Folder '*Elephant*'. See Introduction, 1. The Story of where to put the dead elephant, p. 27.
[23] AMT - 3D132, Director of the Veterinary School of Toulouse to the Mayor of Toulouse, 11 January 1849.

installed a botanical garden on the slopes of Fourvière.[24] The cabinet, kept and used by the Académie des Sciences, had been located at the city hall in Place des Terreaux until the Revolution broke out.

The concommittance of the creation of the *écoles centrales* and the seizing of the convent at La Déserte in 1794 paved the way to the establishment of a cabinet of natural history.[25] Gilibert's course necessitated both a cabinet and a garden. In the earlier decades of the nineteenth century, the slopes of the Croix-Rousse were hardly urbanised. Down in the city centre, in Place des Terreaux, the Abbaye des Dames-de-Saint-Pierre had been confiscated from the Benedictines. The building was selected to host the Conservatoire des Arts in 1802, where the cabinet of natural history was one of the many components of an educational and commercial establishment which was meant to concentrate all in one place all the necessary resources to support the sweeping ambitions of Lyon in the textile industry. Setting the record already for the double location of natural history collections, some objects were kept both at La Déserte and at the Palais Saint-Pierre, for the latter had been designated as a storage area for all confiscated property for the *département*.

Between 1794 and the 1820s, natural history specimens moved back and forth a couple of times between the two locales, following the plans of the cabinet directors, first Gilibert and then Mouton-Fontenille. In 1805, in spite of the opening of the Conservatoire des Arts in 1802, natural history collections were still scattered across the city. The various collections composing the municipal collections were split across two sites, the Palais Saint-Pierre and at Gilibert's home at Maison Rivière. One way to solve this situation, considered problematic by Gilibert, was to group them at La Déserte. Its advantage was the neighbouring garden. Placing the cabinet on the slopes of la Croix-Rousse would cause the continuous presence of professors to care for the garden, "every day and at all times" and consequently to necessitate fewer members of municipal staff for the supervision of the premises. Convenience would be even greater because the artists and trainees would only be required to go to one place to find natural models from the three botanical, animal and mineral kingdoms. The garden was of course also useful for the professors to make spontaneous verifications of live specimens during classes. Gilibert did not stop there, also emphasising the locational advantages of the building: a clean and spacious construction oriented southwards, with lodgings for the professor and janitor and an opportune internal layout, with staircases servicing rooms independently; substantial storage space for the

[24] Dr. Antoine Mangin, *Claret de la Tourrette*, 7.
[25] AML - 78WP020, Arrêté attribuant 'la maison nationale de la Déserte' aux jardins de botanique, 4 Frimaire IV [25 November 1795]; ibid.: Arrêté de création d'un cours à l'École centrale de botanique et agriculture dans les bâtiments des Oratoriens (montée Saint-Sébastien) et de la Déserte, 3 fructidor IV [20 August 1796].

herbarium, the library and also for "delicate plants in the winter" and for medicinal fruit and seeds intended for the "poor and sick". On top of it all, the building showed enough space to host classes of botany.[26] These settings were ideal to Gilibert because they reconciled architectural convenience, space availability, and possibly also perceived independence, not being under constant observation as at the Palais Saint-Pierre.

Presumably at La Déserte between 1805 and 1812, the cabinet of natural history had to be moved back to Palais Saint-Pierre. In 1812 the collection was to be relocated following a municipal decree that same year, but possibilities for relocations were not extensive. A bemusing note from Artaud, director of the Conservatoire des Arts, to the mayor resonated as a game of reshuffling places and usage.[27] The only locale adapted for the *provisional* relocation of the collection was the room formerly used for the classes of physics. It was only due to the suppressed course that the collection could re-enter the Palais. The instruments would not be moved away, though: of course, it was not possible to locate two collections in one room. Artaud and Gilibert therefore suggested that the lodging of the janitor at the Conservatoire be relocated to the floor above. The consequence of this reorganisation would be to "find three rooms and three others on the mezzanine floor together with a large room giving onto the street" which they found adequate for the rearrangement they asked the mayor to give his agreement to. This description would leave anyone in perplexity, since the practical reality of what was described and referred to is, with the time distance involved, difficult to grasp. The note is however significant for the intricacy of the location of collections, which needed to be worked out, fitted and negotiated within the spatially constrained landownership of the municipality.

Another dimension of the movement of natural collections exemplified by the case of Lyon lay in the contradictory temporalities which brought together the short-term and the urgent with very long periods of suspended time. Each and every note sent to the mayor or emitted from his cabinet insisted on the emergency of taking action owing to the possible "alterations" of the objects.[28] In 1819, the natural history objects were provisionally waiting in "baskets" for the works newly adjudicated at Palais Saint-Pierre to be finished.[29] "Provisionally" had meant already four years at least. A temporary warehouse had been set up in the courtyard of the Palais while the works continued.[30] In 1822, Balbis, the director of the botanical garden, asked again

[26] AML - 78WP021, anonymous [Gilibert], *Observations sur la Cabinet d'Histoire Naturelle de Lyon*, 24 October 1805.
[27] AML - 78WP021, Artaud to the mayor of Lyon, 9 October 1812.
[28] ADR - 4T60, the Mayor of Lyon to the Prefect of Rhône, 31 December 1831.
[29] ADR - 4T60, the Mayor of Lyon to the Prefect of Rhône, 9 March 1819.
[30] Ibid.; ADR - 4T60, the Mayor of Lyon to the Prefect of Rhône, 22 April 1822.

for the removal of the remainder of "objects of natural history" from his office.[31] The situation may have lasted up to 1837, with the inauguration of the Zoology Gallery.[32] It had taken a complete change of policy, heavy negotiation for the reopening of the Faculty of Science, the appointment of a determined Jourdan and possibly the authority of a career-obsessed Prunelle to reach some stability, before the transfer into the former Musée Guimet on Boulevard des Belges in 1909.

The city revenue for 1814 indicated that the construction materials of La Déserte were put on sale: the building had been taken down and vanished from the map of Lyon while the botanical garden remained.[33] The site remained clearly identifiable, thereafter, as Place Sathonay, which was missing the garden, a consequence of its 1857 transfer to the new Parc de la Tête d'Or in the new Brotteaux neighbourhood across River Rhône.

B. Change of location, change of meaning

Moving objects were the manifestation of the deep re-organisation of the collections by individual directors on the one hand, but they were also the consequence of the hesitations of the administration. As a matter of fact, the botanical garden and the natural history cabinet were confirmed twice: first after the suppression of the *école centrale*, it was decided by the municipal council to keep both in 1805.[34] Then after Gilibert's death in 1814, the position of cabinet director and therefore the means of keeping the collection were once again confirmed, after considerable debate. After that, however, the cabinet of natural history lingered in a form of limbo for several years. The bumpy appointment process of Mouton-Fontenille, who had operated as museum director in those complex years, was also revealing of how the locational complexity of the cabinet was significant for indecisiveness regarding the role the museum should carry within the city.[35] This state of irresolution resulted from both the ambivalence of the municipal administration added to the personal options taken by the fluctuating museum directors, until 1830 at least.

Hesitations, additionally, cannot be assumed to be poor management resulting from poor decision-making. Taking the matter in reverse shows that whether in Nantes, Lyon or Toulouse, whether the museum was stabilised or not the 1800-1870

[31] AML - 78WP021, Balbis to the Mayor of Nantes, 27 April 1822.
[32] Chinard, *Discours prononcé à la séance d'ouverture de la galerie de zoologie du musée d'histoire naturelle du palais Saint-Pierre*.
[33] AML - 1403WP39, "Registre du budget et état de dépenses", 1806-1820.
[34] Following the suppression of the École Centrale, the botanical garden and the cabinet of natural history were maintained. Both establishments were to be accommodated at La Déserte: AML - 78WP020, prefectoral decree, 28 Floréal XIII [18 May 1805].
[35] AML - 78WP021, "Musée d'Histoire Naturelle", ca.1805 - ca.1900

period was one of wavering scientific institutions which needed to find their place in the range of offers and in the changing urban culture of the nineteenth century: namely scientific institutions were not a given and this occurred in a double context of evolution of spatial use.

One of the first changes to be evident was the evolution from work in the privatised space to work in a public space.[36] A trend identifiable for eighteenth century French bureaucracy was the increasing use of offices and a specialisation of spaces separating the professional, governmental function from the private.[37] Lapeyrouse, as mayor and naturalist, worked from his office at his home of Rue de la Pomme, in central Toulouse and just a few minutes away from Le Capitole, the city hall.[38] His collection was stored there, and hardly ever left his home but for occasional demonstrations during his courses. The Buron collection, resulting from the prior acquisition of numerous cabinets, had been curated by Dubuisson in an apartment owned by Buron.[39] Dubuisson would demonstrate the collections under his care as well as display his own.[40] Gilibert's position as municipal servant had earned him the attribution of a lodging located at Maison Rivière: the rent was covered by the municipality and Gilibert and his collection inhabited the place.[41] In similar terms, the Palais Saint-Pierre hosted the janitor, some professors and the directors. Not only a place for students, savants and visitors, the Palais was also a place for domestic life, in times when housing tenure was inaccessible but to the very rich and therefore mainly structured around tenants who rented from landlords.[42]

The delineation of the museum and private spaces was not always obvious, nor perhaps was it wished for. This posed the question of bodily engagement in the museum naturalists' work and the structuring of their "inner-space" and the effect of

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36 Stéphane Van Damme, 'Farewell Habermas? Deux décennies d'études sur l'espace public', *Les Dossiers du Grihl*, 28 June 2007, http://dossiersgrihl.revues.org/682.

37 Coquery, *L'espace du pouvoir*.

38 AMT - 1D10, fo. 51, v., "Délibérations du conseil municipal", 30 Floréal, an VIII [20 May 1800].

39 Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 404.

40 Ibid.

41 AML - 78WP021, 2 January 1807: 'Maison Rivière' was an apartment rented by the municipality for the purposes of accomodating the professor of natural history. It served as a deposit for the natural history objects as well.

42 In 1808, Rey-Mouleau, the secretary of the supervising council of the cabinet and garden of Lyon, was requested to draft a report on the opportunity to insert the lodging of the director of the garden and cabinet on their premisses. His unilateral response was positive: AML - 78WP021, Rey-Mouleau to the Mayor of Lyon, 12 July 1808. On science in the domestic space, see Dorinda Outram, 'New spaces in natural history', in *Cultures of natural history*, ed. Nicholas Jardine, James A. Secord, and Emma C. Spary (Cambridge: Cambridge University Press, 1996), 249–65; Bertucci, 'Designing the House of Knowledge in Eighteenth-Century Naples: The Ephemeral Museum of Ferdinando Spinelli, Prince of Tarsia'; Mary Terrall, 'Masculine Knowledge, the Public Good, and the Scientific Household of Réaumur', *Osiris* 30, no. 1 (2015): 182–201, https://doi.org/10.1086/682980; Colin Pooley, 'Patterns on the Ground: Urban Forms, Residential Structure and the Social Construction of Space', in *The Cambridge Urban History of Britain*, ed. MartinEditor Daunton, vol. 3 (Cambridge: Cambridge University Press, 2001), 444.

that on their reading of nature.[43] It also led to the question of the demarcation between the public institution and the private, which was gradually increasing in importance. The ban on museum directors from owning a collection similar to the ones they curated was one example of this process, which also became manifest in the case of Jourdan, whose home was outside of Lyon in Saint-Didier-aux-Monts-d'Or.[44] In Nantes, Cailliaud was never lodged at the museum, though he spent very long hours in the office and, like Dubuisson or Gilibert, he died while still in office: the spatial demarcation was outdone by the significance of their activities as museum directors in their social and personal lives.

A second change was related to buildings and landowning. The revolutionary confiscations and seizures of noble and clerical estates profoundly changed and extended the "urban domain".[45] The double movement which consisted of securing public land ownership on the one hand, and codifying while protecting the right of property on the other, led under Napoleon's empire to important changes in the approach to public urban space. At the crossroads between central and municipal powers, the management of the assets usually failed to be flexible and foreseeing of the evolutions affecting the urban, notably the swelling of urban population.[46] The history of museums found themselves in the tumult of negotiations around property and resistance. The parish of Saint-Michel in Toulouse, as a community attached to the former value of the place, opposed the project of acquisition of the buildings of the former Carmelites, which were to be made public and transformed into a public space. Not a binary conflict, the use of public buildings often also involved the military and their high-cost presence in some cities, like in Toulouse. In 1808, the future lodging of the director of the cabinet of natural history was made unavailable to maintenance work because of the presence of a garrison inside it, associated with a level of malodorous nuisance about which the mayor complained.[47]

The space of the city not only triggered conflicts of use in relation to changes of meaning, but also due to friction in power relations. Thinking back to the garrison at Palais Saint-Pierre, the mayor was displeased to discover their presence, which he presumed, as he wrote to the prefect, to be the result of a prefectoral decision - and thereby the implementation of a central state manoeuvre. Public property management became a place for confrontation between powers, central and local, as

[43] Outram, 'New spaces in natural history', 252–54.
[44] MNHN - Ms 2604, it. 1740, Jourdan to Charles-Lucien Bonaparte, 11 August 1841; ibid., it. 1745 Jourdan to Charles-Lucien Bonaparte, [1852?].
[45] Marcel Roncayolo, 'Propriété, intérêt public, urbanisme après la Révolution. Les avatars de la législation impériale', *Les Annales de la recherche urbaine*, no. 1 (1989): 85, https://doi.org/10.3406/aru.1989.1465.
[46] Ibid.
[47] AML - 78WP021, Rey-Mouleau to the Mayor of Lyon, 12 July 1808.

the transfer of the Nantes cabinet revealed.[48] The "gift", a term used by the Ministry of the Interior in the case of Nantes, often had the appearance of a trying blessing for the municipalities. In Lyon, the transfer of property of the former Benedictine Abbey, then known as Palais Saint-Pierre, was welcome for the installation of the Conservatoire. But the concession of the building and the concomitant validation of the project of a museum had been made only in exchange for heavy urban works, especially in the area of Place Bellecour and Quai de la Baleine, on the eastern bank of the river Saone.[49] The framework of the national reshuffling of property weighed heavily on the demands for local scientific infrastructure.

The municipal hold over the public space had suddenly increased during the French Revolution. The municipal museum, with the natural history museum amongst other components, was part of the legal and political rearrangement of the provincial urban space.[50] Given to the municipality, land and buildings were used to barter ascendency over the French territory. This meaning, associated with the location of the museum up to the 1820s, was fundamental. Resistance to the changing meaning of sites also resulted from the importance of the use of urban spaces, the effects of the territorialisation of certain practices within the city. As much as natural knowledge had been present prior to the nineteenth century, the beginning of the century saw its concentration in certain sites and in certain buildings. It was also faced with new constraints, administrative and material or locational. The sometimes unplanned and partially haphazard management of collections during the nineteenth century should not obstruct the fact that the reshuffling of their geographical inscription in the city was essentially immaterial: it meant a changed use for the collection, changed ownership, changed actors and changed meaning.

2. IN THE DEEPNESS OF THE CITY: ENVIRONMENT, MUSEUM AND ADAPTATIONS

In the way that is suggested by Isabelle Backouche, the restitution of the history of the natural history museum, a product of urbanity, cannot be envisaged without its urban organicity ("*épaisseur urbaine*"), and the river is an important component of the

[48] See Chapter 2,1, B, a. Nantes: a museum for three players, p. 131; a. The unwanted museum, p. 136.
[49] AD69 - 4T59, Prefect of Rhône to Mayor of Lyon, 24 April 1819.
[50] On the importance of landed assets the scientific institutions held, see Pickstone, 'Les révolutions analytiques et les synthèses du modernisme', 45; Marcel Roncayolo, 'Propriété, intérêt public, urbanisme après la Révolution. Les avatars de la législation impériale'.

city's 'substance'.[51] Not only an essential element of the economy, it also shaped the cityscape of Nantes: the rivers and the estuary determined the backdrop of the city and had become, with time, the keys to the reading and understanding of the landscape of Nantes - in the same vein as the Pyrenees.[52]

A. Matters of site

Next to the vertical impression of the city, provided by the landscape views, the waterways marked their imprint on the ground, together with the way they soaked up the air and underground of the city and determined its patterns, and with the hosted society's attitude regarding those physical characteristics. In other words, the city developed on the meeting point of the hydrosphere, lithosphere and atmosphere, and this is a dimension to keep in mind when thinking about urban developments, of which the museum is one element. As Anne Vauthier-Vézier nicely put it in her portrayal of Nantes and its waterways, the river Loire is itself an actor in the history of Nantes, but it should not be understood as a constant supporting act, because the estuary is mobile in its shape, with appearing and disappearing channels, inlets, islands and silting: the history of the estuary lies beyond "immobility". In fact, the space of the river is itself a fragile and changing milieu, on which the human influence has been mostly to contributing to freeze it. [53]

Nantes developed over the confluence of the rivers Loire and Erdre and a network of sea inlets which rendered the soil loose in places. Water was a constant physical constraint which the local authorities had to manage. Until the very end of the eighteenth century at least, the municipality was continuously busy with the maintenance of the shores and bridges and with protecting (unsuccessfully) the populations and buildings from flooding caused by icing and the river being in full spate. In the course of the eighteenth century, and more predominantly through the nineteenth century, Nantes saw the development of works to keep the effects of the presence of water under control. In fact, the management of the river seems to have

[51] Isabelle Backouche, *La trace du fleuve: la Seine et Paris (1750-1850)* (Paris: Éditions EHESS, 2016), iv. Among other references of environmental urban history, see Cronon, *Nature's Metropolis*; Martin V. Melosi, 'The Place of the City in Environmental History', *Environmental History Review* 17, no. 1 (1993): 1–23, https://doi.org/10.2307/3984888; Geneviève Massard-Guilbaud, 'Pour une histoire environnementale de l'urbain', *Histoire urbaine* 18, no. 1 (2007): 5, https://doi.org/10.3917/rhu.018.0005.

[52] Serge Briffaud developed the interesting idea of the 'birth of a landscape'. His research showed how the codes of reading landscapes evolved though the eighteenth and nineteenth centuries and led to a domestication of the Pyrenees: Serge Briffaud, *Naissance d'un paysage: la montagne pyrénéenne à la croisée des regards, XVIe-XIXe siècle* (Toulouse: CIMA-CNRS-Université de Toulouse II, 1994).

[53] Vauthier-Vézier, *L'estuaire et le port*, 13–25. See also, for an overview: Stéphane Frioux, 'Fléau, ressource, éxutoire: visions et usages des rivières urbaines (XVIIIe-XXIe siècles)', *Géocarrefour* 85, no. 3 (2010): 188–92.

posed the double challenge of offering increased navigability but also overcoming the problems of silting and flooding. In her book, Anne Vaulthier-Vézier explains very well the particularity of the estuary environment, and how, throughout the end of the eighteenth century to the late nineteenth century engineers, especially from the Ponts-et-chaussées, developed awareness of the specificity of the estuary (with regards to rivers or other types of waterways) and new technical instruments for planning infrastructure. The first attempts at control consisted of removing obstructing activities, to allow the evacuation of waters, like fisheries along the bank in 1713.[54] Gradually ideas and techniques of river digging and channelling became more feasible: the Loire was channelled uphill, and a floodgate was built in the 1820s on the river Erdre. Eventually, the Erdre was covered in the early twentieth century and its inlets were drained by means of landfill. These successive works reached a point at which most of the waterways of the city completely disappeared, as the Erdre and the water arms around Ile de la Gloriette and Ile Feydeau were covered and drained in the 1930s.[55]

The physical characteristics of the estuary did not deterministically condition the development of the port activities: this ensued from the decisions and actions of the human societies living and practicing the site and this is remarkably demonstrated by Vauthier-Vézier.[56] The strong connexion between the city and the port dated back to the eighteenth century. Before that, the city and the port functioned as two separate sites.[57] From then on, until the deindustrialization process of the second half of the twentieth century, the port would be integrated into the broader question of urban planning. The development of the port of La Fosse, situated west of the walled city, was intended to meet the needs of an expanding port industry in the second half of the eighteenth century. But other than that, it led to the development of a brand-new neighbourhood which became the heart of merchant society's activities over the eighteenth century, epitomised by the construction of Place Graslin and the Opera House, which opened to the public in 1788. The development of that area demanded heavy works of earth moving, especially around Cours Cambronne, which took place especially during the Revolution and the Empire. But this new area presented several characteristics which had the museum actors persuaded that it would be an appropriate place for a museum, in order to escape from the consequences of flooding and humidity.

[54] Benjamin Bois, *La vie scolaire et les créations intellectuelles en Anjou pendant la Révolution (1789-1799)* (Paris: F. Alcan, 1929), 158.
[55] Vauthier-Vézier, *L'estuaire et le port*, 39–63.
[56] Vauthier-Vézier, *L'estuaire et le port*.
[57] Ibid., 18.

Figure 18 - The neighbourhood of the Nantes museum. Plan général de Ville de Nantes, Peccot, 1818. AMN

B. Matters of humidity

The museum of natural history of Nantes was ill-installed at the former school of Surgeons: in the very close vicinity of the river Erdre, with one of its walls facing the Quai du Marais, it suffered a lot of the consequences of humidity (Figure 18). If adapting to a peculiar architecture had been difficult, adapting to the filth of the conditions of the building was a challenge never met either by Dubuisson or Cailliaud in over sixty years of the museum's presence in rue du Port-Communeau.

The complaints started being voiced by Dubuisson over a decade after the opening of the museum. Perhaps the building had not really ever been considered permanent: from the late 1820s onwards, it was manifest that the natural collections could not stay in that destructive atmosphere. In 1823, Dubuisson shared his concern about the effects of the great cold in the winter, to which the museum seemed quite vulnerable.[58] In 1827, he provided greater detail about the oscillations of the building, owing to the poor stability of the marshy grounds it had been constructed upon.[59] Already at this stage, he was suggesting options for relocation. In 1841, the supervising

[58] AMN - 2R565, Dubuisson to the Mayor of Nantes, 8 February 1823.
[59] AMN - 2R565, Dubuisson to the Mayor of Nantes, 16 July 1827.

committee wished to keep "merchants of foodstuffs" away from the museum: they were filthy and often wearing "clothes drenched with water" which was thought to worsen the humidity of the premises.[60] Earlier, in 1833, Cailliaud had signalled a ten-inch wide open crack in the wall and a building literally "separating into two pieces".[61] The solidity of the building was seriously put into question once again in 1842, in the report of the supervising committee.[62] They insisted, over several pages, on the building-related issues. They especially feared for the sturdiness of the building: the tiles of the gallery collapsed to the point where the public was not allowed in for some time. The collections, they said, were too substantial by now to be sorted and displayed adequately and more donations could not even be accepted. Humidity would ruin the labels, much as it destroyed the animal mounts, especially the ornithology. The disastrous state of things described in 1842 did not, however, lead to actual change. After some years of silence, and perhaps quiet resignation, the supervising committee set out for a new series of attempts to convince the municipality to take care of the situation: every year in the summer, in time for the preparation of the budget, the committee would send a report. In June 1859, July 1860, October 1861, August 1862 and July 1863 a text, along the same lines every single year, would be posted across Rue Saint-Léonard to the cabinet of the mayor.[63] Despite its insistence on the "urgent necessity" of taking action in 1859, the report was hardly paid any notice, including in the following years. The committee members kept their demands to a "strict minimum" and gambled on the continuity of the allocated means provided that the museum would be relocated. Reworking the building would have been useless at this stage. The museum "succumbed", the 1864 report concluded.[64]

If the existence of the museum was not actually put into question, its powerless governance still put both the premises and the contained collections under serious threat of being eaten up by external hazards, in relation to the physical and environmental settings of the museum. The discourse of the museum directors and committee members, over the decades, moved from detailed, pragmatic elaborations with structured arguments, to short, forbearing statements showing a reluctant acceptance of the degradation of the museum. On those occasions, especially in the descriptions of the building caving in, the tone is slightly imbued with romantic or

[60] For the full quotation, see below, footnote 163.
AMN - 2T565, the supervising committee to the Mayor of Nantes, 13 July 1841.
[61] AMN - 2T565, Cailliaud to the Mayor of Nantes, 7 March 1833.
[62] AMN - 2R565, the supervising committee to the Mayor of Nantes, 1842.
[63] AMN - 2R565, the supervising committee to the Mayor of Nantes, 12 June 1859; ibid., the supervising committee to the Mayor of Nantes, 30 July 1860; ibid., the supervising committee to the Mayor of Nantes, 15 October 1861; ibid., the supervising committee to the Mayor of Nantes, 20 August 1862; ibid., the supervising committee to the Mayor of Nantes, 17 July 1863.
[64] AMN - 2R565, the supervising committee to the Mayor of Nantes, 21 September 1864.

even gothic representations of ruined palaces and some fascination for the dark.[65] But what was even more striking was the description of the objects devoured by filthy air.[66]

> "The permanent humidity prevailing in the present locale of the museum makes it all too improper for such use. The vicinity of the museum to the river Erdre, the filtering of the waters of the said river, the absence of vaulted cellars and floors, the equal level of the grounds with the surrounding grounds are ever-affecting causes of humidity. To a point where the camphoric arsenical soap, considered to-date as the best preservative for covering bird skins, rapidly dissolves and filters into the feathers altering their colours. Thus, the necessity of recourse to the heat of the steam room which also turns into a source of deteriorations; because it parches the bird skins, causes them to tear and completes the destruction of the preservative through evaporation.
> The shells, consequently to exposition to humidity, are promptly covered with white marks owing to the perspiration of the [sodium chloride] (*muriate de soude*). This salt causes them to lose their freshness, their colours and ultimately has them corroded. To prevent these accidents, or to moderate their effects, significant expenses in firewood. In these circumstances, use of acids has become compulsory in order to restore their shine and smooth aspect; too often however is it at the expense of colours and natural ridges."[67]

Other than the information provided about the treatment brought to specimens in the process of preparations, the text above provides a distinctive depiction of the environment of the museum, composed on the one hand of the interior of the building where objects were contained, and where they should be in safety - except that the building was ill-conceived from the start and poorly equipped to resist the outside. Opposite to this stood precisely the natural environment of the museum: in other words, the river, the humidity.

The outside and the inside, a distinction contemporaries grew more attentive to in the eighteenth century and perforce in the nineteenth century with studies of atmospheric influence, were essential to keep clearly separated, for the sake of

[65] John Tresch, *The Romantic Machine: Utopian Science and Technology after Napoleon* (Chicago: The University of Chicago Press, 2012).
[66] Alain Corbin, *Le miasme et la jonquille: l'odorat et l'imaginaire social: XVIIIe-XIXe siècles* (Paris: Flammarion, 2008).
[67] Original text: "L'humidité permanente qui règne dans le local actuel du muséum le rend tout à fait impropre à sa destination. La proximité du muséum avec l'Erdre, la filtration des eaux de cette rivière, l'absence de caves voûtées et de planchers, le niveau de son sol avec le sol environnant, sont des causes dans cesse agissantes de cette humidité. En sorte que les savons arsenicaux camphrés, considérés jusqu'à ce jour comme les meilleurs préservatifs des peaux d'oiseaux qui en sont enduites, tombent promptement en dissolution et s'infiltrent dans le plumage dont les couleurs sont bientôt altérés. De là, la nécessité de recourir à la chaleur de l'Etuve qui, elle-même devient à son tour, une cause de détérioration, car elle dessèche les peaux d'oiseau occasionne des déchirures et achève de détruire le préservatif en le volatilisant.
Les coquilles, par suite de l'humidité, se couvrent en peu de temps de taches blanches qui sont dues à la transsudation du muriate de soude dont elles sont imprégnées. Ce sel leur enleve (sic.) leur fraicheur (sic.), leur coloris et fini (sic.) par les corroder. Pour prévenir ces accidans, ou en attenuer les mauvais effets, il faut faire de grande dépenses (sic.) de combustion de bois de Chauffage. Dans quelques circonstances, on est même forcé de recourir à l'action des acides pour leur rendre leur brillant et leur poli ; mais trop souvent c'est aux dépans (sic.) de leurs couleurs et leurs stries naturelles." AMN - 2R565, [Report submitted by the supervising committee to the Mayor of Nantes], 1842.

preventing alteration.[68] The poor management of this demarcation was highlighted by the authors of the report through emphasis on the manifestation on the shell or skin of "marks", or traces of mould, of faded colours, of corrosion, of decomposition. Like for medicine, the outer shell of the objects bore the symptoms of a diseased atmosphere.[69] One way to create a protective locale was to develop valid architecture, or to alter the temperature in the building, through heating. Heavy chemicals were also in use for the preservation of the specimens: arsenical soap, a method popularised in the nineteenth century in France, was composed of Marseille soap, camphor, white arsenic and potassium carbonate.[70] The text shows otherwise recourse to sodium chloride (in fact, salt), unspecific "acids": a wide range of techniques, adapted to the material composition of the object. Concern for the individuals manipulating and breathing vapours from those products on a daily basis was not voiced at all. Perhaps it was not the adequate gateway into convincing the municipality of the importance of the matter. Perhaps it was no concern at all.[71] Regardless, the technical gesture of applying chemical treatment to the remains of animals, as paradoxical as it may seem, was aimed at protecting those vulnerable tokens of nature from the threat of water.[72]

Threat from the exterior could be related to meteorology, and swiftly engender serious damage. If the botanical gardens were by far more subject to climatic events, the building of the museum too could be affected by certain events. In 1862, the galleries of natural history were flooded at the Palais Saint-Pierre in Lyon.[73] In 1827, the floors of the Nantes museum were drenched with water because of the winter

[68] Vladimir Janković, *Confronting the Climate: British Airs and the Making of Environmental Medicine* (New York: Palgrave Macmillan, 2010).
[69] Ibid., 8.
[70] Marion Dangeon, 'Contamination des collections naturalisées traitées aux biocides et mesures de conservation préventive. Arsenic, mercure et lindane dans la collection Mammifères et Oiseaux du Muséum d'Histoire Naturelle de Neuchâtel', *CeROArt. Conservation, exposition, Restauration d'Objets d'Art*, no. EGG 5 (2016): para. 6, https://doi.org/10.4000/ceroart.4845. On the history of taxidermy, see Amandine Péquignot, 'Histoire de la taxidermie en France (1729-1928): Étude des facteurs de ses évolutions techniques et conceptuelles, et ses relations à la mise en exposition du spécimen naturalisé' (Doctoral thesis, Muséum national d'histoire naturelle, 2002); Dave Madden, *The Authentic Animal: Inside the Odd and Obsessive World of Taxidermy* (New York: St. Martin's Griffin, 2013); Sue Ann Prince et al., 'Stuffing Birds, Pressing Plants, Shaping Knowledge: Natural History in North America, 1730-1860', *Transactions of the American Philosophical Society* 93, no. 4 (2003): i–148, https://doi.org/10.2307/20020347; Stephen T. Asma, *Stuffed Animals & Pickled Heads: The Culture and Evolution of Natural History Museums* (Oxford; New York: Oxford University Press, 2001).
[71] About the growing awareness of the health damages of chemicals Jean-Baptiste Fressoz, *L'apocalypse joyeuse: une histoire du risque technologique* (Paris: Éd. du Seuil, 2012); Guillaume Carnino, *L'invention de la science: la nouvelle religion de l'âge industriel* (Paris: Éd. du Seuil, 2015), 226–34. The history of professional diseases is still recent. See Stéphane Buzzi, Jean-Claude Devinck, and Paul-André Rosental, *La santé au travail. 1880-2006*, Repères (Paris: La Découverte, 2006); Judith Rainhorn, ed., *Santé et travail à la mine: XIXe-XXIe siècle* (Villeneuve d'Ascq: Presses universitaires du Septentrion, 2016).
[72] On the paradox of taxidermy, see Samuel J. M. M. Alberti, ed., *The Afterlives of Animals: A Museum Menagerie* (Charlottesville: University of Virginia Press, 2011).
[73] CECC - DP-J, "Journal de Jourdan", p. 80, Jourdan to the Prefect of Rhône, 7 January 1863.

frost.[74] In parallel with greater concern for the quality of air, atmospheric pollution was also growing significantly in urban settlements.

In the early 1850s, the Nantes municipality requested Cailliaud to submit a report and a proposal for a new museum based at a location selected by the local authorities, the Jardin des Plantes in Rue de Richebourg. Cailliaud carefully detailed his exigencies relating to the lighting of the rooms; he insisted also on the importance of including plans for shutters or blinds to protect displays from direct sunlight.[75] Influenced by his experience of the museum in rue Saint-Léonard, Cailliaud was careful to warn about the location of buildings down the slopes of the garden in the direction of the prairie formed by the river bed of the Loire. But the greater problem to Cailliaud was the pollution of the heavy coal fumes emanating from the engines circulating on the railway servicing Nantes from Angers since the early 1850s and the future development of the connection to Saint-Nazaire, downstream of Nantes. This "insuperable curse" ("*fléau* invinsible" (sic.)) was to be worsened by the construction of a station and the presence of "machines".[76]

Nantes and Lyon were faced with growing air pollution due to urban densification.[77] In Lyon, an estimate was made in 1826 to purchase cloth to nail around the window frames on the side of Rue Saint-Pierre to prevent the outdoor "molecules of soot" from being deposited on the glass of the cabinets.[78] Ribbons of cotton would be used to garnish the doors of the cabinets to keep them hermetic to insects or dust. Possibly a sign of locally developed technique, the museum workers in Nantes used flax fiber to seal the doors, a technique also used for caulking hulls and for which primary material must have been easier to supply.[79]

[74] AMN - 2T565, Dubuisson to the Mayor of Nantes, 16 July 1827.
[75] AMN - 4M28, Cailliaud to the Mayor of Nantes, 25 June 1850 and 10 May 1851.
[76] Ibid. On the resistance to "machines", see François Jarrige, *Technocritiques. Du refus des machines à la contestation des technosciences* (La Découverte, 2016).
[77] On the history of urban pollution, see Thomas Le Roux, *Le laboratoire des pollutions industrielles: Paris, 1770-1830* (Paris: Albin Michel, 2011); Marius Buning, 'Stench and the City. Urban Odors and Technological Innovation in Early Modern Leiden and Batavia', in *Knowledge and the Early Modern City: A History of Entanglements*, ed. Bert De Munck and Antonella Romano, Knowledge Societies in History (Abingdon ; New York: Routledge, 2020), 101–25.
[78] AML - 465WP004, [Cost estimate for the purchase of sheets to prevent soot from infiltrating through the window frame], 28 January 1826.
[79] AMN - 2R565, Emploi des 500 f. alloués par Monsieur le Maire pour l'entretien du Muséum d'histoire naturelle pendant le cours de 1825.

Figure 19 - Detail of a general map of Place des Terreaux. Elevations of Hotel de Ville and Palais Saint-Pierre, 1845. AML

C. The museum as a component of the city

The location of the municipal museums may have sometimes resulted from the release of a building from one function or the other, but the options taken were certainly not random. Apart from Toulouse, where the locational rationale was structured around the botanical garden installed on what were the outskirts of the city in ca. 1800, the museums of both Nantes and Lyon were installed very close to the main places of power. In Lyon, the imposing city hall bordered the Palais Saint-Pierre on place des Terreaux (Figure 19). From the galleries of natural history, it was possible to see the building. The Hôtel du Préfet, in Place des Jacobins until 1852, was transferred to the city hall when Préfet Vaïsse was handed the responsibility of the municipality. A brand-new Hotel de la Prefecture was constructed under the Third Republic on the eastern bank of the Rhone. In Nantes, Rue Saint-Léonard only separated the museum and the city hall. The Hôtel de la Préfecture was hardly any further north, facing the river Erdre on the Quai de Ceineray and neighbouring the Place du Port-Communeau. Between 1800 and 1870, the natural history museums were associated with places of political power and formed architectural clusters together with other museums (the arts museum, for instance, in Lyon), learned societies and places of economic power, like the city's board of trade in Lyon. Located within Palais Saint-Pierre until the 1830s, it was relocated further south on Place des Cordeliers in a lavish edifice commissioned for this purpose.

The museum was a component of the urban political lifeworld also in the sense that it could become the very place of manifestation of that power. The presence of the mayor inside the museum symbolised the local authority's grip, like when the

deputy mayor Chinard inaugurated the Zoology Gallery in 1837.[80] In contrast, the inaugural discourse in Nantes had been given by Dubuisson himself - and it has already been demonstrated that the mayors were reluctant to visit the museum.[81] Another way was to have the museum turned into a temporary ballot centre. In the 7 February 1840 issue of *Le Censeur*, a Lyon newspaper close to the Republicans, a voter complained about a candidate sitting at the Palais Saint-Pierre in order to influence the ballot.[82] Busts too, could mark political territory inside the museum. The supervising committee requested that a bust of Louis-Philippe be installed in the museum's main room, the rotunda. The bust, they added was to be paired with another one figuring Louis XVIII and should be "of sizeable dimension". The reasons, either purposefully cryptically obscure or ostentatiously sympathetic with royalist power, were self-evident to their authors: it would be "out of mere propriety" to any "sagacious" mind.[83]

Placing busts in the gallery symbolised the endorsement, willingly or not, of signs of royal power, through the integration of the replicated face of the king inside the space of the museum. This form of power exertion, which on top of that echoed practices of collecting antiques, could also be applied to busts of savants.[84] In a 1875 guide, Arnould Locard noted the presence, above the showcases displaying entomology, of figures of naturalists: Duméril, de Blainville, Oken, Geoffroy Saint-Hilaire, Latreille, Cuvier; in front them stood the busts of Aristotle, Pliny, Buffon, Linné, Pallas, Charles Bonaparte and Lamarck.[85] The realisation of the pieces can be dated to 1837 and the recent opening of the Gallery of Zoology. The prefect granted authorisation for the making of fourteen busts, for which the chosen artists were sent to Paris to find models there. The gesture of placing busts in the gallery was very symbolic, and the prefect recalled a few rules regarding options: individuals represented could not be alive; it was best to retain the honours for people whose titles were recognised by their posterity. Also, terracotta was not adequate, and it was recommended to choose a "richer hence more appropriate material" for such objects.

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[80] Chinard, *Discours prononcé à la séance d'ouverture de la galerie de zoologie du musée d'histoire naturelle du palais Saint-Pierre*.
[81] See Chapter 2,1, D, c. Mediating the museum, p. 146 ; François-René-André Dubuisson, *Discours prononcé à l'ouverture publique du Muséum d'Histoire naturelle de la ville de Nantes le 15 août 1810* (Nantes: Imprimerie Malassis, 1810).
[82] 'Un électeur' [anonymous], 'Election du Conseil Général', *Le Censeur*, 2 August 1848.
[83] AMN - 2R565, The supervising committee to the Mayor of Nantes, 25 July 1834.
[84] On the power of statues, see Emmanuel Fureix, 'La ville coupable. L'effacement des traces de la capitale révolutionnaire dans le Paris de la Restauration, 1814-1830', in *Capitales culturelles, capitales symboliques: Paris et les expériences européennes (XVIIIe-XXe siècles)*, ed. Daniel Roche and Christophe Charle (Paris: Éditions de la Sorbonne, 2002), 22–40, http://books.openedition.org/psorbonne/868; Fureix, Emmanuel. *L'œil blessé: politiques de l'iconoclasme après la Révolution française*. Ceyzérieu: Champ Vallon, 2019. Nathan Schlanger's recent comments on inclusiveness regarding the busts of the Musée de l'Homme are meaningful: Schlanger, Nathan. 'Retour aux affaires: histoire et évolution au nouveau musée de l'Homme'. *Ethnologie française* 172, no. 4 (2018): 743–50. https://doi.org/10.3917/ethn.184.0743.
[85] Locard, *Muséum d'histoire naturelle. Guide aux collections de zoologie, géologie et minéralogie*, 3.

The making of busts of savants represented more than mimicry of acknowledgment of political power. Rather, it certainly helped place the museum of Lyon under the protection of scientific intercessors, and it also entailed endorsement and celebration, albeit with busts sitting out of sight above cabinets, of the Parisian political and scientific authority.[86]

The museum was also inserted, to some extent, into the commercial space of the city. A quantitative investigation could provide more precise information, provided that a typology of the wide variety of suppliers of natural history were identified.[87] There were, nevertheless, indications of the development or continuity of natural history related business in strategic places. The galleries and rooms of the Palais Saint-Pierre began on the first floor. At street level, niched in the alcove open between the arcade supporting the building were quantities of shops.[88] Supplying the natural history museum would support numerous types of shops, selling paper, glassware, ropes, stationary, chemicals, ironware and so on. Located in the Palais at the number 23 of Place des Terreaux, with a front door leading onto the main square, Rigodin Termet was the owner of a shop specialised in glassware, porcelains and chemistry, physics and pharmaceutical articles, where Jourdan had the occasion to make some purchases.[89] Another strategy was Avinaud's in Nantes.[90] A naturalist dealer, the shop was located at La Fosse, namely on the bank alongside the port area. By circulating instructions of collecting and preserving the specimens during long sea voyages, Dubuisson and later Cailliaud hoped to tap directly into the resources brought by the sailors returning to Nantes. But the museum directors, being situated significantly far from the embankment, made numerous transactions with Avinaud instead, who benefitted directly from the fresh specimens delivered by the ships (Figure 20 and Figure 21).

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[86] AML - 78WP017, Jourdan to the Mayor of Lyon, 23 March 1837; ibid., the Prefect of Rhône to Mayor of Lyon, 24 February 1837; ibid., Legendre-Héral [sculptor] to the Mayor of Lyon, 12 April 1837; ibid., the Prefect of Rhône to the Mayor of Lyon, 11 March 1837; MNHN - Ms 2736/264, it. 264, Geoffroy Saint-Hilaire to the Mayor of Lyon, 15 April 1837.
For a recent approach of the establishment of a religion of science in nineteenth-century France, see Carnino, *L'invention de la science*.

[87] For the initial development of this future project, see Chapter 4.

[88] For the budget of 1807, the receipts for the renting of the shops of Saint-Pierre amounted to 35,970 francs: it was the most profitable municipal property rental. The total income for that year was 54,110 francs. The shops next to the city hall would be rented against 1,591 francs a year: AML - 1403WP39, *Budget municipal*, 1806-1820.
At the time of the research, the Archive of the Chamber of Commerce of Lyon was in the process of indexation and description following their recent deposit at the Archives du Rhône. These documents were unable for consultation and prevented further investigation of the matter, for the time being.

[89] AMN - 2R565, [Bill of purchase] Avinaud, Nantes, 18 June 1840.

[90] AML - 78WP021, [Bill of purchase] Rigodin Termet, Lyon, n.d.

Figure 20 - Detail of a receipt of purchase emitted by Termet, undated. AMN

Figure 21 - Detail of a bill of purchase emitted by Avinaud, 1840. AMN

When the Nantes officials, together with Cailliaud, his successor Dufour, and the members of the committee, opted for a new location in Place de la Monnaie, the choice was not only a way to escape the filth of the Quai du Marais and reach for one of the highest points of the city at that time, in an area recently drained, with good circulation of air and isolated from other buildings so as not to be at risk from fire.[91] Nor did it only reposition the museum within the natural environment of the city. Instead, it also aimed for a social and political repositioning. The new situation of the museum put it at the heart of a recently developed neighbourhood structured around the bourgeois Place Graslin and backing the position of powerful ship-owners located on La Fosse, near the ships and near La Bourse and the new railway station. Not simply a sign of modernisation, the change of location clearly echoed a social fragmentation of space and a strategy to place the museum in the environment of rich sociabilities and economic power - altogether marking, in the physicality of the city, the newly sealed relationship between the political and scientific powers.[92]

Museum and the production of urban space

This section has emphasised how the museum, an urban component, was placed and displaced with regards to other elements composing the natural, social, political and economic space of the city. The museum of natural history should not, however, be considered a treasure box passively tossed around the city simply by sense of opportunity, the effects of egotisms or disregarded responsibilities. The museum, its objects and actors, together with its gestures and symbols, interacted organically with the city.

The museum building is more than just an envelope: it had a practical effect in the sense that it contained the objects, but it also acknowledged their being part of a municipal collection.[93] Yet the envelope itself, and what it says about the place of the museum, like described above, is still important: the building hid or granted visibility to the contained object. The museum was also at the centre of urban recompositions and as such, and because of its status of interface between the authority of the things and the people it contained, in association with the very site of the museum,

[91] AMN - 2R565, [Report submitted by the supervising committee to the Mayor of Nantes], 1842.

[92] Alberti noticed similar patterns of change in Sheffield, where the "Hancock Museum, the Sheffield Public Museum (SPM) was situated in a pleasant suburb, conveniently situated on a tram route. This location was typical of the new public museums: more spacious than the earlier town-centre site and opportunely located in parkland that attracted promenaders": Alberti, 'Placing Nature', 305.
On state and science see Gillispie, *Science and Polity in France*; Fox, *The Savant and the State*; Carnino, *L'invention de la science*.

[93] Maria Rentetzi, American Historical Association, and Columbia University Press, *Trafficking Materials and Gendered Experimental Practices Radium Research in Early Twentieth-Century Vienna* (New York: Columbia University Press, 2007), http://www.gutenberg-e.org/rentetzi/.

established a relationship with the city, hence contributing to the re-designing of the urban space together with its cityscape.[94]

3. IN THE FUTURE OF THE CITY: THE IMAGINED MUSEUM

The architecture of natural history collections was one of projections of a better future. Caught in speculative discourses of looming progress and modernity, the dream and the ideal fuelled discussion about architectural constructions in full swing.[95] Nantes and Lyon provide two different yet complementary cases of museum design. In the first case, the period was marked by the continuous aspiration for a locale to accommodate the collections so as not to impinge upon their preservation and their development by keeping them in disastrous atmospheric conditions. The option of Palais Saint-Pierre was a safer one, in Lyon, but the accumulation of objects under the long directorship of Jourdan made it necessary to undertake some transformation, mainly internal, which caused architectural planning and heavy works.

Scholarship on the architecture of science has extended our knowledge of architectural symbolism and the erection of buildings as temples of nature and science.[96] The use of space, too, has gained attention, especially in terms of space and the division of work between laboratory and display areas.[97] Considerations of the internal use of museum buildings could not escape the question of the materially designed architecture developed to maintain control and order over objects, and people too.[98]

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[94] Alberti, 'The Status of Museums: Authority, Identity and Material Culture'; Van Damme and Romano, 'Sciences et villes-mondes, XVIe - XVIIe siècles'; Céline Trautmann-Waller, 'Berlin au XIXe siècle: L'Université dans la ville', in *Lieux de savoir. Espaces et Communautés*, ed. Christian Jacob, vol. 1 (Paris: Albin Michel, 2007), 1185–1205.

[95] About discussions about the National Gallery, see Christopher Whitehead, 'Architectures of Display at the National Gallery', *Journal of the History of Collections* 17, no. 2 (2005): 189–211. Sophie Forgan signalled the circulation of a handbook for the development of museum architectural programs: John Woody Papworth and Wyatt Angelicus Van Sandau Papworth, *Museums, Libraries, and Picture Galleries, Public and Private: Their Establishment, Formation, Arrangement, and Architectural Construction* (Chapman and Hall, 1853); cited in 'Bricks and Bones: Architecture and Science in Victorian Britain', in *The Architecture of Science*, ed. Peter Galison and Emily Ann Thompson, 1999, 191.

[96] Peter Galison and Emily Ann Thompson, *The Architecture of Science* (Cambridge (Mass.): MIT Press, 1999); Carla Yanni, *Nature's Museums: Victorian Science and the Architecture of Display* (Princeton Architectural Press, 2005).

[97] Rader and Cain, *Life on Display*; Nyhart, *Modern Nature*; John V. Pickstone, *Ways of Knowing: A New History of Science, Technology, and Medicine* (Chicago: University of Chicago Press, 2001), 135–61.

[98] Sheets-Pyenson, *Cathedrals of Science*, 16–18; Sophie Forgan, 'The Architecture of Science and the Idea of a University', *Studies in History and Philosophy of Science Part A* 20, no. 4 (1989): 405–34, https://doi.org/10.1016/0039-3681(89)90017-4.

Bringing attention to the uses of and collective interaction in the design of museums is the ambition of this section. The study aims at unveiling the expectations of the directing and governing actors of the museum, the nature of the projects, how they were elaborated and if they were, eventually, in line with initial projections. Planning a museum gallery or entire building took more than defining uses, devising forms and erecting walls around them. Uses, to start with, were hardly delineated by a strict geography.[99] Architectural transformation was the visible sign of a constant adaptation to the museum collection which made the museum a dynamic place of knowledge, in complete paradox with the sturdy image a palace-like museum was intended to convey.

A. Matters of adaptation

a. Adapting the architecture to a new function

The transformation of the premises was a necessary operation in buildings which had had a different function prior their use as museum. In Lyon, the rearranging of the Palais Saint-Pierre involved rearranging the internal spaces, in spite of the monumental dimensions of the former abbey. In 1807, the Municipal Architect reported that the "building had been constructed for a religious community". Therefore, the "distribution of its rooms was no longer fitted for the new destination of the building". The architect noted the partitioning of space into small entities, poorly lit, which needed to be transformed into "large galleries" with lighting "coming both ways" in order to suitably accommodate the collections of arts, the specimens and the models of looms".[100] The palatial aspect of the building, designed in the seventeenth century, was paid particular attention by the authorities, attached to their newly acquired "superb construction".[101] The possibility for individual tenants of the shops located on the ground floor to alter the exterior decoration was codified in 1813. Controlling the facade also meant controlling the businesses allowed into the space: they had to be "in accordance" with a public establishment and also should not put the building at risk of fire.[102] In the project of 1810, the last section of the cost estimate concerned the facade of the building. Back then, the authorities had agreed to a 98,000 franc rearrangement of the pieces of ornament most considered "of bad

[99] On work at the museum, see Chapter 5, 3. A skeleton in the cupboard: making and placing the specimens, p. 372.
[100] AML - 465WP001, État estimatif des ouvrages à faire pour la restauration générale du Palais du Commerce et des Arts, by the Head Architect, p. 1, 31 August 1807.
[101] AML - 465WP001, Rapport relatif à la vente projettée des boutiques des batimens de St Pierre et du Lycée, 1813.
[102] Ibid.

taste".[103] The pilasters, especially, were to be changed into *Pierre de Choin*, a white stone from the region of Lyon, and be topped with new Corinthian capitals.[104] The change of heart was probably pragmatic and related to a lack of financial resources: the project was postponed.[105]

In some way, continuity was maintained in the use of the internal spaces of the Palais. At the least, certain characteristics were put to the fore when assigning the new functions. The former refectory of the abbey, a room convenient for "large assemblies", was assigned to the Board of Trade. The small staircase at the back would be destroyed and the vacant space used for a hemicycle. The old kitchen became a laboratory of chemistry.[106] The chapter room would be used for the chemistry classes: a convenient choice for the professor, who stood close to his instruments, while the students would be seated on wooden rows of seats at the back of the room, lit by an extra window to be caved in.[107] The iron fence, even, would useful to keep the students outside of designated spaces.[108]

The architect's report listed over a hundred items, each line representing an operation. The description of the work followed the architecture of the building and detailed each point where a modification was needed, along with the necessary interventions. A gallery required new capitals, friezes, cornices, pedestals, and casing. The room before required new decoration in stucco or in painted and gilded woodwork. Each item was then given a cost estimate for the bulk of operations it required. Later reports for cost estimate would organise the items per field of intervention, separating the carpentry from the ironworks and so on. The many pages of this report fantastically convey the very ambitious renovating programme, into which the municipality was willing to invest 75,000 francs, as well as the innumerable operations of small scale necessary for the works.

It does also highlight the temporality of the works. The architect ended his report with a note on the scheduling of the works, planning for the project to be completed within twenty-five years. This very long timescale also contributes to explaining why, in very pragmatic terms, the natural history collections indecisively swayed between La Déserte and Palais Saint-Pierre.

A significantly more modest programme, a first sequence of works was undertaken in Nantes prior to the opening of the museum in 1810. Hosted in the

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[103] AML - 465WP001, *Description des ouvrages à faire au Palais du Commerce et des Arts pour en opérer la Restauration générale*, p. 38, section n° 20, 3 December 1810.
[104] Ibid.
[105] AML - 465WP001, *Rapport relatif à la vente* (...), ibid.
[106] AML - 465WP001, *État estimatif des ouvrages à faire pour la restauration générale du Palais du Commerce et des Arts*, by the Head Architect, p. 1 31 August 1807.
[107] Ibid. p. 2.
[108] Ibid.

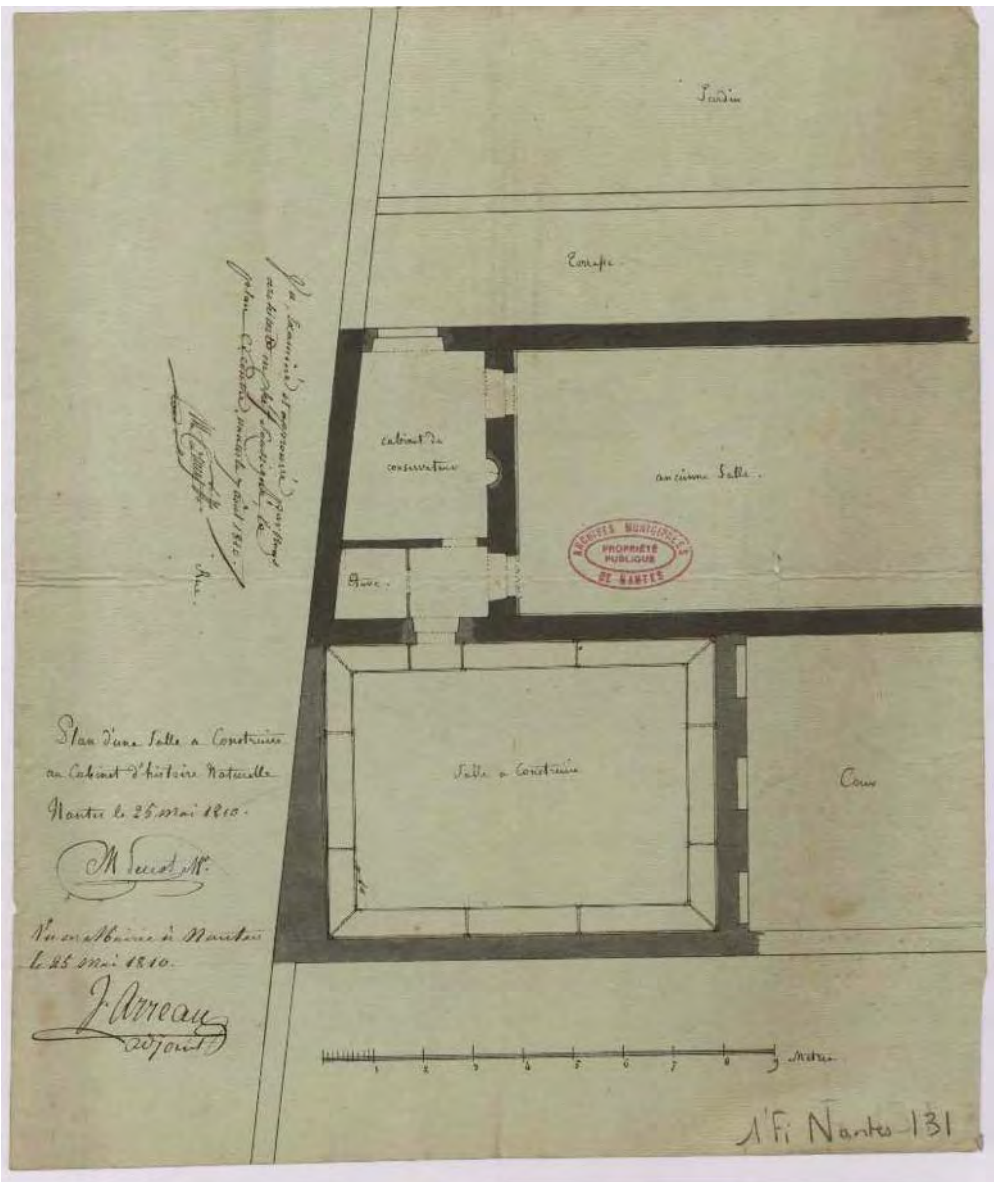


Figure 22 - Architectural plan of a new room at the Nantes museum, 1810. AMN

former school of surgeons, the premises needed to be adapted. The iconographic material allows us to see how the structure of functions and the use of the school was continued later (Figure 15 and Figure 16).

The plan shows how the exteriors of the school were maintained in a similar function (Figure 17). No botanical plantations were attached to the museum, but an ornamental garden planted with laurels recalled the forms of the former school. Perhaps in a distant manner, it was inspired from the organisation of palaces around courtyard and garden. The architecture of the building reflected the working practices inside the museum, fitted in a pre-existing building. Conservation, that is the preparation of the labels and the mounts, the cleaning of the specimens, the jarring of

specimens, and their storage in a heated place, required the acquisition of a list of specific components and instruments that added to the infrastructure of the museum. In addition, these instruments accompanied the gestures of the *conservateur*, who altogether fitted the objects within the internal structure of the museum. A two-level building, the 1810 building was planned to be extended, with a new room for display on the side of the courtyard (Figure 22). Like the "old room", the extension was meant to communicate with the director's cabinet within a few steps. The communication between the various spaces reveals how, in spite of the location on the side, the director was the operating hand and the strolling feet around the rooms. A crucial piece of architecture, the steam room (*étuve*) was placed on the side of the office of the director. The very modest size of the steam room indicates that indeed, operations of preparation could not be carried out in isolation from the office. At the same time, the specialisation of the internal spaces of the museum must have been very relative in premises which allocated just over 10 square metres for the cabinet of the director-preparator, who Dubuisson was. The transformation of the school in the 1800s reveals modest ambitions in contrast with later projects. The limited scope was not peculiar to Nantes, as the similar organisation of La Déserte showed. Not really a domestic cabinet where the keeper also dwelled, those early premises nonetheless reveal the influence of domestic architecture, with smaller rooms rather than galleries, and the placing of collections in homes rather than palaces or temples.

b. Adapting and up-keeping the interiors

Transformative works could also take the form of maintenance and up-keeping. In Nantes, undoubtedly, these served as camouflage for a suspect structure. Following the alarming call from Cailliaud about the building separating into two pieces in 1833, the collection was reinstalled in the main rooms after they had been refreshed with paint, and one guesses, some intervention on the faulty walls.[109] In Lyon, the project of transformation of the galleries chosen as the new locales for the cabinet of natural history was elaborated towards the end of the 1810s. The adaptation of Palais Saint-Pierre had not, at that date, permitted the proper installation of the cabinet. The initial plan was to conduct works from 1817 to 1819, for an investment of 14,000 francs.[110] The operations consisted of masonry work and the construction of cabinets for the display. The works did not, however, finish before the mid 1830s.

[109] AMN - 2R565, the supervising committee to the Mayor of Nantes, 17 June 1833.
[110] AML - 465WP001, Achèvement du Cabinet d'histoire naturelle et autres réparations à St Pierre, [1820?]

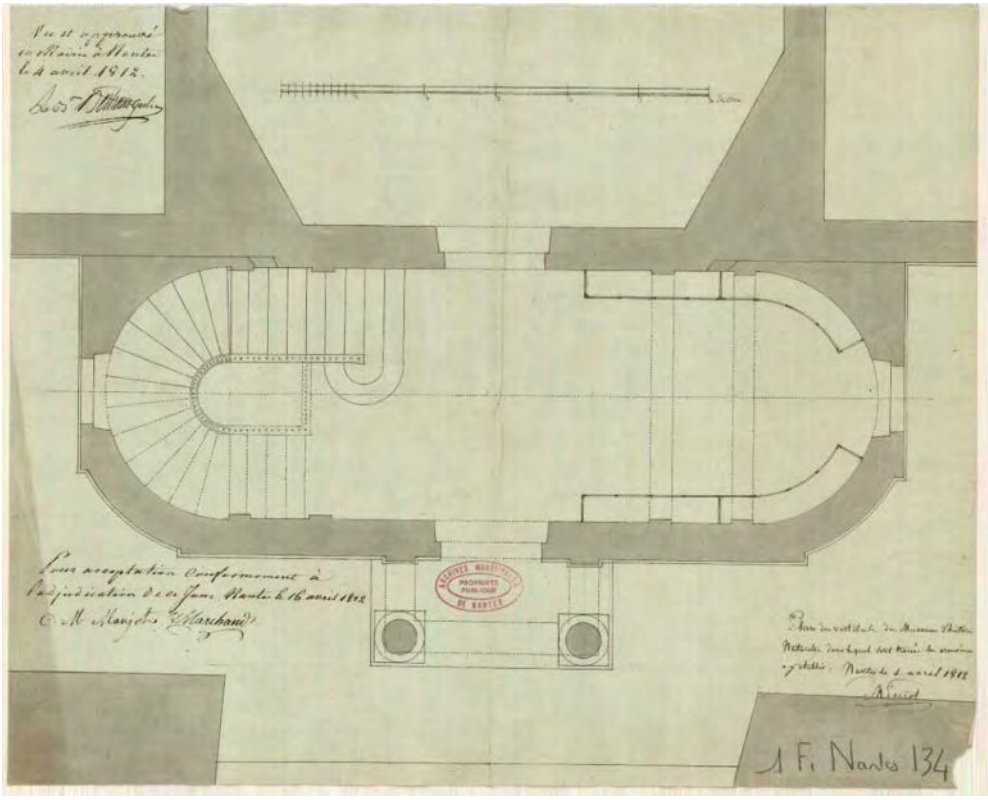


Figure 24 - Architectural plan of a vestibules at the Nantes museum, 1812. AMN

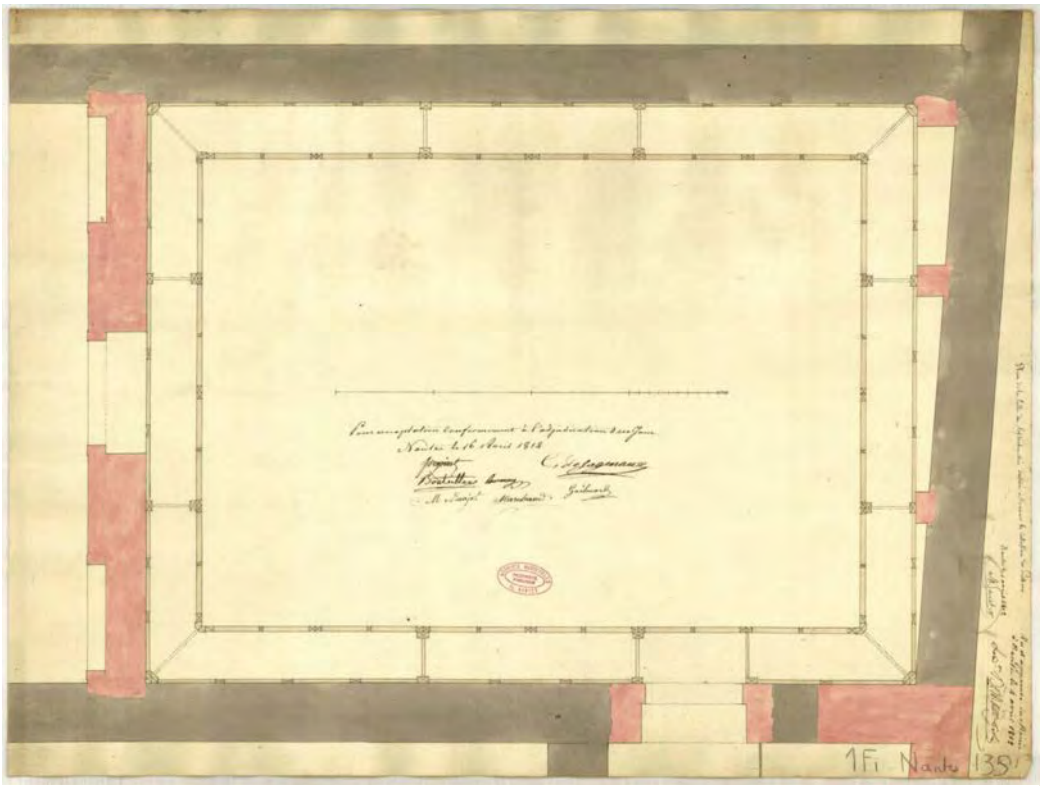


Figure 23 - Architectural plan of projected new cabinets in a room of the Nantes museum, 1812. AMN

In 1834, a new cost estimate was established: the installation of the cabinet of natural history was inserted into a wider reworking of the distribution of galleries within the Palais. New credit amounting to 40,000 francs was opened. From the western aisle of the first floor, the cabinet was going to be transferred to the second floor of the eastern aisle, on the side of the city hall.[111] The cabinet suddenly became an essential piece of the Palais Saint-Pierre, owing to the opening of the Faculty of Science.

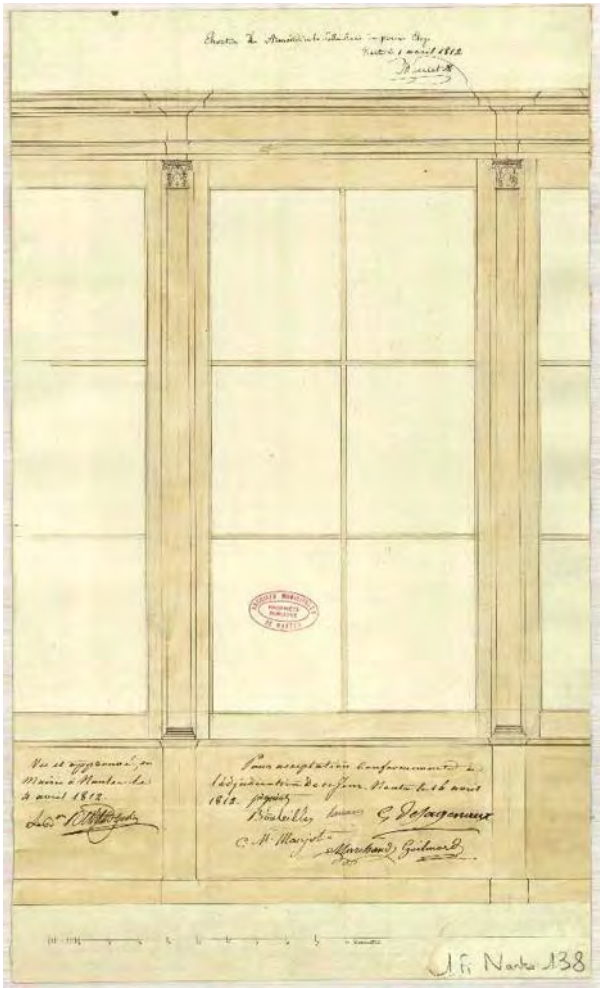


Figure 25 - Elevation of a projected cabinet for the circular room of the Nantes Museum, 1812. AMN

The transformation of the premises could be expensive. In difficult financial situations, furniture could provide a solution to extend the available space for display. Cabinets were planned and designed to fit the very room they were going to be put in, as the example of the 1810 furniture plans for the Nantes museum showed (Figure 24, Figure 23, and Figure 25).[112] There were often cases of the use of extant cabinets, usually concerned with limiting expenses.[113] That also triggered dissatisfaction because it would make circulation around the cabinets complicated and ruin the circulatory pattern designed in order to follow and understand the classification.[114] The construction of these tables appears occasionally in the sources and casts light on the wide range of craft and skill involved in the running of the museum. In 1842, a double table topped with mobile window frames was ordered. The final operation had cost ca. 265 francs, which represented a good

[111] AML - 465WP005, Municipal decree, 6 February 1834.
[112] AMN - 1Fi134, Élévation des armoires de la salle du rez-de-chaussée destinée à recevoir la collection des poissons; 1Fi135, Plan de la salle du rez-de-chaussée destinée à recevoir la collection des poissons; 1Fi137, Plan d'une partie de la salle ronde du premier étage (see Figure 15); 1Fi 138, Élévation des armoires de la salle ronde au premier étage. All plans by Peccot, 1 April 1812.
[113] AMN - 2R569, Dubuisson to the Mayor of Nantes, 29 April 1816.
[114] AMN - 2R565, [Report submitted by the supervising committee to the Mayor of Nantes], 1842.

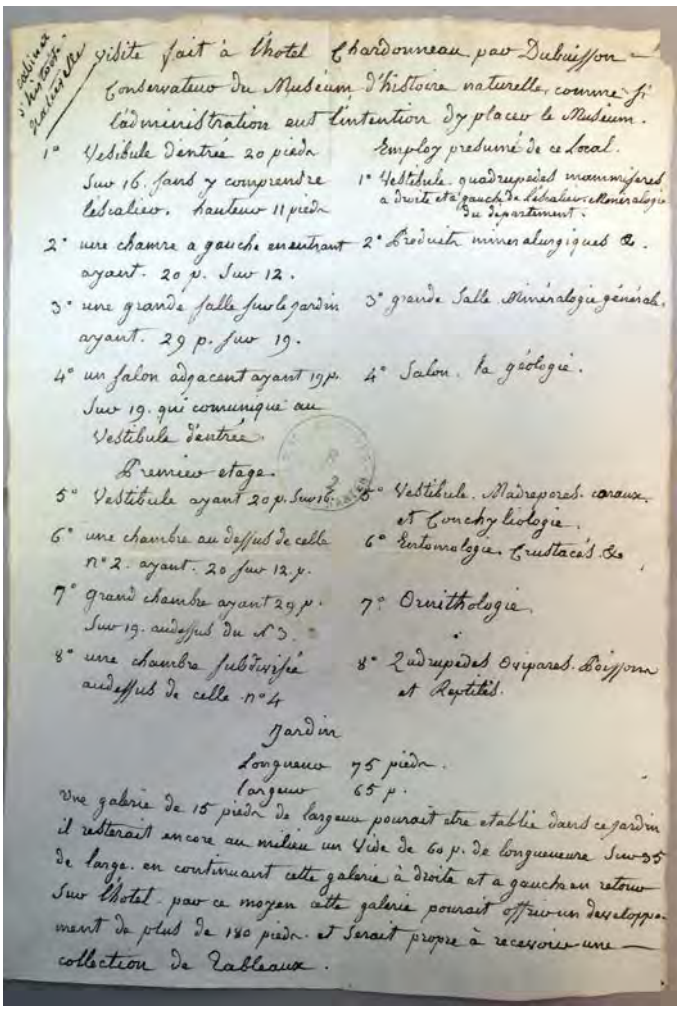
third of the annual budget of the museum of 700 francs, and this added to the four newly acquired tables ordered already in 1839, which amounted to 319 francs, without paint or the addition of the glass window.[115] Other than that, this shows that cabinet making required the intervention of and the establishment of communication with third parties outside of the museum, such as the carpenter, glazier, locksmith and painter. Also weighing on the process was the intervention of officials, such as the mayor of Lyon, who interfered several times about the varnish with which to coat the future new pieces of furniture. After a couple of years of decision-making, the mayor eventually authorised the use of wax rather than coating with varnish, because in the end, it was more appropriate for the walnut wood the tables were made of.[116] The level of detail the mayor got to grips with was most probably related to cost control, but the process of decision-making was still bemusingly complex. Nevertheless, furniture could never replace actual space availability in the building itself: at some point the place was overloaded with samples and specimens impinged on the correct and scientific use of the collection, since a vision of the ensemble, "at a glance", was rendered impossible and nullified the very objective of the museum, which was to display.[117]

B. Projects and processes: building the new museum of Nantes

a. Finding inspirations and models

Louis Agassiz, the Swiss naturalist emigrated to the United States and author of an important collection of comparative zoology, had been keen, Mary Winsor recounts, to create a museum which would be different than providing a display triggering the awe of visitors for the length of a giraffe's neck or the beauty of a butterfly's wings. Instead, he saw the primary job of his museum as providing material for scientific research of the most professional kind. He was therefore attached to the creation of series - like the series of jars he had witnessed at the Hunterian museum. He saw in the creation of similar patterns the possibility of a method of comparison, which would reveal the significant similarities linking all living things into an intelligible network.[118]

[115] AMN - 2R565, *Emploi du budget de 700 frs en 1841 par le muséum d'histoire naturelle*, 15 May 1842; ibid., Receipt emitted by Bastard (carpenter), 22 May 1840.
[116] AML - 465WP001, [Municipal authorisation for the use of wax rather than varnish], 29 February 1829.
[117] AMN - 2R565, [Report submitted by the supervising committee to the Mayor of Nantes], 1842.
[118] Winsor, *Reading the Shape of Nature: Comparative Zoology at the Agassiz Museum*, 11.



Visite fait à l'hotel Chardonneau par Dubuisson — Conservateur du Muséum d'histoire naturelle, comme si l'administration avait l'intention d'y placer le Muséum.

	Employ presumé de ce Local.
1° Vestibule d'entrée 20 pieds sur 16. sans y comprendre l'escalier. hauteur 11 pieds	1° Vestibule. quadrupèdes mammifères à droite et à gauche de l'escalier et Minéralogie du département.
2° une chambre a gauche en entrant ayant. 20 p. sur 12.	2° Produits minéralogiques &c.
3° une grande salle sur le jardin ayant. 29 p. sur 19.	3° grande Salle Minéralogie générale.
4° un salon adjacent ayant 19 p. sur 19. qui communique au Vestibule d'entrée.	4° Salon. la géologie.
Premier etage.	
5° Vestibule ayant 20 p. sur 16.	5° Vestibule. Madrepores. coraux. et Conchyliologie.
6° une chambre au dessus de celle n°2. ayant. 20 sur 12. p.	6° Entomologie. Crustacés &c.
7° grand chambre ayant 29 p. sur 19. au dessus du n°3.	7° Ornithologie
8° une chambre subdivisée au dessus de celle n°4	8° Quadrupèdes Ovipares. Poissons et Reptiles.

Jardin
Longueur 75 pieds.
Largeur 65 p.

Une galerie de 15 pieds de largeur pourait etre etablie dans ce jardin il resterait encore au milieu un vide de 60 p. de longueur sur 35 de large. en continuant cette galerie à droite et a gauche au retour sur l'hotel par ce moyen cette galerie pourait offrir un developpement de plus de 180 pieds. et serait propre à recevoir une collection de tableaux.

Figure 26 - Description of the possible use of Hotel Chardonneau by Dubuisson in [1827?]. AMN

The museum directors were usually first on the line in designing museum buildings. What mattered was their experience of the practicalities of the museum, and that made them experts, more than any qualification in architectural design, which was elaborated thereafter by the Head Architect.

Shortly after his complaint about the poor condition of the museum in Rue Saint-Léonard, Dubuisson was sent to visit Hotel Chardonneau in 1827, which was considered by the municipality to become a possible alternative building for the museum.[119] Quite interestingly, Dubuisson took a few notes of the layout of the building, and immediately tried to think of ways to fit the objects into those new, yet pre-existing, premises. Interestingly, he separated the surface of a paper sheet in two sections, and listed in the left-hand side, the rooms (possibly in order of visit) and the right-hand side received the potential branches of the collections that could be exhibited there. At the back of the same document, Dubuisson sketched a map of the

[119] AMN - 2R565, "Visite faite à l'hôtel Chardonneau par Dubuisson", [1827?].

building. But it is the table-like list of rooms which give a better sense of how the collections were *fitted* in non purpose-built museums (Figure 26).

Cailliaud had been similarly keen on developing an interior design which would make the collection legible, and he was altogether very critical of the capital city institutions that had yielded for architectural beauty inside the museum rather than keeping some measure in the ornamental dimension of the furniture.[120] In a project developed in response to the prompting of the mayor, Cailliaud had to submit his ideas about a possible relocation to the *Jardin des Plantes*. The fifteen-page note submitted by Cailliaud starts with a few thoughts based on his visits to other museums, especially the London and Paris Natural History Museums, alongside the museums of other cities. He dismissed the quality of most of them: the museums of Marseille, Toulouse, Montpellier, Lyon and Bordeaux "[were] all too neglected to serve as models".[121] The same applied to museums in Belgium and Italy (with the exception of Turin's museum).[122] Cailliaud generally did not say much about the external aspects of the building but chose to focus on the inside. About the Paris Natural History Museum, he wrote: "the rich collections of our capital are shut away in drawers, and if the new and elegant gallery built for mineralogy and geology is certainly admirable internally from the architectural point of view, it is very unsatisfactory regarding classification as well as for the display of objects".[123] He generally went on criticising the ornamentation, whether in Paris or London: "the visual impression (*coup d'oeil*) which should be made by the collections is ruined, even in terms of architecture, at a glance, these lovely columns stand without pedestals above the glass cabinets. [...] The rich architecture has become a nuisance to the placing of the collections".[124]

In 1833, five years after Dubuisson's official complaint about the building had become common knowledge, Cailliaud, who then assisted Dubuisson, submitted a project of relocation into a purpose-built edifice on the Cours Henri-IV.[125] Cailliaud was particularly keen on demonstrating, understandably, that the cost of such a move would be minimal. The course of action would have been then, he suggested, to use the fact that a new building for the prefecture was to be built, and that would allow substantial savings as the facade is usually considered to be the most expensive and

[120] AMN - 4M28, Projet de M. Cailliaud et observations sur les musées de Paris et Londres avec un rouleau de sept feuilles de plans, 25 June 1850 and 10 May 1850. Note: plans originally attached were lost.
[121] Ibid.
[122] Carla Yanni wrote that the London museum of natural history was considered by many to be obsolete at the time of its construction: Yanni, *Nature's Museums*, 4.
[123] AMN - 4M28, *Projet de M. Cailliaud* (...), ibid.
[124] Ibid.
[125] AMN - 2R565, Cailliaud to the Mayor of Nantes, 7 March 1833. The Cours Henri-IV was the name given at the time to present-day Cours Cambronne.

one for the museum would have been unnecessary. But more interestingly, Cailliaud argued that the location of the new building would be particularly interesting because the square would be close to "foreign travellers passing through Nantes".[126] Other than matters of conservation of the collection and the possibilities of extension owing to the expansion of the museum's collections, Cailliaud was particularly concerned with the visibility of the museum, or possibly, and this is not contradictory, to transfer it to a more 'appropriate' location which would contribute to the museum's respectability. Also, and it is understated here, the area was considered a better option because it was situated above the level of the water, on a small hill, which had been drained in the framework of the development of the Place Graslin and its surroundings.

b. Processes of project selection

If we first look at the authors of the plans, they reveal something of the procedure according to which a project is elaborated.[127] Again, the mayor represented the converging point of information. The plan-makers are usually twofold: most maps were executed by the Public Architect, upon demand from the municipal authorities. This was visibly the case with 'Place de la Monnaie D', which shows that map-making is in fact the product of more than one mind, when not hand. Indeed, for that project Lechalas, the City Architect, in a letter addressed to the mayor, interceded in favour of Edouard Bureau, a naturalist originating from Nantes but working in Paris, whose project he supported. The message clearly suggested that mayor have his Head Architect draft a professionally-made drawing of the project, which he apparently did.[128] In that case, at least four persons were involved directly in the realisation of the project map, but the actual project was formalised by the agent of the public authority, who granted recognition and formality to the project in question. In other cases, projected buildings could also be submitted by the museum directors, for instance. When Cailliaud drew up the 1833 proposition of a building leaning on the new *Hotel de Préfecture* planned on the Cours Henri IV, he did it himself and there is little doubt that Cailliaud had no skill in architectural design.[129] But apart from this, it is also the meaning and the value assigned to the two types of documents that would be different. In this case indeed, the document did not bear any formality, remained at the level of a proposal and as such, was never submitted to the municipal council.

[126] AMN - 2R565, ibid.
[127] See Appendix G: Projects for the new building of the Museum of Natural History of Nantes, p. 441.
[128] AMN - 4M19, it. 4, Lechalas to the Mayor of Nantes, 21 June 1864; AMN - 1Fi1648-1677, [projects of museum buildings]. See for instance Figure 27, Figure 28, Figure 29, Figure 30.
[129] AMN - 2R565, Cailliaud to the Mayor of Nantes, 7 March 1833.

Whether they depicted an actual, existing building or a planned one, the project plans somehow equalised the difference between the existing and the imagined by reflecting the figure of the projected buildings on paper. As a matter of fact, even the existing building, once on paper, became an image. The sources therefore denoted an incredible multiplicity of museum buildings, while in fact, only two actually came into being. But construction was not what seemed to preoccupy the central actors of the museum, like the director and the surveillance committee. They were primarily concerned with *imagining* solutions, since municipal signs of commitment often remained empty promises. Between the sheer multiplicity of buildings and the two real-life constructions, three important trends can be identified in terms of how the museum was fitted into the city.

A turning point in the designing of the building was the acquisition of the Bertrand-Geslin collection in the 1860s. The will of Bertrand-Geslin conditioned the bequest to its proper displaying in good conditions, as well as the establishment of a municipal course of Natural History - which aimed at supplementing the absence of a Faculty of Science. The will legally tied the hands of the municipality, which in accepting the bequest and even battling for it, also committed themselves to taking action. The question of the museum of natural history had become, by then, a matter of public interest, sources show. It was now a whole group of lobbyists, led by a few members of the intellectual community, which supported the project.[130]

In that context, it is interesting to think about the level of differentiation between the groups of individuals supporting the museum, namely, the director Cailliaud and the members of the supervising committee, but also the professors of the École des Sciences and even certain landowners around the selected area of Place de la Monnaie, and the municipality. Indeed, some of the landowners around Place de la Monnaie were members of the municipal council themselves. The intermingling of economic and political actors and logics in Nantes for the late nineteenth century makes it difficult to locate and strictly differentiate certain groups which were decidedly from one party versus others.[131] The way the project of the museum had become a collective issue explains how it also became an element of street furniture, and not just a piece of a jigsaw puzzle, hardly fitting into the urban fabric and scape.

In spite of the twitches caused by calls for project submissions or some incident, the succession of projected museums shows that the ideas needed to mature slowly

[130] See the numerous reports supportive of the transfer into a new locale: AMN - 2R565, the supervising committee to the Mayor of Nantes, 12 June 1859; ibid., the supervising committee to the Mayor of Nantes, 30 July 1860; ibid., the supervising committee to the Mayor of Nantes, 15 October 1861; ibid., the supervising committee to the Mayor of Nantes, 20 August 1862; ibid., the supervising committee to the Mayor of Nantes, 17 July 1863.

[131] Vauthier-Vézier, *L'estuaire et le port*.

and to reach a certain level of consensus or of interest in order to cross over into materialised reality. In the meantime, the museum continued to live its life. But around this, the role of the municipality and the conception of the urban space had changed. In the course of the first half of the nineteenth century, the role of the municipality changed, as we will see in the next chapter. The figure of the mayor, for instance, became gradually identified with representation of the municipality, also taking on a tradition of local government from the European early modern era. In particular, this change in municipal power and its own perception of its role and attribution gave birth to a new type of natural history collection: the municipal collection. But the process of appropriation of the collections extended throughout the first half of the nineteenth century. In fact, the museum's importance still needs to be understood in its context and should not be seen as important *per se*. As an example, the museum building project was completed because the concerns of the scholarly actors of the city met the hygienist-inspired new urban planning agenda of the urban government, which was very keen on re-designing the urban fabric by tracing geometrical figures and lines and straightening the facades of buildings.

C. Projects

a. Considering practice

In the project 'Place de la Monnaie B' (Figure 27), probably inspired by Edouard Bureau, a group of adjacent and communicating rooms (lettered G, H, I, J on the plan) was dedicated to the activities of the *conservateur* and the preparator, as it says on the plan.[132] While the plan foresaw the execution of two different activities, it is very likely, due to limited resources, that there would have been one person only. This configuration shows that administrative work and specimen preparation had to be dealt with in separate spaces, because they required different workspaces, instruments and workflows, but that does not mean that they were executed by two different individuals and even if so, the configuration was meant to allow, when not close collaboration, at least supervision or assistance.

[132] AMN - 1Fi1652, 1Fi1653, 1Fi1654 [Place de la Monnaie B] (especially): see Appendix G: Projects for the new building of the Museum of Natural History of Nantes, p. 441.

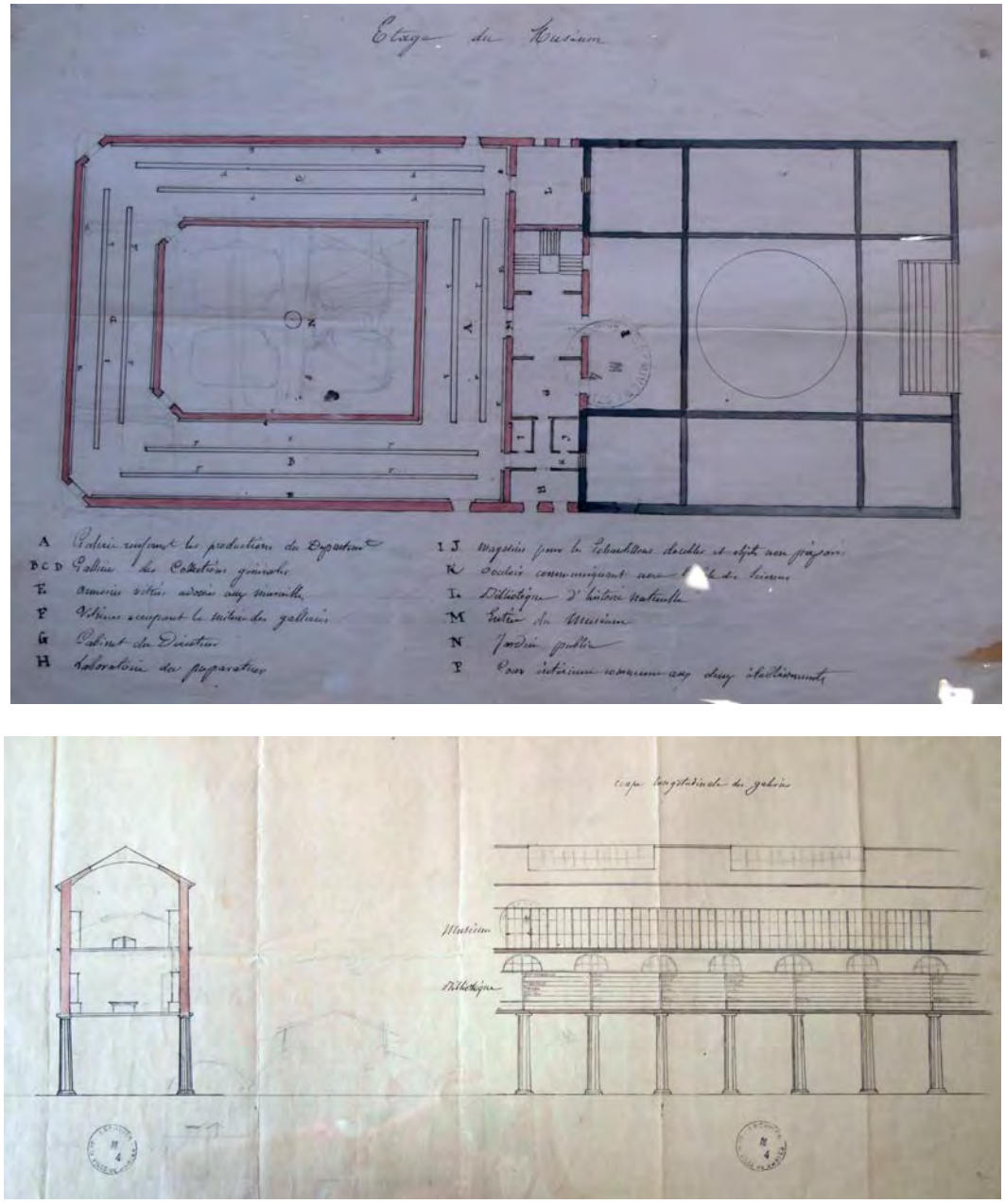


Figure 27 - [Place de la Monnaie B] Projection of a new museum building on Place de la Monnaie, undated, unsigned. AMN

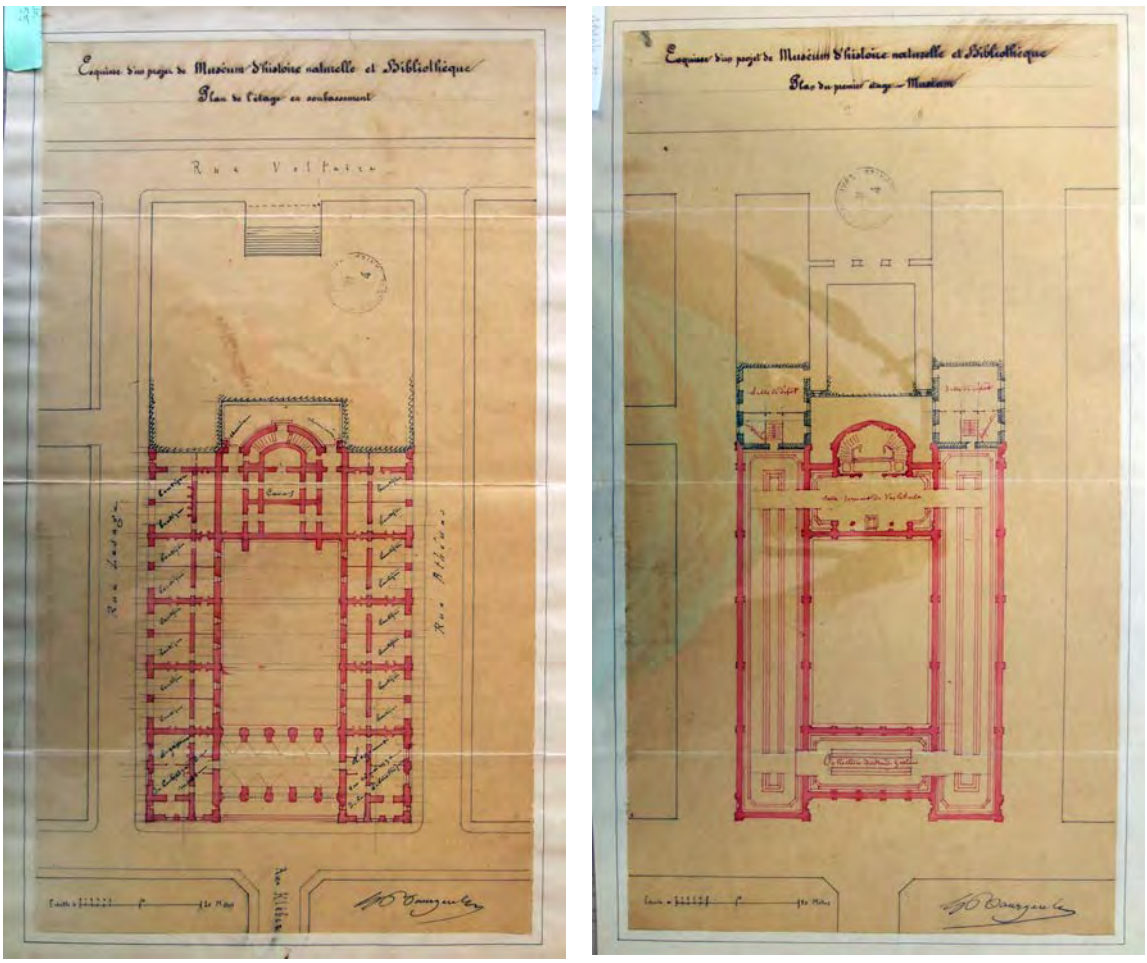


Figure 28 - [Place de la Monnaie C] Projection of a new museum building on Place de la Monnaie, [1864?], Bourgerel. AMN.

The (presumed) later projects coin the separation of the workspaces and the function. 'Place de la Monnaie C' (Figure 28) allocated only very limited space to preparation rooms, given the size of the building.[133] Two ca. 15 square metre rooms topped the apartments of the librarian and the *conservateur* respectively, and were accessible directly from their flats via a staircase. Because of the configuration of the building, which aimed at extending existing premises, there was no communication between the preparation room and the galleries. The *conservateur* or *préparateur* would therefore have to go down the stairs to the ground level to use the monumental staircase. This very inconvenient feature of not having service corridors and stairs show how much this is all in a very projected reality, and it was taken into account, as 'Place de la Monnaie D' (Figure 29) planned two openings to allow communication between the laboratory area and the display area - there are even traces of rubbing-

[133] AMN - 1Fi1655, 1Fi1658 [Place de la Monnaie C]. See Appendix G: Projects for the new building of the Museum of Natural History of Nantes, p. 441.

out and modification on the blueprint itself.[134] A very rich and ambitious project, it had planned separate living apartments for both a *conservateur* on the ground level and on the upper level, a *préparateur*, which communicated by means of a staircase.

Eventually, the final project started with a room for preparation which was again located in the empty spaces of the staircases: Bourgerel seemed to have been particularly attached to developing an important room for display, as it appears to have been a constant trend.[135] But throughout its development, 'project n°3' was supplemented with a clearly identifiable preparation room, which was in fact made central, and given a substantial size. Its location in the courtyard echoed concerns about the evacuation of fumes and a contamination hazard, but it also attested to the increasingly central role of the laboratory in the museum. Paradoxically though, Dubuisson's museum, as he did all the tasks of preparing and organising displays and

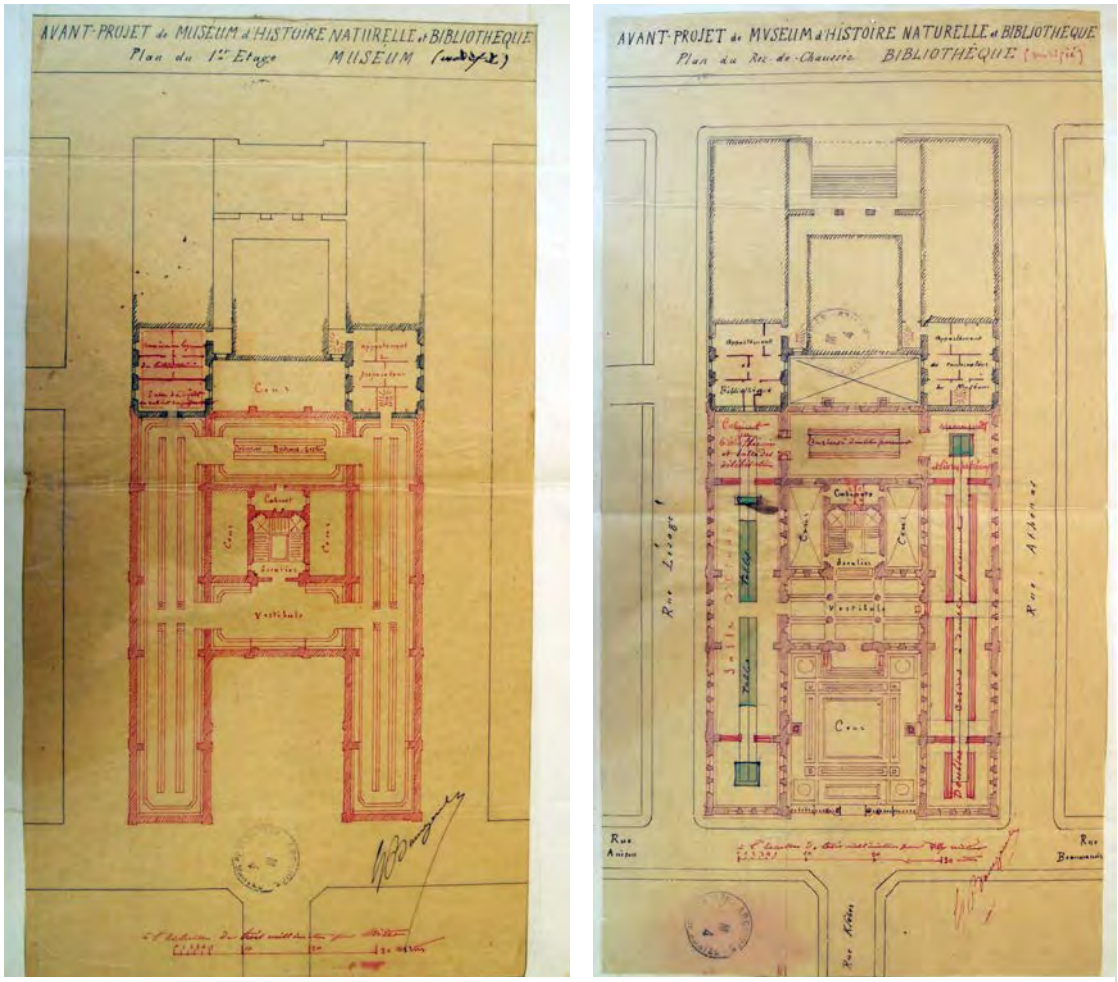


Figure 29 - [Place de la Monnaie D] Projection of a new museum building on Place de la Monnaie, [after 1864], Bourgerel. AMN

[134] AMN - 1Fi1651, 1Fi1650 [Place de la Monnaie D]. See Appendix G: Projects for the new building of the Museum of Natural History of Nantes, p. 441.
[135] AMN - 1Fi1649, 1Fi1675, [Place de la Monnaie E]. See Appendices, ibid.

classifying himself, was a laboratory itself, in its entirety. It is paradoxical that the centrality of the laboratory became manifest via the specialisation of the museum spaces, and thereby required its isolation, to be made apart and identifiable, maybe as an external sign of the scientific authority of the museum.

b. Considering impact

The aesthetics of the building were an underlying problem in the locational and relational hesitations discussed above. The neo-classical building, which expresses scholarly intemporality and authority, is a model that was under construction in the course of the nineteenth century. The case of Nantes is interesting because of the multiple spatiality of its museum: there was the re-used building of the anatomy theatre, and there were all the other projected architectures which rendered an important hesitation between a palatial construction or a temple-like museum. The latter won.

The numerous blueprints and versions of projects show an important hesitation as to what building the local and scientific authorities actually wanted. 'Place de la Monnaie C and D', the latter being a revision of the first, decidedly outlined a palatial

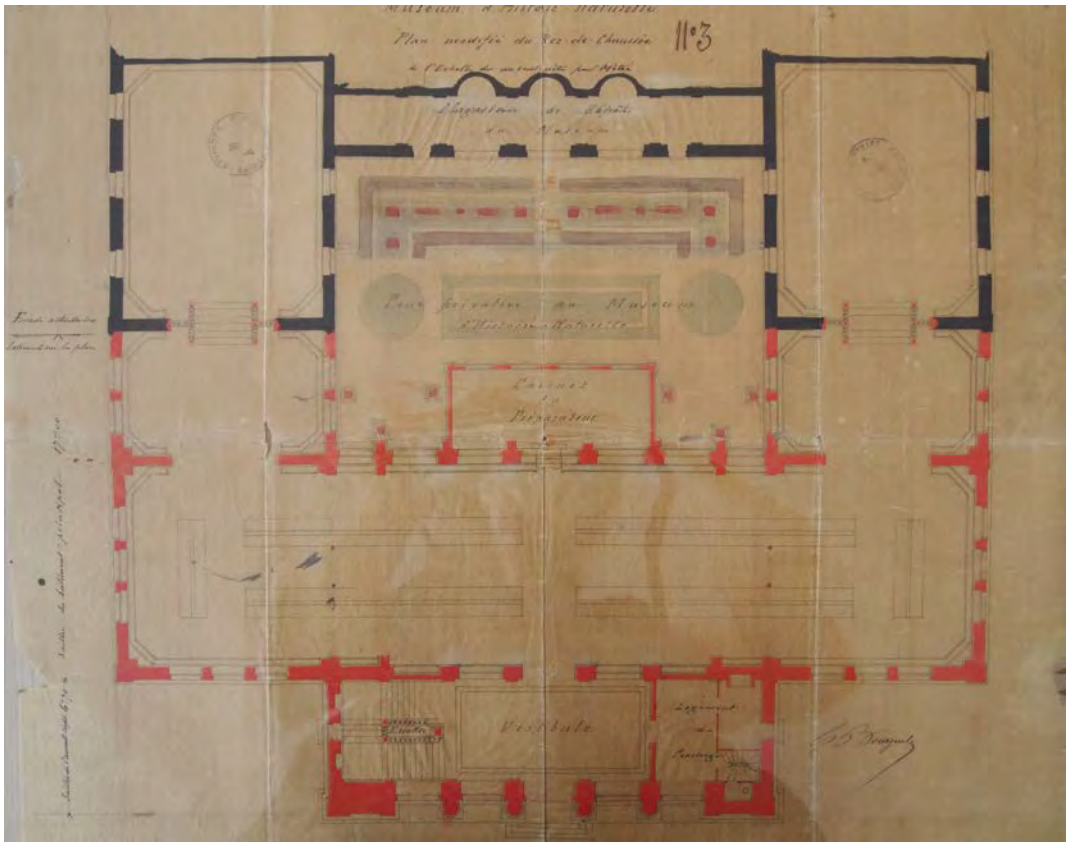


Figure 30 - [Place de la Monnaie F] Projection of a new museum building on Place de la Monnaie, undated, Bourgerel. AMN.

museum with a very strong opposition between the outside container and the contained inside: the courtyards were kept in between two towers, with a blatantly monumental entrance area and a lot of empty spaces. The second version, generally referred to in the sources as "Project N°3", received many declinations (Figure 30). Its morphology was destined to be much more imposing, and clearly borrowed from neo-classical structures of temples, which were also quite fashionable during the Second Empire.

Susan Pearce has recalled how the 'temple' principle was stabilised in the early modern era, and this was designed to give an unmistakable public message: "the notions of the museum as temple habitations of the muses, as glorious embodiments of the moral excellence of the state, and as monuments which created history by showing the present as heir to the past, especially the Greek and Roman past, came naturally together in the taste for grand buildings in the neo-classical and Greek revival styles".[136] Pearce also gives prominence to the ceremonial and ritual dimension of the museum architecture: it offered a place for secular ritual activity, in which the group solidarity is made apparent.[137] These comments are general, but meant with no specific thought for natural history museums. Interestingly, it does not seem that an art museum project would have been much different. As a matter of fact, the art museum of Nantes later built in the 1880s was also a neo-classical, very imposing building.

The reason for the second to be preferred may have been the lower associated expenditures, related to a more rational use of space. But it is interesting how in fact the museum building did not simply freeze a space of scientific practice but was also the result of negotiation between several groups and individuals, who came together as a solidary group. This group is made evident in the 1866 report by Cailliaud, where he patently displayed the supporting letters of Ecole des Sciences professors, librarians, the Jardin des Plantes director, Natural History Museum board members, together with neighbours, for a new museum project. The project itself was also in the hands of the municipal council, the mayor and the city architect. Every one of these positions and individuals were to find an agreement on both the location on Place de la Monnaie and the project itself.

The square in front of the museum is an important element to differentiate the two projects, and evidences how the decision on the building eluded the sole mayor or museum director. As a matter of fact, the first, palatial, project was self-enclosed and established a greater division between the inside and the outside. Because it caused circulation within the museum, and especially, access to the collection to be

[136] Pearce, *Museums, Objects, and Collections: A Cultural Study*, 107.
[137] Ibid., 108.

Figure 31 - Photograph of the Nantes museum, late 1870s. AMN

too complex, it would have contributed to hiding away the cultural capital which the collection represented. The intended introduction of a square with flowerbeds and trees was therefore not solely for the sake of the view, but meant to create a way in which the neighbourhood might contemplate and access its new item of cultural capital.[138] The division between the outside and the inside was comparatively less marked in the second option, which allowed the local residents to appropriate the project more easily, and amongst them were men who could influence decision-makers, like the municipal councillors. The external aspect was, perhaps, judged secondary in the years immediately following inauguration: in the late 1870s, the flowerbed and the trees were not planted (Figure 31 and Figure 32). The square's planned ornamentation underlined the importance of projection and imagination in an ideal which was crucial at one step of the project to unlock the decision-making process. Reality was substantially more pragmatic.

[138] AMN - 40Fi37, "Vue de la façade du Muséum d'histoire naturelle de Nantes, vue sur le fronton et les colonnes", 1878.

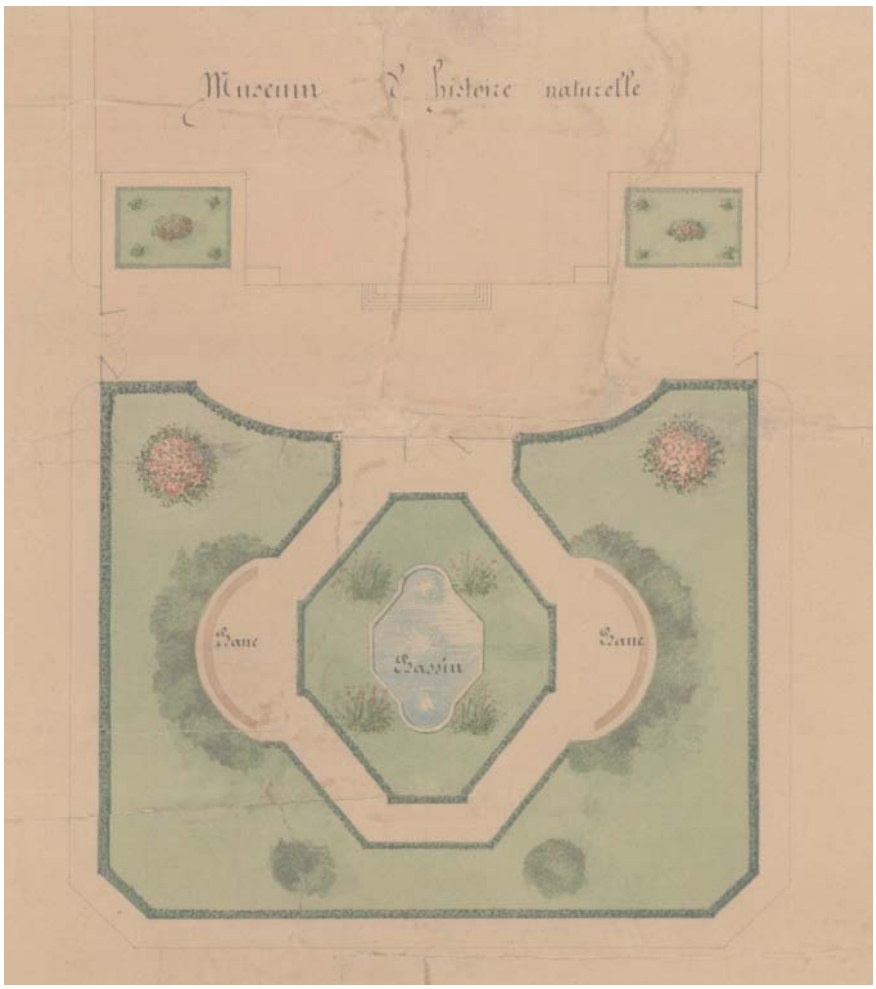


Figure 32 - Projected garden facing the entrance of the Nantes museum, on Place de la Monnaie, 1872. AMN

Undeniably, Cailliaud had developed, over the years, a certain skill and shrewdness in handling the socio-political environment which was going to make decisions about his museum. Some historians, especially Mary Winsor with the case of Agassiz, have shed light on how diplomatic skill and a sharp mind were necessary to cajole museum authorities, whether municipal government or museum board, into making the decisions directors wished for.[139] The notion of the museum was associatd in strong fashion with the persona of the director, and by extension with the individual at the head of the museum. Cailliaud realised it was not enough to put forward a potential loss of municipal riches to trigger an urgently needed decision. In 1866, his experience and persona were, precisely, a usable argument to put to the fore his legitimacy in collecting supports and standing for a museum. Ultimately, the museum

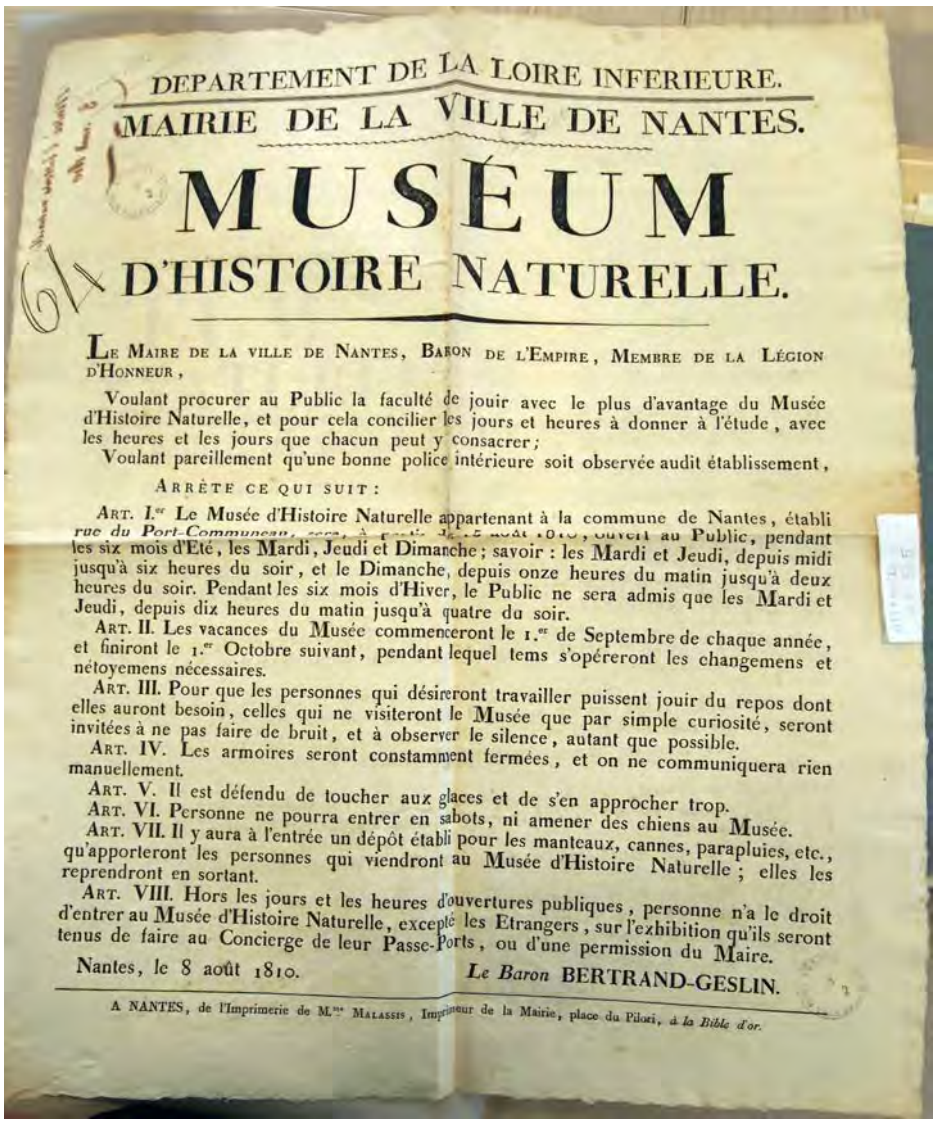
[139] Winsor shows how Agassiz was politically astute enough to make sure that evolutionism would be seen to make the museum of comparative zoology all the more important, in the early 1860s. Winsor, *Reading the Shape of Nature: Comparative Zoology at the Agassiz Museum*, 81.

did not only acknowledge his authority: rather, it acknowledged the power of local political power over the museum and the collective influence of the local elite, thereby acknowledging the collective authority of a handful of powerful men sharing an interest. Caillaud's work shows both how he learned to stand in between the scientific and the political and intercede on both sides, and also how his own interests met with those of his fellow members of the elite.

4. IN THE SOCIAL SPACE OF THE CITY

There is more to a building than the sole coining of a place. This chapter has shown so far that the museums of 1800-1870 were not some preparatory phase of an unfinished establishment. Rather, their softer, rather than incomplete, skin made them more vulnerable and exposed to their environment than the "proper realm of science" museum building claiming supremacy in the later nineteenth century.[140] The materiality of the museum, nevertheless, contributed to being perceptible from the outside. As such, the museum building *said* something to the visitor or passer-by, could manipulate public perceptions of truth, and partook in the social construction of knowledge.[141] Conversely, the museum building was also a public manifestation of how practitioners of sciences wished to be identified.[142] Beside these theoretical considerations, the practical modalities in which the museum was inscribed into the urban lifeworlds must be considered as well, because it took more than architectural plans, masonry and top-down decision-making to make the museum.

[140] Alberti, 'The Status of Museums: Authority, Identity and Material Culture'. The quotation is from Sharon MacDonad, cited by Yanni, *Nature's Museums*, 2–3.
[141] Yanni, *Nature's Museums*, chap. Introduction.
[142] Galison and Thompson, *The Architecture of Science*, 3.



DEPARTEMENT DE LA LOIRE INFERIEURE.

MAIRIE DE LA VILLE DE NANTES.

MUSÉUM D'HISTOIRE NATURELLE.

LE MAIRE DE LA VILLE DE NANTES, BARON DE L'EMPIRE, MEMBRE DE LA LÉGION D'HONNEUR,

Voulant procurer au Public la faculté de jouir avec le plus d'avantage du Musée d'Histoire Naturelle, et pour cela concilier les jours et heures à donner à l'étude, avec les heures et les jours que chacun peut y consacrer;

Voulant pareillement qu'une bonne police intérieure soit observée audit établissement,

ARRÊTE CE QUI SUIT :

ART. I.er Le Musée d'Histoire Naturelle appartenant à la commune de Nantes, établi rue du Port-Communeau, sera, à partir du 15 août 1810, ouvert au Public, pendant les six mois d'Eté, les Mardi, Jeudi et Dimanche; savoir : les Mardi et Jeudi, depuis midi jusqu'à six heures du soir, et le Dimanche, depuis onze heures du matin jusqu'à deux heures du soir. Pendant les six mois d'Hiver, le Public ne sera admis que les Mardi et Jeudi, depuis dix heures du matin jusqu'à quatre du soir.

ART. II. Les vacances du Musée commenceront le 1.er de Septembre de chaque année, et finiront le 1.er Octobre suivant, pendant lequel tems s'opéreront les changemens et nétoyemens nécessaires.

ART. III. Pour que les personnes qui désireront travailler puissent jouir du repos dont elles auront besoin, celles qui ne visiteront le Musée que par simple curiosité, seront invitées à ne pas faire de bruit, et à observer le silence, autant que possible.

ART. IV. Les armoires seront constamment fermées, et on ne communiquera rien manuellement.

ART. V. Il est défendu de toucher aux glaces et de s'en approcher trop.

ART. VI. Personne ne pourra entrer en sabots, ni amener des chiens au Musée.

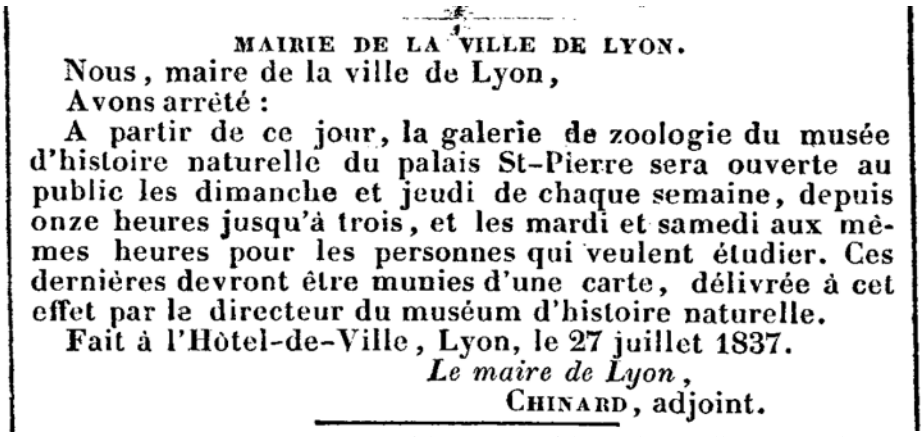
ART. VII. Il y aura à l'entrée un dépôt établi pour les manteaux, cannes, parapluies, etc., qu'apporteront les personnes qui viendront au Musée d'Histoire Naturelle; elles les reprendront en sortant.

ART. VIII. Hors les jours et les heures d'ouvertures publiques, personne n'a le droit d'entrer au Musée d'Histoire Naturelle, excepté les Etrangers, sur l'exhibition qu'ils seront tenus de faire au Concierge de leur Passe-Ports, ou d'une permission du Maire.

Nantes, le 8 août 1810. *Le Baron* BERTRAND-GESLIN.

A NANTES, de l'Imprimerie de M.me MALASSIS, Imprimeur de la Mairie, place du Pilori, à la *Bible d'or*.

Figure 34 - Public announcement of the opening of the Nantes museum in 1810. AMN.



MAIRIE DE LA VILLE DE LYON.

Nous, maire de la ville de Lyon,

Avons arrêté :

A partir de ce jour, la galerie de zoologie du musée d'histoire naturelle du palais St-Pierre sera ouverte au public les dimanche et jeudi de chaque semaine, depuis onze heures jusqu'à trois, et les mardi et samedi aux mêmes heures pour les personnes qui veulent étudier. Ces dernières devront être munies d'une carte, délivrée à cet effet par le directeur du muséum d'histoire naturelle.

Fait à l'Hôtel-de-Ville, Lyon, le 27 juillet 1837.

Le maire de Lyon,

CHINARD, adjoint.

Figure 33 - Newspaper annoucement of the opening of the Zoology Gallery, 8 March 1837. Le Censeur, BML.

A. Advertising for the museum

The issue dated 5 August 1837 of *Le Censeur* made the announcement (Figure 33) that the Lyon Zoology Gallery was officially open. A copy of the municipal decree was included, as signed by Chinard the deputy mayor on 27 July 1837. The gallery would be open to anyone on Thursdays and Sundays, from 11 a.m. to 3 p.m.; students and naturalists could come on Tuesdays and Sundays within the same hours.[143] Contrasting greatly with the very lengthy temporalities of the architectural elaboration of the museum, the museum of natural history had ephemeral moments of important popularity on the occasion of openings or re-openings.[144]

There would be various ways to communicate about the event constructed around the museum opening, and amongst others, posters would be a regular manner for the municipality to communicate its official statements. A municipal establishment, the museum would lead to the visual amplification of the presence of the museum as echoed on the city walls.

A poster was deployed in the streets of Nantes in 1810 (Figure 34), for the opening of the natural history museum. If the main inaugural discourse was to be given by Dubuisson, the public communication of the event put the persona of the mayor under the spotlight.[145] The poster provided factual information like open days and periods of closure.[146] It also provided a select list of rules for the museum, like the proscription of umbrellas and clogs or standing too close to the showcases. Printed by the services of the municipality, reproducing the codes of municipal rulemaking, the print document also contributed to delineating and legitimising the contours of municipal authority which leant against the museum. Similarly, other moments led to the publicisation of the museum in the urban space, like the call for the adjudication of public works - a recurring opportunity - or alternatively, seasonal announcements for the opening of public courses which were given at the botanical garden or at the museum.[147]

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143 Le Maire de Lyon. Chinard, adjoint, '[announcements]', *Le Censeur*, 8 March 1837.

144 Laurent Cuvelier, 'Solliciter l'attention, mobiliser et faire l'événement: affiches placardées à Paris au XVIIIe siècle', in *Les éphémères et l'événement*, ed. Olivier Belin and Florence Ferran, 54 (Paris: Éditions de la MSH, 2019), 121–36, http://books.openedition.org/editionsmsh/11930.

145 AMN - 2R565, [poster announcing the opening of the museum], 8 August 1810.

146 Ibid.

147 AMN - 4M18, [advertisement of public works at the museum], 4 April 1812; AML - 78WP021, "Ouverture du cours public et gratuit d'histoire naturelle", 4 January 1822.

B. Welcoming the public

The museum was designed to receive the public and failure to open amply enough would potentially trigger open disapproval, voiced occasionally by municipal instances, as in 1854 in Lyon.[148] To the sharp-witted Jourdan, this could not be a better opportunity to recall why the museum was open. Education and teaching was a primary reason to him: the municipal collections served for the classes of Zoology given at the Faculty of Science.[149] In 1850, Jourdan had been particularly active in gathering samples from the Rhone valley, and had made the museum collections an indispensable resource on local mineralogical wealth, with the collaboration of Lyon savants, like Victor Thiollière, whose profiles he wished to promote.[150] The museum was a way to stage the city and unveil it to the visitors. This concern with public appreciation was not new: the authorities were aware that the museum generated certain expectations and worried about the indirect self-representation they gave through it: the prefect of Rhône, in 1822, was concerned with matters of safety in the new gallery, and most importantly about the effect on the visitors if there were not enough space around the cabinets for people to see properly.[151]

The space of the museum was selective as to certain groups of people who were more welcome than others. The statements of donors often targeted the youth, the brilliant minds of the city, to legitimate their donations.[152] The composition of the visitors may however be caught solely indirectly and by crossing information from various sources, which only sparingly release even implicit indications. Visiting the museum was without doubt part of a masculine culture, and possibly an adult's business. A possible good share of visitors would be composed of students, members of learned societies preoccupied with the utility and productivity of science, a gendered approach to science.[153] Some exhibitions, like mineralogy, were forbidden to children under the age of twelve.[154] This was a way to keep a strategic resource for the industry away from the youngest, and from their nurses, while saving it for adult minds.

[148] AML - 78WP017, Jourdan to the Prefect of Rhône, 23 January 1854.
[149] See Chapter 5, 4, A. Teaching, p. 385.
[150] See Chapters 4, 3, B. The making of a scientific site: Cerin, p. 287.
[151] AML - 465WP003, Prefect of Rhône to Mayor of Lyon, 28 May 1822.
[152] See Chapter 1, 2,B. Donors of collections and the collective collection, p. 79.
[153] Terrall, 'Masculine Knowledge, the Public Good, and the Scientific Household of Réaumur'; Erika Lorraine Milam and Robert A. Nye, 'An Introduction to Scientific Masculinities', *Osiris* 30, no. 1 (2015): 1–14, https://doi.org/10.1086/682953.
[154] AMN - 2R565, [publicisation of museum regulations], August 1818.

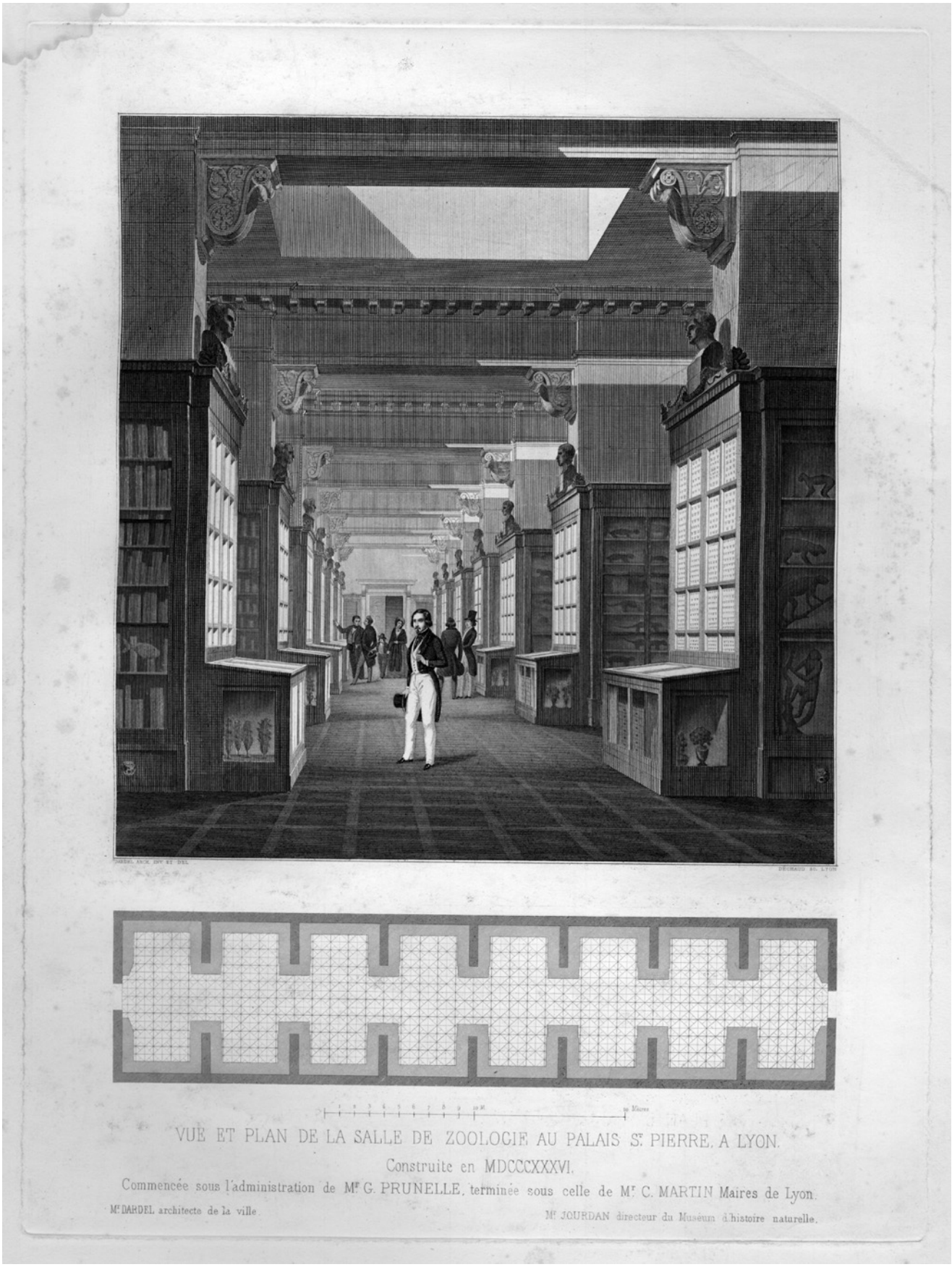

Figure 35 - View of the Zoology Gallery of the Lyon Museum, 1837. [Dardel ?] CCEC

This illustration was executed at the time of the 1837 inauguration of the Zoology Gallery in Lyon (Figure 35). The statement it conveyed was blatantly clear: the gallery was a place for gentlemanly culture.[155] The representation was indeed an ideal of the museum and its audiences. Half a dozen characters are standing there in the gallery. The company is obviously bourgeois: a suited-up man is standing in full length in the middleground, wearing an elegant outfit. In the background two pairs of men are presented having two distinct conversations. One pair is obviously discussing the content of the cupboards while the other seems to quietly chat about any possible topic: the gallery was also designed as a place of elegant encounter between bright and good-mannered persons. Further at the back, a woman is accompanying a younger boy: was it her son or the boy she was looking after as a nurse? The place is generally very orderly, and the style of the representation underlines the neatness of the architectural design, brewed with a lot of neo-classicism. The visitors in fact seem to occupy very little space. The importance of the architecture and design of the gallery is emphasised by the presence of the blueprint of the gallery at the bottom of the page.

Strikingly, too, the architecture overshadows the actual content of the gallery. Perhaps the illustrator visited the galleries before sorting and display were completed. Or perhaps he knew too little and was rather a specialist of architectural drawing: the objects contained in the cupboards appear as mere shadows, mainly of quadrupeds. His gaze and his interpretation of the gallery underlined the effect he wished or was commissioned to convey: that of perfect discipline and orderliness.

The museum was certainly not a place for frivolous and idle pastimes: it was a place for serious matters. The regulations for the museum were adapted considerably less often than those for the botanical gardens, which were constantly challenged by their relative openness onto the space of the city. The gardens were somehow closer to commons in the earlier years of the century. They served mainly for "the convalescing, the old, the children", the vulnerable who could find better hygienic conditions there, or would find medicinal plants free of charge.[156] The vegetables from the garden could be used to cook soup for the most deprived.[157] Once a remainder of old regime forms of solidarities, the garden evolved gradually into a more socially constraining environment. Fences were erected around the Lyon garden to prevent the dogs from coming at night.[158] Adepts of promenades were reminded that they should leave the café of the garden as they heard the closing bell and should not

[155] Bernard V. Lightman, 'Refashioning the spaces of London science: elite epistemes in the nineteenth century', in *Geographies of nineteenth-century science*, ed. David N. Livingstone and Charles W. J. Withers (Chicago: University of Chicago Press, 2011), 27–50.
[156] AML - 78WP020, [report of the committee of the botanical garden] 29 May 1812
[157] AML - 78WP021, Gilibert to the Mayor of Lyon, 21 October 1812.
[158] AML - 78WP021, Balbis to the Mayor of Lyon, 25 February 1826.

attempt to prolong their visit.[159] Also, because the Lyon garden lay on the way to la Croix-Rousse, the developing district of the *canuts* (silk workers), individuals carrying heavy weights would cross out of convenience. After a "very honest lady" had been hurt in the eye with one of those *fardeaux*, workers were prevented from coming to the garden.[160] Those working-class individuals were clearly designated as unwanted, because they could engender gruesome encounters for genteel society, "especially the children".[161] In spite of the development of the garden as a recreational space, its moralisation grew significantly throughout the period.

The museum, too, was representative of the fragmentation of urban space. While the phrasing was euphemistic, the ban on wearing clogs was not simply aesthetic. Perhaps Jourdan could have rejoiced over the fact that the floors of the Lyon gallery were being worn out owing to the important number of visitors. But instead he complained that the erosion of the wooden floors was related to the "people from the countryside" who came wearing dirty boots or wooden clogs.[162] In Nantes, the supervising committee had triggered a severe conflict with the mayor. They had taken the decision to make modifications to the regulations for opening day but disregarded their duty to ask for municipal approval. It was only after a series of letters was exchanged that the members of the committee admitted to the "true" reasons for their move: they had wished to keep the "merchants of foodstuffs" out of the museum; they were filthy and were soaked in water.[163]

These processes of social distinction were generally representative of the social ordering of society which, in the end, was not completely specific to museums. The natural history museum introduced another type of distinction legible in space. The space of the cabinet of natural history, in the end, had been wide open to its visitors, once they had been granted access upon recommendation. In an architecture gradually distantiating itself from a domestic space and becoming a space open to the public, discriminating between people evolved into material constraints, like vestibules, or dress codes materialised through deliverance of an entry card (Figure 36). The segmentation of space between the display area and the laboratory also contributed to separating the elect people of scientists and protectors of its sanctity,

[159] AML - 78WP021, Municipal ordinance, 3 July 1821.
[160] AML - 78WP021, Balbis to the Mayor of Lyon, 17 December 1819.
[161] AML - 78WP021, Balbis to the Mayor of Lyon, 1820
[162] CCEC - DP-J, Journal de Jourdan, p. 48, "Demande en réparation de la galerie de zoologie et de minéralogue", Jourdan to the Prefect of Rhône, 7 March 1860.
[163] Original text: "[cette mesure] avait surtout pour but d'éloigner les marchands de denrées qui ce jour-là affluent dans notre cité et qui ne portent, dans l'établissement confié à sa surveillance, que des saletés ou des vêtements souvent imprégnés d'eau, circonstance d'autant plus fâcheuse et d'autant plus nuisible à la conservation des objets d'histoire naturelle que l'humidité déjà permanente dans le local est une cause […] de détérioration": AMN - 2T565, the supervising committee to the Mayor of Nantes, 13 July 1841.

Figure 36 - An entry card for the Nantes museum, undated. MHNN

from the laymen and laywomen who were forbidden to trespass certain areas.[164] Unfortunately not dated, such a proposal of regulation was also made in Lyon.

Paradoxically, the public opening of the museum also meant the museum men had to negotiate their relationship to the "intrusion of the public".[165] The development of popular appetite for science and discoveries, including the unwavering fascination for collecting nature certainly put the museums, like David Aubin noted for observatories, in situations where intrusion could turn into threat as the public interest of and for the sciences became even more manifest.[166]

C. Hubs of science: hubs for the notabilities

a. The place of the museum in gentrifying cities.

Rapid urbanisation reached its apex in the last third of the nineteenth century. Important transformations had already affected urban settlements all across Europe: mobility shifted from foot to public transport, city functions tended to specialise in medium-sized cities while capital cities saw staggering developments, workers flowed in to find jobs and the quality of life generally decreased with poor housing and

[164] An undated proposal for regulations mentioned that access to storage areas and laboratory was forbidden without the authorisation of the director of the museum. It must however have been written after 1830. AML - 78WP021, "Réglement du Muséum d'histoire naturelle de Lyon", n.d.

[165] David Aubin, 'L'observatoire. Régimes de spatialité et délocalisation du savoir', in *Histoire des sciences et des savoirs. Modernité et globalisation*, ed. Kapil Raj and H. Otto Sibum, vol. 2 (Paris: Éd. du Seuil, 2015), 62.

[166] Aubin, 'L'observatoire. Régimes de spatialité et délocalisation du savoir'. On popularisation of science, see the work of Bernadette Bensaude-Vincent: 'A public for science. The rapid growth of popularization in nineteenth century France', *Réseaux. The French journal of communication* 3, no. 1 (1995): 75–92, https://doi.org/10.3406/reso.1995.3290; 'Nature for the people', in *Cultures of natural history*, ed. Nicholas Jardine, James A. Secord, and Emma C. Spary (Cambridge: Cambridge University Press, 1996), 408–25; *La science populaire dans la presse et l'édition: XIXe et XXe siècles*, CNRS histoire (Paris: CNRS Éditions, 1997); *L' opinion publique et la science: à chacun son ignorance*, Sciences humaines et sociales 392 (Paris: La Découverte, 2013). See also Hochadel and Nieto-Galan, *Urban Histories of Science*.

hygiene.[167] The interaction between the urban entities and their population generally evolved. This change became manifest in the morphology of the cities too. In France, increased control over local urban centres caused their very aspect to change deeply, making it often challenging to locate an old street, even if the street had not changed names: the 1807 legislation imposed on all cities the task of elaborating a *plan d'alignement*, a plan for the straightening of the main axes of circulation in the city.[168] This plan, perhaps paradoxically, respected very much private property: it was considered to have been not very effective in harmonising French streetscapes. Later on, in the 1850s, the possibility of *percées*, literally the "piercing" of streets, had much more effect, owing to the possibility of expropriation. These measures were hinged on hygienist claims as well as population control but were also excellent financial opportunities.[169] The museum building was usually associated with part of the plans of undoing and making the cities, which affected Lyon, Nantes and Toulouse.

In Lyon, the modernisation of the city centre affected the external aspect of the aisle where the natural history museum was located. From 1852 onwards and the appointment of Prefect Vaïsse, an important programme of urban design was triggered, which involved developing an extension of the Palais Saint-Pierre to accommodate the Faculty of Science. This was an interesting move because it acknowledged the dependence of a national institution, the university, upon a municipal resource, the collections of the museum.[170] Also, it associated the museum with the straightening of the streetscape of Rue Impériale.[171]

In Nantes, the argumentative strategy developed by Cailliaud throughout his career to support the project of a new museum shows strong awareness and very likely also endorsement of the social impact of the contemporary urban redesign.[172] The location of the museum echoed very well changing opinions on both the museum and how it should function within the city, which was itself intensively re-worked during the entire nineteenth century. The museum's first location was on the embankment of the river Erdre, and in the close vicinity of the *préfecture* and the *mairie*. Reviewing the

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[167] Clark, *European Cities and Towns*; Pooley, 'Patterns on the Ground: Urban Forms, Residential Structure and the Social Construction of Space'; Pinol and Walter, *La ville contemporaine jusqu'à la Seconde Guerre mondiale*.

[168] Marcel Roncayolo, 'Propriété, intérêt public, urbanisme après la Révolution. Les avatars de la législation impériale'.

[169] Loïc Bonneval and François Robert, *De la rente immobilière à la finance : La Société de la rue Impériale (Lyon, 1854-2004)* (Lyon: ENS Éditions, 2019), http://books.openedition.org/enseditions/12684.

[170] A byzantine situation to Inspector Brongniart who had denounced it: MNHN - Ms2358a, fo. 6, "Papiers Adolphe Brongniart - Facultés des Sciences des départements 1, inspection de 1854 à Besançon, Dijon, Grenoble, Lyon".

[171] AML - 465WP013, see Chapter 5, Figure 66, p. 390.

[172] AMN - 2R565, Cailliaud to the Mayor of Nantes, 7 March 1833; AMN - 4M28, Projet de M. Cailliaud et observations sur les musées de Paris et Londres avec un rouleau de sept feuilles de plans, 25 June 1850 and 10 May 1850; AMN - 4M19, Reconstruction du Musée d'histoire naturelle de Nantes by Cailliaud [print], 29 July 1866.

different projects shows that the museum was not projected in very many different places. While a favourite location was in the vicinity of Place Graslin, especially because it would solve the problem of loose soil and humidity, transitional projects saw the building on the Cours Henri-IV or within the Jardin des Plantes. In all cases, they were the places of heavy urban re-design. As presented above, Place Graslin, designed around the 1770s, and the Opera House had become the new epicentre of bourgeois sociability. The Cours Henri-IV, later called Cours-Cambronne, was not too far from Place Graslin and therefore was included in that westwards extension of the city centre and its transformation into a space conceived for the wealthy and elegant. Caillaud was very much concerned with the fact that the visitor would be more likely to go the museum if it were located near Place Graslin.[173] The idea of the location of the museum within the botanical garden is also quite telling of where the museum stood in terms of social practices and expectations.

By confronting his idea of the museum to museums in other cities, Cailliaud also situated Nantes museum within the group of its European counterparts. To an extent, Cailliaud became conscious of a rising emulation between European and possibly French museums, which contrasts with the presumed evenness of the 'provincial' category of museum. Possibly, this could even reveal part of the rising competition between cities, which did not exist only between capital cities.[174] Generally speaking, whether it was a conscious strategy that Cailliaud developed over time or not, it seems that in the last two decades of his service as director, he had grown more and more lucid about the importance of locational aspects. These were apparently more evocative to a local government concerned with the appearance of its city, testified to by the substantial investment in *alignements*, and a local government whose members were in fact primarily concerned for the quality of their own neighbourhood's environment. Looking at the map included in the printed report by Cailliaud on the museum project of 1864, one notices that at least four members of the municipal council had a residence around Place de la Monnaie, and Cailliaud did indicate this very clearly on the map submitted for examination to the municipal council.[175]

b. The birth of districts of science ?

Museums of natural history were not in isolation from other places of science in the same city. Practices of "lending" space for collections awaiting stabilised exhibition or storage were the only solution to the preservation of the objects, even if it meant

[173] AMN - 2R565, ibid., 7 March 1833.
[174] See for instance: Claire Hancock, *Paris et Londres au XIXe siècle: représentations dans les guides et récits de voyage* (Paris: CNRS Éditions, 2003).
[175] AMN - 4M19, Reconstruction du Musée d'histoire naturelle de Nantes, by Cailliaud [print], 29 July 1866.

that they were scattered.[176] The Toulouse neighbourhood around Allée Saint-Michel is a telling example of the concentration of the scientific establishments, principally around the botanical garden.

In Toulouse, the soil of the botanical garden was later used to develop a museum of natural history as such. We have seen above that the museum and the botanical garden had only been seen to share the premises of the Jardin des Plantes, with nothing like scientific collaboration being envisaged at that stage.[177] Cailliaud had responded half-heartedly to the proposal to build a museum at the Jardin des Plantes. His reasons were environmental as much as they were relational. The lukewarm enthusiasm of Cailliaud could be explained by the difficult relations Ecorchard, the Garden director, had with most people.[178]

The idea to have the museum and another institution share the same premises was meant to lower the cost of building a new facility, which was very clear in the Cailliaud project to host the museum in a building associated with the new *Hôtel de la Préfecture*.[179] A later plan was to host the museum in the same building as the École des Sciences, which had been allocated the building formerly known as the Hotel de la Monnaie. In Édouard Bureau's report on the museum, he also wished the museum to be situated in the same building as the public library of Nantes (in addition to the École des Sciences), but expressed his opposition to having a shopping area organised on the ground floor. This latter project appears in two blueprints, but then disappears fairly quickly in the following versions.[180] It is likely that the municipality had sought a way to lighten the financial burden of the investment caused by the project, but that this unleashed very strong opposition from the museum actors.[181] Moreover, the architectural design of the building, with shops composing its bottom level, would have led to a building covering most of the square and being an obstacle to the circulation of air and to an unobstructed view.[182] This opposition to the commercial area, and the fact that on the contrary, putting together the library, the school and the museum appeared as just good sense is interesting in terms of how publicly owned scholarly institutions were understood as being part of one body in the 1860s. In 1833, the idea to join the Prefecture and the museum did not trouble Cailliaud at all: he was either very pragmatic about how to get a new building, or more likely merely saw both

[176] See Chapter 3, 1, A, b. Toulouse: the ghost of the museum at the botanical garden, p. 192.
[177] AMN - 4M28, Projet de M. Cailliaud et observations sur les musées de Paris et Londres avec un rouleau de sept feuilles de plans, 25 June 1850 and 10 May 1850. Note: the plans originally attached were lost.
[178] AMN - 1O16153, Écorchard to the Mayor of Nantes, 22 June 1841.
[179] AMN - 2R565, Cailliaud to the Mayor of Nantes, 7 March 1833.
[180] AMN - 1Fi1655, "Plan du soubassement, Muséum d'Histoire Naturelle", Bourgerel, Head Architect, [1864]. See "Project Monnaie C" in See Appendix G: Projects for the new building of the Museum of Natural History of Nantes, p. 441.
[181] AMN - 4M19.
[182] Ibid.

institutions as being part of a public service, rendered by the close administrative collaboration of the local government and the museum.[183] Even more interesting is that this grouping of the institutions failed: apart from the joining of the museum and the *École des Sciences*, no other function was united with the new museum project.

Edouard Bureau's report voiced very intelligibly the reasons for the unification: to him it was a way to re-constitute, and concentrate in a sole building, a scholarly pool of institutions, thereby overcoming the absence of a university which made Nantes "la ville la plus déshéritée" (the city most deprived) with respect to higher education. At the same time, however, looking at the blueprints of the 'Place de la Monnaie' projects, which were those elaborated around the principle of the extension of the former Hotel de la Monnaie to the north of the square, says quite otherwise about the 'connection' between the two institutions.[184] One way to allow communication would be to facilitate the easy internal circulation of the museum and school staff. While this was generally planned in the earlier - and more opulent - versions of the project, the possible gateways through staircases disappeared in the later version, sealing off the museum from the school. The only way would have been to go out and go around the building and use the museum or school's main entrance. The reasons for this shift were not manifest in the source, but probably, while the relations between the school professors and the museum were good, as their support for the project shows, the choice of remaining together but clearly apart speaks for the intention to keep or rather create spaces in the city which were clearly identifiable with a given function. Spaces, therefore, with which the museum - or school, or library - could also identify, contributing to the definition of their institution's authority.

Links to a Faculty of Science or some schools were crucial for the museum collections to gain legitimacy - especially in how they drew from municipal budgets, be it only in moderate amounts. Nantes failed to be attributed a Faculty of Science, and this may have caused the natural history collection to have been disregarded, at least in terms of relocation. It took both the bequest of the Bertrand-Geslin collection and the opening of a course, a condition of the will, to give more impetus to the project of a new investment for a building.

Relations with learned societies, too, were important in the museum's inscription into urban society and the scientific community. The nineteenth-century learned societies have been described as being increasingly a place of social distinction more than places of production of science.[185] Even so, the members of the learned

[183] AMN - 2R565, Cailliaud to the Mayor of Nantes, 7 March 1833.
[184] AMN - 4M19, Bureau to the Mayor of Nantes, 5 December 1864.
[185] Jérôme Lamy, *L'observatoire de Toulouse aux XVIIIe et XIXe siècles : Archéologie d'un espace savant* (Rennes: Presses universitaires de Rennes, 2015), http://books.openedition.org/pur/5928.

societies were extremely helpful to the museum project, especially because they were the same individuals sitting on the municipal council or in other instances of local authority like the Chamber of Commerce. Relations could sometimes be crippled by defiance, as in the case of Mouton-Fontenille, who tried to obtain the attribution of natural history classes at the Society of Agriculture where he owned a chair and to have the cabinet of natural history absorbed by the society. More generally, however, the societies were more than supportive. With their assembly room located at the Palais Saint-Pierre itself, they were geographically very close to the museum. They did contribute to the work of classification and sorting, often in ways which were silenced in publications. Lortet and Chantre were two members of the Society of Agriculture in Lyon who had helped with the mineralogical collections at the museum of Lyon. Without Paul Gervais' account of his visit, their contribution would not be recorded. The contribution of Thiollière to the collection is also known though comments in passing in the minutes of the society's communications. Word of mouth, caught by chance and consigned in print, sometimes provided glimpses into working with the museum, which was certainly not either socially or scientifically isolated. On the contrary, it was a clearly designated place of elite reproduction, inscribed in the peculiarity of places of natural knowledge.

CONCLUSIONS: IN THE LIVED SPACE OF THE CITY

The museum of natural history was a complex piece to weave into the urban fabric. If the many transformations of the urban environment favoured openings where collections could be accommodated, those interstitial placements were not always satisfactory, at least in the long run. Under the influence of the physical environment and the increasing need for space resulted much dissatisfaction. The case of Nantes was a crying example of a temporary solution which lasted for 60 years. Understanding the museum as an ideal locale for the perennial conservation of treasures of nature and hence conducting rigourous scientific research fails to acknowledge the practical difficulties. Desperately immobile in spite of the many and recurring alarmed notices, the density of projects of relocations of the Nantes museums reveals the nevertheless very mobile and flexible characteristic of those establishments, especially as they existed in the imagined futures of their principal actors and supporters.

Interstitial and projected, the museum lay also in the deepness of the social space of the city. This place did grow in importance and as it increasingly occupied more

paper space in the administration of cities, it also came to occupy more built-up space and become more visible. This, again, was not the result of a unilateral decision taken in an instant. Rather, the placing of the museum had to be negotiated and it was, as it went on, co-constructed by scientific and political actors, but also experts and otherwise, visitors, whether welcome or not.

Finally, the process of collecting might even pre-exist the creation of the museum to which the objects were destined, as the case of Toulouse shows, while the case of Nantes reveals the importance of the imagined museum as part of the lived space.[186]

[186] The lived space is a conceptual category developed by geographer Henri Lefebvre to designate space as socially produced and to encompass the practices, the representations and the lived dimensions of space. An overview of Lefebvre's work is to be found in Brenner and Elden, 'Henri Lefebvre on State, Space, Territory'.

Chapter 4
The inside-out museum: collecting, field experience and place making

Museums were not spontaneously acknowledged as authoritative institutions and this process was inscribed in a longer temporality than the time it took to inaugurate new premises. Part of the process of recognition, as shown in the previous chapter, was contained in the subtle plays of fitting the museum into the environmental, social and scientific space of the city. This was conducted through the appropriation of the museum institution by local notabilities and its inscription in a local political economy.[1] This chapter, however, will now zoom out of the space of the museum itself and the city in which it was built to examine the spatial patterns of places used for collecting specimens, namely the museum's field.

Claude Jourdan, as the head of the Lyon Natural History Museum, spent most of his nearly forty-year-long directorship, from 1832 to 1869, surveying, comparing and itemising the geology of the River Rhone, on the field and on the road.[2] A good share of the duty of museum directors, sometimes with a helper or two, was to walk across the threshold of the museum and out of the building in order to proceed with collecting. For the case of Lyon, the circulations of Jourdan produced ample material, of paper especially, like receipts and bills of sales.[3] While different from catalogues and

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[1] Alberti, 'Placing Nature'.
[2] See Chapter 2, 3, C. Inventorying the Rhone: thirty years of harvesting fossils for the Lyon museum, p. 163.
[3] Much has been written on the paper technologies of the modern era. See Ann Blair, *Too Much to Know: Managing Scholarly Information before the Modern Age* (New Haven: Yale University Press, 2010); Staffan Müller-Wille

inventories of collections, those documents carefully register each purchase or expense, by means of an entry in the *Journal d'Entrées* or a receipt, or an actual bill of purchase.

The group of documents used for this chapter is mainly the product of inscriptions subsequent to travelling rather than made in the course of the excursion. Bills of purchase were essentially the type of paper instrument which was both collected on the spot and saved for future reference, especially as it was a piece of administrative evidence. The corpus of sources also comprises a *journal d'entrées*, which was started in 1843 and used systematically in the early 1850s, when the administrative framework changed and control was passed over from the municipality to the prefectoral administration.[4] While the volume of the *journal d'entrées* is still kept by the Centre de Conservation et d'Etudes des Collections of the Musée des Confluences, most of the pre-1850 sources are stored in the Municipal Archive of Lyon. As a matter of fact, 1850 marked a change in accounting for travelling: most information was thereafter copied into the *journal d'entrées*. Receipts and declarations of expenses made on plain sheets of paper were beforehand stacked in files. A similar method of organisation was used for the Nantes museum and appeared a fairly common system for recording and archiving public expenses.[5] Therefore, in the case of Lyon (and unlike Nantes), the 1850s marked a more systematic registration of expenses in general. That also generated a swelling of available documents for this period, at the risk of magnifying Jourdan's activities for that later period of his directorship.

This variegated corpus translated the various uses of the paper recordings. While it was designed for administrative and economic follow-up, it also illuminates the organisation of scientific work both inside and outside of the museum. Through this lens, administrative practices closely related to scientific work are certainly magnified. The *journal d'entrées* should not, however, be considered nor used for what it certainly was not: scholarly work. In spite of the fact that lists of purchased specimens echoed ways of presenting taxonomy on paper, that the naturalist gaze of the museum staff contributed to structuring the documents, and while it casts light on the conditions of production of science, the purpose of those documents was never to note down random ideas, re-work the classification of an object, or prepare a future publication to be accepted by the scientific community: they accounted for expenses related to scientific work.

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and Isabelle Charmantier, 'Natural History and Information Overload: The Case of Linnaeus' 43, no. 1 (2012): 4–15, https://doi.org/10.1016/j.shpsc.2011.10.021.

[4] For a more detailed presentation of the volume, see Chapter 2, 3, C, a. Documenting the scientific trips: the *Journal d'Entrées*, p. 164 and Chapter 5, 1, A. Museum administration and production of lists, p. 332.

[5] AMN - 2R565, "Muséum d'histoire naturelle. Administration (1806-1936, 1946)".

In the end, the content of the collections is hardly knowable for what they were precisely at the time of Jourdan since the old catalogues for this period, in the course of their existence, must have been deemed no longer valuable, and have been lost to date. Because the sources discussed above document collecting differently, they are valuable sources for understanding the *making* of the collections more than the collections themselves: they provide ample and valuable information about the practices of collecting for a museum in the nineteenth century. They cast light on the places visited, Jourdan's limited contact list of intermediaries, their types, where they operated from. Even if the scientific scope of operations can sometimes only be assumed from extrapolations and comparisons with other places, the reports, receipts and bills document in an effective way the everyday nature of systems of recognition and loyalty, moments of negotiation or defiance amongst the variegated pool of actors of collecting. Most importantly, they tell us about museum activities *outside* the museum.

Beyond cabinet and field science: the museum as a scientific continuum

An unequivocal feature of the Lyon register is to convey how collecting and field experience entailed specific types of mobility and patterns of travelling in pursuing the accumulation of specimens for the account of the museum. The mobility of savants has been much looked at through the traditional division of the history of science into its analysis of scientific practices: sedentary armchair or cabinet science were to be opposed to mobile field science and expeditions.[6] Studies of the nineteenth century have generally led to conclusions of the growing supremacy of lab science. They were indeed times in which lab science's legitimacy "outgrew" that of field science. From the mid-nineteenth century, lab science overtook field science, hence making associated displays in museums and herbaria, as the result of explorative science rather than that operated in a controlled environment, "second best practice".[7]

These discussions have reached some level of sterility in their attempts at a strict categorisation between lab and field. In fact, the extent and modalities of their interrelatedness have offered more fruitful developments. The line of contact between

[6] Dorinda Outram has written about the opposition of Cuvier and Geoffroy Saint-Hilaire on this matter: *Georges Cuvier: Vocation, Science, and Authority in Post-Revolutionary France*, 62–63. Conversely, examples of travelling savants can be found in Londa L. Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge (Mass.); London: Harvard University Press, 2004); Marie-Noëlle Bourguet, 'La Collecte du monde: voyage et histoire naturelle (fin XVIIIe siècle - début XIXe siècle)', in *Le Muséum au premier siècle de son histoire: [colloque international, Paris, juin 1993]*, ed. Claude Blanckaert et al. (Paris, France: Éd. du Muséum national d'histoire naturelle, 1997), 163–96. More general discussion on the opposition may be found in Strasser, 'Collecting Nature'; Dominique Juhé-Beaulaton and Vincent Leblan, eds., *Le spécimen et le collecteur: savoirs naturalistes, pouvoirs et altérités (XVIIIe-XXe siècles)* (Paris: Publications scientifiques du Muséum National d'Histoire Naturelle : CTHS, 2019).

[7] Kohler, *Landscapes & labscapes*.

lab and field was more than a soft underbelly: rather, it reveals interpenetrations of the two spaces, shared practices, and also, in particular, *ad hoc* forms of production of knowledge. Raf de Bont sees the end of the nineteenth century and the early twentieth century as pivotal in the definition of new spaces of production of science. The "station movement", for instance, developed as a response to the opposing lab/field sciences.[8] His notion of "outhoused" science, designating these ambiguous places of studying nature, both built into and in retreat from nature, will prove useful to consider the field of the museum.[9]

In this chapter, stepping out of the museum looking for specimens or data is considered a component of patterns of circulations outside of the museum, which henceforth is the mothership or central place in the cartography of Jourdan's mobility. Jourdan was no "armchair collector", nor was he a long-haul voyager, if using Londa Schiebinger's dichotomy.[10] He was to be seen in the outdoors, as well as in his office and in the museum galleries. And to add complexity to the picture even more, how should those non-field, non-office spaces be considered: the merchant's shop, the naturalist's private collection or just off roadworks negotiating with a worker? And those interstitial moments: how should the space of the train compartment headed to Marseille or back to Lyon be considered? And even in the specific case of the museum: is working in the galleries part of armchair or field science? Field and cabinet work could be complementary and part of the embracing process of natural knowledge production. This generated a continuum of intellectual rationale underpinning the different types of practices and types of places which could, however, be brought down to a simpler division of space: the indoor and the outdoor.

The key type of mobility which this chapter proposes to examine and to altogether emphasise is this moment of passing through the gates of the museum. Jourdan's field was essentially inscribed in areas closer to Lyon. He would rarely exceed 500 kilometres' travelling distance, and most excursions were circumscribed within the nearby *départements*. Jourdan did not defy nature and challenge the limits of the unknown in the way explorers did. But there was one border that he crossed quite often: the border of the museum. And his activities defied not nature, but the divide between the museum space and the field space.

As the exemplary institutions of collecting and classificatory work, museums were also constructed in operations which took place beyond their walls. The idea of status is particularly useful in opening up ways of thinking about the construction of

[8] De Bont, *Stations in the Field*.
[9] Ibid., 2–5.
[10] Schiebinger, *Plants and Empire*, 23–72.

the museum as a legitimate site of expertise in its relations with an *outside*.[11] Looking at the status of the museum helps to define its limits with regards to what it was *not*: museums were different from taxidermist shops, for instance. Alberti has emphasised the importance of the collection curated *inside* the museum as the keystone of museum credibility. Even transposed to the French context of natural history museums, the notion of the "status" of the museum proves particularly sound. This perspective needs however to be adapted to a context where a clear distinction between the scientific and the political sphere was determined by the credibility of the municipal museum institution being chained to the construction of the credibility of the municipal authority itself.[12] Nevertheless, questioning the status of the museum comes down to looking at the movement of the boundary wrapped around the museum, and in looking at 'the museum credibility as a space'.[13] In the case of the Lyon Natural History Museum, this space reached out to distances well outside the museum and even the city of Lyon itself.

Municipal museums formed their own boundaries against other places of knowledge, a process which tended to reinforce their regional centrality.[14] Those places were statutorily different or offered a different type of scholarly function or set of operations, like the faculty of science or learned societies. This is made evident precisely by the museum staff's mobility, organised for the purpose of collecting for the museum. Studying this mobility allows us to perceive that mobility is not solely a collateral effect of collecting, but that the operations of collecting translate into the formation of a particular space of knowledge, characterised by movement and circulation across distance, places and intermediaries. This mobile extended place of knowledge can be seen as an outside extension of the museum, an "out-housed" museum, perhaps, resonating with an idea of scientific operations which were exposed to the wild and hazards, revealing some level of fragility, outside the secure perimeter of the museum home.[15]

Certainly, the invention of the museum took place through its inscription within a research territory, but the question here is about the nature of the fabricated space, the pattern of its geography, the rhythm of its temporality and the particular relief of its hierarchies, in its constant drive towards the accumulation of objects. This chapter is about the scientific continuum outside of the museum walls.

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[11] Alberti, 'The Status of Museums: Authority, Identity and Material Culture'.
[12] Ibid., 53. See also Chapter 2, 1. Of paper and lessons learnt: governing the museum, p. 126.
[13] Ibid., 57.
[14] See Chapter 4.
[15] The term is borrowed from De Bont, *Stations in the Field*, 2.

Mapping the inside-out museum: a method

What follows is mainly constructed from the example of Claude Jourdan, not necessarily because he was representative of the other cases, but because it is the case most documented. The example of Jourdan further demonstrates the importance of the local conditions, inside master schemes, in the peculiar development of scientific production. Jourdan's average time and expenditures related to travelling were unrivalled by his contemporary Nantes homologue Cailliaud. The ample elbowroom provided by a generally favourable economic situation was in fact a distinctive character of Lyon, which was notably propped up by the development, after 1850, of the rail service and the reinforcement of the strategic position of Lyon regarding transportations. Travelling was in fact part of the expected activities of museum keepers, by way of tradition, which left a strong imprint on the professional expectations for a municipal servant in charge of a museum. However, Jourdan was not one to be compelled to travel. On the contrary, he was most of the time himself choosing to travel and pleading for ever more financial support.[16]

By means of the construction of an area of expertise (scientific and commercial), the museum spread its influence and control, generating diverse spatial patterns. The Lyon museum was not an island, nor a mere dot on the map. Quite on the contrary, the authority of the museum also came from the relations it slowly built with the space outside of its walls. Jourdan's collecting practices therefore not only tell us about museum collections and their origins, but also how they contributed to the making of a spatial inscription of the museum, by means of the development of supply networks and the identification of scientific sites. Additionally, the manifold and unsystematic types and scales of the movements of people and objects to and from the museum point to it as something which goes beyond a hub, that is beyond the uniform ebbing and flowing to a flagged central place.

Needless to say, the study presented below is not an attempt to exhaustively list Jourdan's travels. The recorded travels of Jourdan add up to just over a hundred '*voyages de recherche*' (in Jourdan's words) or 'scientific trips' as of now. It would indeed be impossible to do so, because not all the records were preserved. The attested 107 trips exclude most of the travelling activities of Jourdan in the first twenty years of his directorship. In those years, a less systematic inspection of the museum's expenditures might have caused scientific trips to be erased from administrative memory. Alternatively, documents may have gone missing, since the receipts were kept in

[16] See Chapter 2, 3. The elaboration of a discourse of the territory, p. 160.

leaflets and files as separate sheets before everything was neatly stored in a register from 1852 onwards.[17]

1. A VISIT TO THE MASTERS? TRAVELLING TO LONDON, PARIS AND ROME

Trips further out of the Rhone valley were not the most common, and in fact, rather scarce. Although extremely little has survived that documents his trips to England, Jourdan did go to London at least twice, and to Liverpool at least once.[18] These trips, however, were conducted in the first decades of his time in Lyon's museum. Visits to Paris, for field study as well as for calling at various places of collections occurred every couple of years on average after 1855. Eventually, a notable and one-off trip to Rome was organised in 1866.

The common point among those destinations is how they were then identified as sites of knowledge production, but each for different reasons and inscribed in different temporalities. Those three cities were also the typical set of European capitals which, in the long run, were recurrently compared as major anchoring sites of knowledge production.[19] Travelling to Paris or London or Rome for a mid-nineteenth century provincial naturalist could be perceived as having been an obvious move, because that is where the tradition, the resources and the innovation would have been found.

Whether for London, Paris or Rome, their centrality is a construct. In the case of Rome, the scholarship is without limit on travelling to the former capital of the Roman Empire, a key site for confrontation with the antiquities, or the place for an emotional or mystical shock *à la* Stendhal. The structure and scale of the influence of Rome was in fact fairly "unconventional", with regards to other capital cities. A limited urban settlement and a universal point of reference, the city encompassed all possible scales.[20] The early modern era had seen Rome develop into a major centre of calculation for knowledge production by means of the circulation of data gathered

[17] For a presentation of the register, see Chapter 2, 3, C, a. Documenting the scientific trips: the *Journal d'Entrées*, p. 164 and Chapter 5, 1, A. Museum administration and production of lists, p. 332. For an exhaustive description of all travels, see Appendix H: Overview of Jourdan's scientific trips, p. 445.
[18] AML - 78WP017, Minutes of the Municipal Council (extract), 16 July 1835.
[19] Donato, Lilti, and Van Damme, 'La sociabilité culturelle des capitales à l'âge moderne: Paris, Londres, Rome (1650-1820)'.
[20] Elisa Andretta and Antonella Romano, 'Roman Urban Epistemologies. Global Space and Universal Time in the Rebuilding of a Sixteenth-Century City', in *Knowledge and the Early Modern City: A History of Entanglements*, ed. Bert De Munck and Antonella Romano, Knowledge Societies in History (Abingdon; New York: Routledge, 2020), 197–222.

and organised by the missionaries, especially the Jesuits.[21] That a Lyon scholar would travel to Rome is all but incongruous. The active presence of the Jesuits in Lyon had fuelled the cultural and intellectual dynamism of the city.[22] The relations established in the eighteenth century had additionally contributed to Lyon's independence from the influence of Paris, able to tap directly into Roman relations instead. Some inherited social patterns could hypothetically have been mobilised by Jourdan.

In comparison with Rome, Paris and London had been more recently established scientific centres, with an advantaged position for Paris with regards to London being at least in geology, still looked up to by English amateurs of geology.[23] Both cities were swarming with natural history professionals and enthusiasts, learned societies, a heavy network of skilled illustrators, taxidermists, collectors, dealers, printers and so on. This had come about at the very end of the eighteenth century with promising institutions like *Le Jardin du Roi,* which was then turned into a flagship institution of the new regime: the National Natural History Museum in Paris. Propped up by a political discourse celebrating the virtues of knowledge of and contact with nature, together with territorial expansion in European and colonial terrains, the Museum became a leading institution in Western natural history.[24] Across the Channel, there was the Sloane collection and the future British Museum in London.[25] These topped a concentration of countless institutional or personal collections which were relatively connected to one another, with the purchasing and passing of objects from one to the other following the enrichment, bankruptcy or death of their owners.

Being the capital city of an empire did also matter: all three cities had been the merging point of continuous flows supplying information and objects amassed in their

[21] The following is only a selection within the immense literature available. About travelling to Rome see Nicolas Bourguinat and Sylvain Venayre, eds., *Voyager en Europe, de Humboldt à Stendhal: contraintes nationales et tentations cosmopolites: 1790-1840* (Paris: Nouveau Monde, 2007); Gilles Bertrand, *Le Grand Tour revisité. Pour une archéologie du tourisme: le voyage des Français en Italie, milieu XVIIIe – début XIXe siècle* (Rome: Publications de l'École française de Rome, 2013), http://books.openedition.org/efr/1974; Rosemary Sweet, *Cities and the Grand Tour: The British in Italy, c.1690-1820* (Cambridge: Cambridge University Press, 2012); Sylvain Venayre, *Panorama du voyage (1780-1920): mots, figures, pratiques*, Histoire (Paris: Les Belles Lettres, 2012); Gilles Montègre, 'Un pas vers la mesure du monde: Le voyage scientifique français à Rome et la quête de l'antique dans la seconde moitié du XVIIIe siècle', in *Rome et la science moderne : Entre Renaissance et Lumières*, ed. Antonella Romano (Rome: Publications de l'École française de Rome, 2013), 153–69, http://books.openedition.org/efr/1930; Bourguet, *Le monde dans un carnet*. On the making of Rome as a localised anchor point in the tailoring of universal knowledge by the Jesuits, see the works of Antonella Romano: *La Contre-Réforme Mathématique: Constitution et Diffusion d'une Culture Mathématique Jésuite à La Renaissance (1540-1640)* (Rome: École française de Rome, 1999); 'Rome, un chantier pour les savoirs de la catholicité post-tridentine', *Revue d'histoire moderne et contemporaine* n° 55-2, no. 2 (2008): 101–20; *Impressions de Chine*.

[22] Van Damme, 'Sociabilité et culture urbaines'; Stéphane Van Damme, *Le temple de la sagesse: savoirs, écriture et sociabilité urbaine* (Paris: Éditions EHESS, 2005).

[23] Knell, *The culture of English geology, 1815-1851: a science revealed through its collecting*, 29–30.

[24] Spary, *Utopia's Garden French Natural History from Old Regime to Revolution*; Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*; Bertrand Daugeron, *Penser, classer, administrer pour une histoire croisée des collections scientifiques* (Paris: Publications scientifiques du Muséum National d'Histoire Naturelle : CTHS, 2014).

[25] James Delbourgo, *Collecting the World: The Life and Curiosity of Hans Sloane* (London: Allen Lane, 2017).

respective spaces of influence. And the close vicinity of places of the expression of political and administrative authority to the high places of scholarly knowledge laid the basis for political and scientific sociabilities which were essential in the elaboration of scientific categories, but also in the doing and undoing of careers.[26]

At first sight, travelling to these places of scientific authority appeared to be a confirmation that they were magnets for scholars and an endorsement of the concentration of technology and knowledge there, as opposed to less interesting or innovative sites. The Museum of Lyon's influence could then be assessed as one representing its just place, that of a secondary centre which would only highlight the centrality of other sites, but above its own locality.[27] The opposition of centres versus peripheries in the production of science should be carefully unpicked to prevent an anachronistic and positivistic reading of past structures.[28] As much as the centres of innovation were well-identified by contemporaries and 'peripheral' scientists would boast about their recognition by them, this did not mean that the 'peripheries' wanted 'to conform, imitate, or even get in touch' with the centres of scientific authority.[29]

By travelling to those cities, Jourdan was undeniably looking for recognition, for himself and his work, together with the scientific institution he represented. It did matter, for instance, that he would have travelled further, to authoritative places, in the beginning of his directorship, while he was trying to weave together the respectability of the institutions he represented. Thereby, his choices for mobility at least confirm a pattern of polarisation of resources in certain sites. However, the discourse on his mobility does not reveal any particular awe. Jourdan's approach seems to have been very pragmatic: that of a traveller with a hunger for seeing and observing and exploiting the local resources. In the end, Jourdan absorbed what he could in those places of authority in order to construct the authority of his own site. For this purpose, it was necessary to understand the place in order to mimic it.

A. London and Liverpool: a story of alterity and opportunities

Traveling to England may have appeared as an obligation for any self-respecting museum naturalist. London, the capital city and centre of calculation of the

[26] See Pietro Corsi on Etienne Geoffroy Saint-Hilaire to have a grasp of the political, scientific, epistemological, material, social complexity of what Parisian natural history was in the 1820s and 1830s in Pietro Corsi, 'The Revolutions of Evolution: Geoffroy and Lamarck, 1825-1840', *Bulletin d'Anthropologie Préhistorique de Monaco*, no. 51 (2011): 113–34.
[27] See Introduction, 2, E. For locality, p. 47.
[28] Pietro Corsi, 'How to Use Centres in the Periphery: Italian Geology in the Nineteenth Century', in *Centre and Periphery Revisited: The Structures of European Science, 1750-1914*, ed. Robert Fox and Ana Carneiro (Oxford: Maison française d'Oxford, 2003), 51–67.
[29] Ibid.

ordering of English science, and Liverpool, England's maritime home of key shipping lines and the hub of flows connecting to its colonial possessions, may have been obvious destinations in order to tap into the central gateways of masses of natural objects coming from the British Empire at a stage of staggering development.[30] But yet again, appearances need to be unpicked. The story of Jourdan's trip to England is certainly one of opportunities but it is also about comparing scientific practices and confronting categories, with resulting situations of lukewarm interactions and short-lived correspondences.

The freshly appointed, up-and-coming new director decided to set out for England, to London and Liverpool, in 1834. Of this first trip little is known, apart from that it was paid for out of his own money and this was the reason that Jourdan requested to be financially supported for his second trip there in 1835: he was travelling to enrich the museum collection, after all.[31] The project was granted the approval of the municipal council, after Jourdan had convincingly elaborated - since he knew the places - on how necessary and fruitful the trip would be.[32] Jourdan was granted 800 francs as a transport allowance, which added to the 1,500 francs dedicated to the purchase of objects to 'supplement the municipal collection'.[33]

The second trip to England took place in the summer of 1835.[34] Jourdan was then still very focused on his earlier interest in zoology, before his practice at the museum led him to bend his path towards geology and palaeontology. In London, Jourdan spent considerable time observing the specimens of the zoology galleries, especially the mammals. Jourdan appeared particularly engrossed by the collection of primates. His notebook is hardly full of rambling descriptions, however: it quite on the contrary shows crisp notes on select specimens (Figure 37). Jourdan can easily be pictured bending over, going around, twisting his neck, grabbing his pen and notebook and dropping a few lines on the page. A short account of the aspect of fur or plumage, the detail of a patch of hair coming off a chin, the unseen size of a gibbon's hand caught the eye of the visitor who was prompted to observe and compare with his own knowledge and categories. The animals were referred to by their vernacular names, with a reference to the taxonomic denomination in the few cases where disambiguation was needed. That gibbon had white hands, dull white, but those

[30] Andrew Porter and Alaine Low, eds., *The Nineteenth Century*, vol. 3, The Oxford History of the British Empire (Oxford: Oxford University Press, 2009).
[31] AML - 78WP021, Jourdan to the Mayor of Lyon, [1835?]
[32] AML - 78WP017, Minutes of the Municipal Council [extract], 16 July 1835.
[33] A series of receipts help to delineate the dates of the trip. Jourdan seems to have made a short stay in London, from 5 to 8 August. See for instance AML - 78WP017, Receipt from H. E. Ward, 5 August 1834.
[34] AML - 78WP017, Minutes of the Municipal Council (extract), 16 July 1835. The request for funding may have been made after Jourdan had actually paid for it upfront. CCEC - DP-J "Notes Mammifères", [Jourdan's notebook], undated. The first page bears a mention of the day "5 August".

specimens kept in the Lyon collections did not have white hands - or at least that required some fact-checking once back in town. Could that mean Jourdan was the keeper and potentially descriptor of a new species? Those are the thoughts Jourdan retained to be recorded.[35]

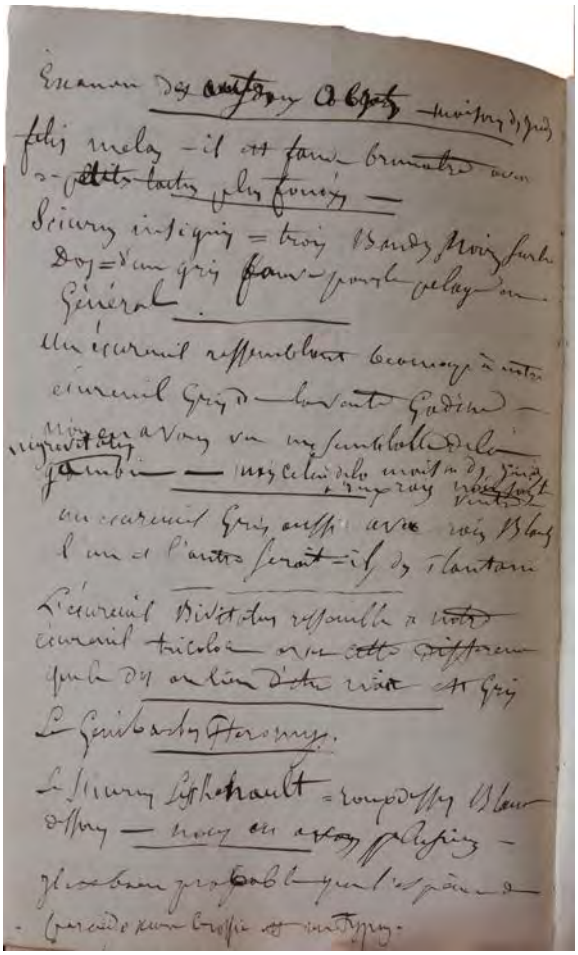


Figure 37 - Manuscript notes of Jourdan, [1835?]. CCEC

Strolling through the galleries, observing, comparing, maybe finding a new clue comprised Jourdan's main activities in the galleries of zoology of the British Museum. It was also a good occasion for fruitful encounters. A certain "Mr. Gray" showed Jourdan around and accompanied him through his intellectual wanderings. The notes bear many mentions in indirect speech of Mr. Gray's sayings and opinions about this or that matter, citing a paper in English here and there to support his ideas. Jourdan's tone was polite and conveyed by the direct speech: he respectfully acknowledged the references for later consultation, often going on to write 'to be checked'.[36]

"Mr. Gray" was very likely to have been George Robert Gray, the assistant museum keeper for the zoology collections from the early 1830s and a member of the Gray family, a leading dynasty of naturalists.[37] Jourdan made no particular comment on his host.[38] It ought to have been self-evident to him who the man was. There is no particular excitement, either, in Jourdan's noting down of the names of naturalists or papers. Maybe he did know about them already, or more likely, he had heard of some of them but still needed to see for himself. Name alone was not enough to make the quality and usefulness, in particular, of research.

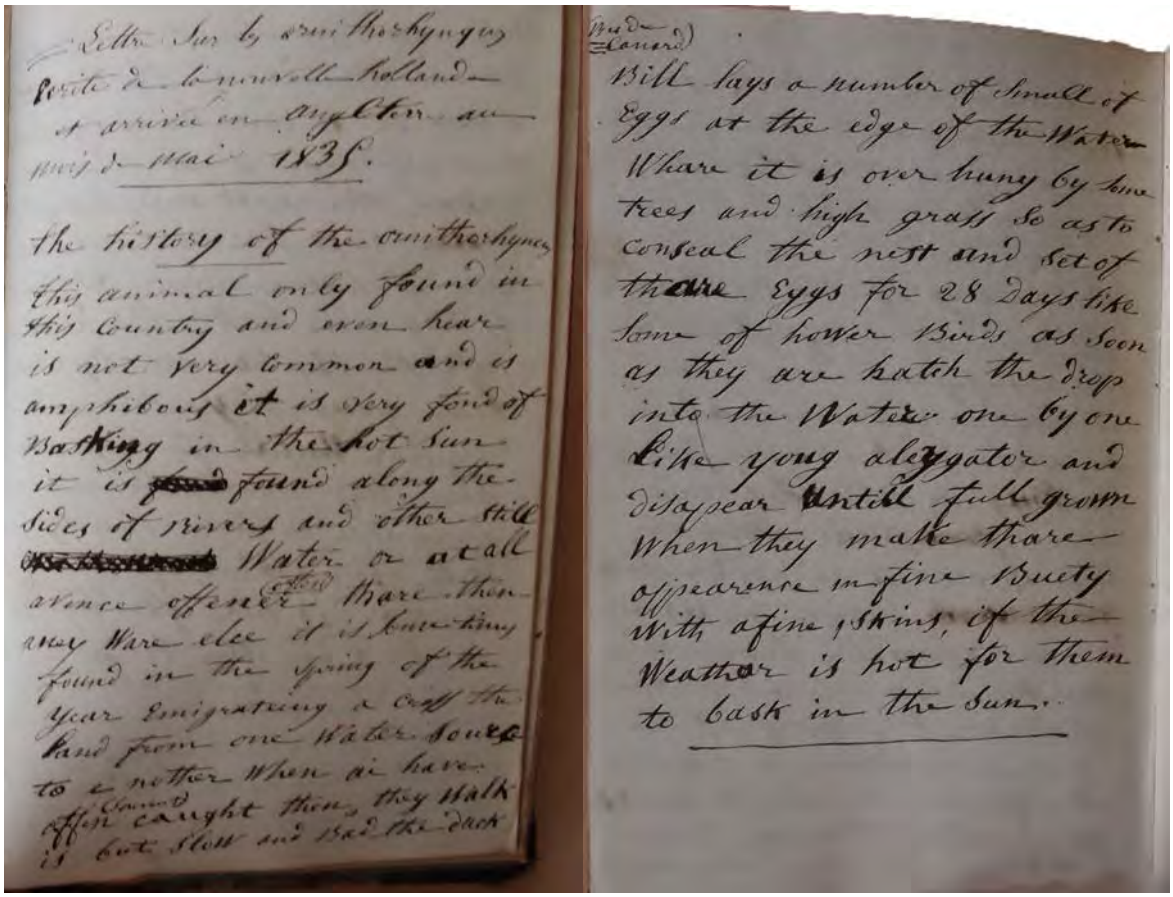
[35] CCEC - DP-J "Notes Mammifères", [Jourdan's notebook], undated.
[36] Ibid.
[37] *Dr. John Edward Gray, F.R.S.* (London: Watson and Hazell, 1875), https://biodiversitylibrary.org/page/41320804.
[38] The key source about this encounter is: CCEC - DP-J "Notes Mammifères", [Jourdan's notebook], undated.

Lettre sur les ornithorhynques écrite de la Nouvelle Hollande et arrivée en Angleterre au mois de mai 1835.
The history of the ornithoryncus. This animal only found in this country and even here is not very common and is amphibous [sic]. It is very fond of basking in the hot sun. It is found along the sides of rivers and other stillwater or at all [at once] offener [sic] (often) there then anywhere else. It is something found in the spring of the year emigrating across the land from one water source to another. I have offen [sic] (souvent) caught [them]. Their walk is but slow and bad. The duckbill (bec du canard) lays a number of small of eggs at the edge of the water where it is overhung by some trees and high grass so as to conceal the nest and set of their eggs for 28 days like some hower birds [sic]. As soon as they are hatch they drop into the water one by one like young alligators and disappear until fully grown, when they make their appearance in fine beauty with a fine skin if the weather is hot for them to bask in the sun.

Figure 38 - Transcription of the "History of the ornithoryncus". CCEC

Scattered in bits and pieces across the pages of the notebook, sometimes literally following Jourdan's stream of consciousness, his reflections echoed the contemporary debates on taxonomy and mystifying species like the platypus (Figures39 and 39).[39] The notes also follow the spatial displacement of Jourdan to other sites, like the Garden of the Zoological Society, or later in his trip, to the Jardin du Roi in Paris.[40] When inside a collection, the notes might have appeared structureless, but they reflected Jourdan's eyes wandering over the specimens and quick references stacking up on the page as he proceeded through his visit.[41] Room was also made for theoretical references, and especially for copies of excerpts of texts on new species: a text on the new Northern African animals, for example, or on specific cases such as the solenodon

[39] CCEC - DP-J "Notes Mammifères". On pre-evolutionary natural sciences, see Pietro Corsi, *The Age of Lamarck: Evolutionary Theories in France, 1790-1830* (Berkeley: University of California Press, 1988).
[40] Edward T. Bennett, *Gardens and Menagerie of the Zoological Society. Vol. 1, Quadrupeds. The Gardens and Menagerie of the Zoological Society Delineated, Being Descriptions and Figures in Illustration of the Natural History of the Living Animals in the Society's Collection.* (Chiswick; London; London Picadilly: C. Whittingham; Ch. T. Tegg; N. Hailes, 1830), http://lhldigital.lindahall.org/cdm/ref/collection/nat_hist/id/44311; Edward T. Bennett, *Gardens and Menagerie of the Zoological Society. Vol. 2, Birds. The Gardens and Menagerie of the Zoological Society Delineated, Being Descriptions and Figures in Illustration of the Natural History of the Living Animals in the Society's Collection. Vol. 2, Birds* (Chiswick; London; London Picadilly: C. Whittingham; Ch. T. Tegg; N. Hailes, 1830), http://lhldigital.lindahall.org/cdm/ref/collection/nat_hist/id/44656.
[41] CCEC - DP-J "Notes Mammifères".



Lettre sur les ornithorhynques
écrite de la nouvelle hollande
et arrivée en angleterre au
mois de mai 1835.

the history of the ornithorhyncus
this animal only found in
this country and even hear
is not very common and is
amphibous it is very fond of
Basking in the hot sun
it is found along the
sides of rivers and other still
Water or at all
avence offener (often) thare then
any Ware else it is sometimes
found in the spring of the
year Emigrateing a cross the
land from one Water source
to a nother when ai have
offen (sometimes) caught then, they Walk
is but slow and Bad the duck

(Bill de Canard)
Bill lays a number of small of
Eggs at the edge of the Water
Whare it is over huny by some
trees and high grass so as to
conseal the nest and set of
thare Eggs for 28 days like
some of hower Birds as soon
as they are hatch the drop
into the Water one by one
Like young aleygator and
disapear untill full grown
When they make thare
appearence in fine Buety
with a fine skins, if the
Weather is hot for them
to bask in the sun.

Figure 39 - "The history of the ornithorhyncus". Notebook of Jourdan. CCEC

or on the platypus. It is worth pointing to Jourdan's linguistic competence, since he could at least read and write Latin as well as English.

Travelling to London met several goals of reinforcing Jourdan's social and scholarly capital. In physically going there, Jourdan could create interpersonal relations which he could then use back in Lyon as a token of merit and recognition. It did not require much follow-up: it is unlikely that Jourdan and Mr. Gray kept writing to one another. Still, the physical and emotional confrontation of Jourdan with the materiality of the British Museum's collection contributed to constructing his credibility and influence back in Lyon, through contact with London's position of authority.

The result of Jourdan's visit can be assessed in more pragmatic terms: it was only one step in an enquiry which overarched several fields and several types of skills. It was certainly also not an end in itself. Jourdan's notebook was finished with a list of "notes on works". Rather than being comments on other's work, this list points to questions which Jourdan raised during his confrontation with the visited collections and the specimens and species they contained. Practically, next to the names of species

which prompted new questions, Jourdan elaborated a 'to-do' list of his own, with brief questions on species (Is it new? Is it a different one?), with opinions or information to gather from specialists, possibly via an identified intermediary, with reminders to study that specimen *again* to compare it with the new data. Travelling, displacing oneself physically through space, generated a scansion in the scientific and symbolic sphere, but it represented in fact just one stage in a continuum of layered enquiries.[42]

The trip to Liverpool left a somewhat more elusive impression. In 1835, Jourdan hardly even wrote about the 'little museum in Liverpool'.[43] Not that there were many options for a naturalist of collections to visit. A relatively sizeable collection was kept by the Royal Institution, a school for boys, which drew from the collections of William Roscoe. And this must have been indeed a small museum, given its architectural dimensions in comparison with the Palais Saint-Pierre galleries in Lyon. Another opportunity may have been a visit to the zoological exhibits and menagerie of the 13th Earl of Derby, located outside of Liverpool, in Knowsley. The Earl of Derby was an active member of the Zoological Society in London, and Jourdan may have benefitted from exchanged recommendations between Mr. Gray and the Liverpool zoologist.[44]

Besides scholarly encounters and collection visits, the announced and emphasised purpose of travelling to England was to make acquisitions of specimens. Liverpool had become an important deep-sea port, and Jourdan had targeted the port in order to lay hands on first-hand and therefore affordable objects, which would be freshly disembarked from the ship. Whether he did visit the docks to get hold of such or such a specimen is uncertain, but crossing the Channel was the opportunity for bargains and easier supply of species coming from New Holland, for instance. However, if purchases were made in Liverpool, no receipts were kept. In the museum records, no specific group of objects was identified as originating from Liverpool.[45]

Was the argument of affordability just a rhetorical means to respond to the municipality's sense of parsimony? While Jourdan returned empty-handed from Liverpool, just over 1,500 francs was spent on purchases from three naturalist dealers in London: Ward, Atkins and Tucker.[46] The totality of the granted funds were spent

[42] CCEC - DP-J, "Notes Mammifères", [Jourdan's notes in London], undated.
[43] Ibid.
[44] On the Liverpool nineteenth-century collections, see E. F. Greenwood, 'A History of Liverpool Natural History Collections', *Journal of the Society for the Bibliography of Natural History* 9, no. 4 (1980): 375–82, https://doi.org/10.3366/jsbnh.1980.9.4.375.
[45] AML - 78WP017, "Relevé des factures des objets d'histoire naturelle achetés par Mr. Jourdan à Londres, à Paris, à Marseille et à Lyon", n.d [1835?]
[46] On the Ward family see: Christine E. Jackson, 'The Ward Family of Taxidermists', *Archives of Natural History* 45, no. 1 (2018): 1–13, https://doi.org/10.3366/anh.2018.0478; Kayla Kreuger McKinney, 'Life and Death Writing: Rowland Ward and the Literature of Taxidermy', *The Victorian* 3, no. 2 (8 May 2015): 1–21. On merchant naturalists in general, see Diarmid A Finnegan, 'Webs of Science, Webs of Commerce: The Life-Worlds of a Merchant Naturalist', in *Spaces of Global Knowledge: Exhibition, Encounter and Exchange in an Age of Empire*, ed. Jonathan Jeffrey Wright and Diarmid A. Finnegan (Aldershot; Burlington (VT): Ashgate, 2015), 57–77.

on zoological pieces, with an emphasis on birds and mammals from New Holland and America in the cases where origin had been specified. Jourdan certainly did want to establish a direct source of supply, and for that purpose he was in contact with numerous renowned naturalist merchants, like Krantz in Berlin, Danhauser in Saint-Germain, Zahnd in Berne, and Perrot and Verreaux, amongst others, in Paris.[47] Of course Jourdan was keen to not always come second in the distribution of natural history objects: in the early 1830s, it had just happened that Lyon was only left with the sale of the doubles from the Gillet de Laumont collection. The key pieces were *de facto* attributed to the National Natural History Museum by a parliamentary commission. And this result was still unusually fortunate, benefitting from the fact that Prunelle, the former mayor of Lyon and mentor of Jourdan, sat on that commission and advocated a privileged contribution to the Lyon collections.[48]

B. The necessity of the Parisian stop-over: opportunities and complementarity

a. Parisian shops and dealers of nature

The frequency with which Jourdan used to pay a visit to the French capital city is not comparable to other naturalists of Nantes and Toulouse. Long-distance correspondence was at the heart of the relations between *Toulousains* and *Nantais* naturalists. Cailliaud, in Nantes, did hypothetically go to Paris after his appointment in 1836, but he was most certainly self-funded since evidence for public support is lacking. Formerly a resident of Paris who had gained public attention from his travels to Egypt, he had notably stayed under the protection of Jomard.[49] He kept trying to establish or develop contacts with the Paris Museum and therefore found himself in Rue de Sèvres in 1826.[50] Contacts between Cailliaud and Paris were, however, mainly epistolary and by all means limited after 1826 and his appointment as assistant at the museum. Jourdan's presence in Parisian naturalists' correspondence is scarcer. But he

[47] CCEC, JE, "Journal d'entrées", [Remittance slip emitted for a purchase at Krantz's], May 1849, n.l. [document inserted between fo. 15-16]; AML - 78WP017, Bill of purchase, emitted by Danhauser, 21 April 1837; CCEC, JE, "Journal d'entrée", [Remittance slip emitted for a purchase at Zahnd's], December 1857, n.l. [document inserted between p. 27 and 28]; AML - 78WP017, bills of purchase emitted by Perrot, 27 June 1834 and30 August 1834; bills of purchase emitted by Verreaux, 12 June 1834, 18 August 1834 and 26 August 1834.

[48] AML - 78WP017, extract from the minutes of the Municipal Council, 16 July 1835.

[49] Invitations for country parties reached Cailliaud at Jomard's residence, where they were addressed: MHNN - Cailliaud 10, Folder "1819", the Minister of the Interior to Cailliaud, 22 July 1819.

[50] MNHN – Ms 2735, it. 44, Cailliaud to E. Geoffroy Saint-Hilaire, 4 February 1826. The note was sent from "8 rue de Sèvres", presumably in Paris.

did travel to Paris on a regular basis from 1855 onwards. In similar ways to Cailliaud, he must have paid for earlier trips from his own pocket before the 1840s at least.

The link established between Paris and Lyon, by means of the mediation and physical mobility of Jourdan, was underpinned by one motive in particular: the building of the Lyon natural history collection. This had however been made possible by the initial recognition of Jourdan's expertise as a zoologist, after he had authored and presented his research on reptiles in the early 1830s and received a good reception.[51] Travelling to Paris did not result from a blind attraction to the capital city, but from the opportunity to access and make good use of the scientific and commercial resources in high concentration there.

The development of rail connections between Paris and Lyon did not fail to provide useful infrastructure for regular visits - a priority connection Toulouse or Nantes did not benefit from so early on. While it was possible to take the train as early as 1849 from Chalon-sur-Saone (ca. 130 km upstream of the Saone confluence with the Rhone), passenger travel was opened in 1855, making Paris a stone's throw away from Lyon. As a consequence, this is when the repeated visits started. They could be combinations with stops on the way, like in Dijon and Autun in 1856.[52] or in the Allier *département* in 1859.[53] In this case they were trips which were approximate twenty days long. Otherwise, staying in Paris could be for around a week or even two, but also just a very short stopover of a couple of days or one day alone.[54]

Details were not recorded, but Jourdan strolled in those streets of Paris where naturalist merchants could be found, especially in the hope of making an interesting find or deal. The Rue de l'Ecole-de-Médecine offered plenty of opportunities to initiate or sustain useful connections. Vasseur, who was renowned for his craft in wax models for anatomy, was for instance visited in 1867.[55] The shop was located at n°9

[51] Etienne Geoffroy Saint-Hilaire, 'Rapport sur une communication faite à l'Académie des Sciences, par le directeur du musée d'histoire naturelle de Lyon, M. Jourdan, concernant une modification extraordinaire des vertèbres antérieures chez le *coluber scaber*, l'allongement et l'entrée dans l'œsophage de leurs apophyses inférieures, et la transformation de ces osselets en un tissu dense, émailleux, et d'un usage dentaire.', in *Etudes progressives d'un naturalistes, pendant les années 1834-1835* (Paris: Roret, 1835), 67–80, https://gallica.bnf.fr/ark:/12148/bpt6k1513781f/f95.image.

[52] CCEC – JE, "Journal d'entrées", p. 20, entry n° 36, 2 August 1856 (T_1856_06). Note: the dates indicate the date of registration in the *journal*. Every trip has been identified with a code used as a short reference. For detail about each trip, Appendix H: Overview of Jourdan's scientific trips, p. 445.

[53] CCEC – JE, "Journal d'entrées", p. 64, entry n° 93, 20 June 1859 (T_1859_02).

[54] Jourdan spent 9 days in Paris in 1857 (T_1857_02), 14 days in 1860 (T_1860_04), 4 days in 1861 (T_1861_12), 18 days in 1862 (T_1861_20), 7 days in 1863 (T_1863_01), 8 days in 1867 (T_1867_01). CCEC – JE, "Journal d'entrées", p. 25, entry n° 48, 22 September 1857; p. 88-89, entry n° 137, 30 August 1860; p. 105, entry n° 170, 22 August 1861; p. 111-112, entry n° 183, 8 February 1862; p. 135, entry n° 217, 4 May 1863; p. 325-336, entry n°372, 31 December 1867.

[55] CCEC – JE, "Journal d'entrées", [inserted between p. 219 and 220], remittance slip for the payment of Vasseur. About his anatomical wax models see Paul Jules Tillaux, 'Modèles d'anatomie', in *Exposition universelle de 1867 à Paris. Rapports du jury international, publiés sous la direction de M. Michel Chevalier. Appareils orthopédiques, prothèse*

and supplied models for the Faculty of Medicine sited at n°12, which itself hosted a visitable cabinet of anatomy. And the visits could be prolonged with a stop at the collection of pathological anatomy of the Musée Dupuytren at n°15 in the same street.[56]

Jourdan was in contact with most of the important names of natural preparation in Paris. Contacts with some dealers were evident already in 1846 and 1850.[57] Records show exchanges with Danhauser, Eloffe, Guérin, Révil, Parzudaki, Perrot, Saemann, Vasseur, Verreaux, with an intensity that was rather sporadic - although Verreaux was a recurring supplier until 1870 at least. Naturalist businesses counted up to 28 entries in the 1854 directory and showed a slight increase to 34 ten years later, in 1864. This does not count the opening of branches like for the Maison Révil, which was founded in 1840 and by 1864 had two shops in Rue Saint-Guillaume and Rue Saint-Dominique which were both a hop away from the Rue de l'Ecole-de-Médecine. Another branch was opened in Lyon, in Rue de Pierre-Scize, half a kilometre away from Place des Terreaux and Palais Saint-Pierre.

It was not uncommon for a trip to a place to lead to an important delivery of boxes, after they had made their way to the museum. Delivery could sometimes take over a year. Such transactions were for instance made in Berne on the occasion of a visit which materialised in the museum register and display some time later.[58] A noticeable order was registered on May 9, 1867 at the Lyon museum. Jourdan had not been to Paris since 1864, according to the official record, but this does not mean that the sale had not been settled on that earlier occasion. More interesting is the fact that the record mentioned Révil as the seller, but the preserved cheque inserted in the *journal* at that page and bearing the exact same amount, shows the names of three other naturalists: Vasseur, Eloffe and Guérin.[59] Vasseur's deal was the largest, with a sale adding up to 350 francs. Guérin and Eloffe's company names were squeezed in on the paper, as an addendum for future reference. However, this confirms that the contacts and trust established between Parisian naturalist houses and Jourdan was well ingrained, especially since Jourdan personally visited the collections. Additionally, it

chirurgicale, bandages, secours aux blessés, modèles d'anatomie (Paris: Imprimerie et libraire administratives de Paul Dupont, 1867), 19–24, https://gallica.bnf.fr/ark:/12148/bpt6k58093319/f24.image.

[56] *Annuaire général du commerce, de l'industrie, de la magistrature et de l'administration : ou almanach des 500 000 adresses de Paris, des départements et des pays étrangers* (Société des annuaires, Firmin-Didot frères, 1854), 52, https://gallica.bnf.fr/ark:/12148/bpt6k6319811j.

[57] CCEC – JE, "Journal d'entrées", 21 January 1846, purchase from Danhauser; 25 April 1850, purchase from Madame Eloffe.

[58] On 30 September, Jourdan and his travelling companion stopped in Berne and visited the workshop of Zahnd, preparator at the Berne museum. The specimens ordered then were effectively delivered in early January of 1858. CCEC – JE, "Journal d'entrées", p. 26-27, entry n° 49, 22 December 1857 (T_1857_05); p. 28, entry n° 50, 3 January 1858.

[59] CCEC – JE, "Journal d'entrées", [inserted between p. 219 and 220], remittance slip for the payment of Vasseur.

appears that Maison Révil in fact developed as an intermediary for Parisian naturalist dealers in Lyon, where the web of naturalists was somewhat scarce.[60] The collections and objects, but also the skill in specimen and mount preparation of Maison Révil were very useful to Jourdan, who entrusted some of the preparation duties to them, in addition to the presence of an assistant keeper at the museum. This transaction between Révil and the Lyon museum illuminates part of the nature of the relations between Paris and Lyon in the field of natural history: there was complementarity and opportunities. And the presence of Révil in Lyon somehow transported the Parisian resources to Lyon, or at least, opened a sort of lobby for direct access to them. The operation mirrored the dynamism of the economics of natural history in Lyon, which the museum maintained, and therefore consolidated Paris/Lyon relations. More importantly, the Parisian commercial and supplying network Jourdan created around the museum point to him as the key to the value and meaning of the objects purchased and collated.

b. Sociabilities of silent conversations

Arriving from Lyon made it actually quite convenient, from the *Embarcadère* (later Austerlitz station) right next to the Salpétrière Hospital,[61] to access the western part of the left bank of Paris, which saw a convergence of high-profile Parisian scholarly institutions like the Faculty of Medicine, the Faculty of Sciences (in La Sorbonne) and the National Natural History Museum with the Jardin des Plantes. In 1863, Jourdan came back from Paris with boxes of fossils. The register read:

> "Travel to Paris for a comparative study of the fossils of ancient terrains of the Rhone basin with those in the great collections of the capital city:
> April 7: half a first-class seat, omnibus, transport of personal effects, and overweight fee - ff. 33.10
> April 8: coach fare, transport of box of fossils - ff. 7.80
> April 11: transport of box of our fossils from the Faculty of Science to the hotel - ff 2.5
> Coach fare - ff.5.20
> April 13: half a first-class seat for Lyon, transport of box of fossils and extra fee - ff. 32.80"[62]

[60] No naturalist could be retrieved in the Lyon *Indicateur* of 1860-61, aside from Vaganay, a seller of curiosities Jourdan used to call on. Lafont could not be retrieved, nor was Révil (but the latter maybe opened his Lyon business after 1860). Émile Lorin, *1860-61. Indicateur de Lyon: contenant le commerce, l'industrie, la magistrature et l'administration de l'agglomération lyonnaise* (Lyon: L'Éditeur; Veuve Mougin-Rusand, 1860), https://numelyo.bm-lyon.fr/view.php?pid=BML:BML_00GOO0100137001102026650.

[61] *Paris et ses 20 arrondissements en 1860* (Paris: A. Bernard, 1859), https://gallica.bnf.fr/ark:/12148/btv1b53085510q.

[62] Original text: "Voyage à Paris pour une étude comparative des fossiles des terrains anciens, du Bassin du Rhône avec ceux des grandes collections de la Capitale.
Le 7 avril, une demi place première classe, omnibus, port d'effets et supplément de poids — ff. 33.10
Le 8 avril, course en voiture et port de la caisse de fossiles — ff. 7.80
Le 11 avril, port de la caisse de nos fossiles de la Faculté des Sciences à l'hôtel — ff. 2.50
Courses en voiture — ff. 5.20

In spite of the elliptical style of the administrative record, this trip to Paris can still be made sense of. Jourdan set off for a seven-day trip to Paris in early April 1863. He travelled alone, by train, for which he was charged for carrying weight exceeding the limit. Given that he then visited some of the Parisian collections - of which only the one of the Faculty of Science is explicitly referred to - he must have brought with him a set of doubles or casts to serve as exchanging value since there was no actual payment made and yet he returned with a box of fossils.

The umbrella explanation of travelling to increase the collections generated a sizeable space for different types of operations. Trading fossils against other fossils was one of them. Visiting collections for comparing pieces was another important activity. In reality, the acquisition of pieces was framed more often than not in a comparative approach. Comparison with other objects bearing knowledge or evidencing gaps in it was important and more than just a rhetorical way to unlock funding.[63] It was even necessary, judging from the number of trip occurrences to Paris openly motivated by "comparisons", namely seven between 1857 and 1867. By all accounts, it appears that the visits to the Paris collections were organised after a certain quantity or type of objects was amassed, that is, during the work of identification. For instance, in May 1857, Jourdan stayed for nine days in Paris for the purpose of "comparing and determining the principal fossilised mammals discovered in the Rhone river basin with those held in the Paris collections".[64] This visit was the first after the extra funding for researching the geology of the Rhone Valley had started in around 1858.[65] A similar occasion arose during a series of excavations conducted in La Grive-Saint-Alban, just outside of Lyon, where important fossil deposits were identified in 1861. The exploitation of a quarry had led to the discovery of an outcropping of the fossilised remains of vertebrates; Jourdan had initiated a study of the fossils, and it had been his main focal point for field work in that year of 1861.[66] He therefore also organised two trips that year to Paris, in May and July, both with the intention of identifying and illuminating the discoveries he had made with his team of workers and assistants.[67]

Le 13 avril, une demie place de première pour Lyon, port de caisse de fossiles et supplément de port –ff. 2.80.": CCEC - JE, "Journal d'entrées", p. 153, entry n° 217, 4 May 1863

[63] See Chapter 2, 3, C, c. The reports on the exploration of the Rhone: strategies to overcome clashing categories, p. 175.

[64] Original text: "Voyage d'étude avec aide pour comparaisons et déterminations des principaux mammifères fossiles, trouvés dans le Bassin du Rhône avec ceux que renferment les collections de Paris": CCEC - JE, "Journal d'entrées", p. 25, entry n° 48 (T_1857_02).

[65] ADR - 3N33, "Budget départemental, 1859".

[66] Charles Depéret, 'Nouvelles découvertes paléontologiques à la Grive-Saint-Alban (Isère)', *Publications de la Société Linnéenne de Lyon* 10, no. 1 (1891): 19–21, https://doi.org/10.3406/linly.1891.16672.

[67] Original text: "Recueillir tous les restes découverts successivement dans l'argile ferrugineuse qui remplit les fentes des carrières oolithiques de la Grive-SaintAlban près Bourgoin. Ces restes fossiles ont fourni au Muséum, les représentants d'environ trente genres de mammifères." CCEC – JE, "Journal d'entrées", p. 99-100, entry n° 158, 2 May 1861(T_1861_03); p. 105, entry n° 170, 22 August 1861 (T_1861_12).

The second was carried out with the intention of "comparing the numerous fossils gathered in La Croix-Rousse and La Grive-Saint-Alban with those from the slopes of the Pyrenees brought to Paris by Monsieur Lartet and those brought from Pikemi near Athens by Monsieur Gaudry".[68] This is the nearest Jourdan ever came close to being specific about his visiting plans.

Did Jourdan actually meet with Lartet? Did they exchange views over his addition to the palaeontological collection? It was no habit of Jourdan to indicate the names of the persons by whom he was being received in the various places he visited. His trips were characterised by a general elusiveness on the sociabilities involved. For instance, it is nearly a certainty that he met with Delafosse, the Professor of Mineralogy at the Faculty of Science, who was also in charge of the Mineralogy collection, and with whom Jourdan must have been acquainted in order to carry out the negotiations. For visiting the collections and identifying species, he needed to speak in person with other naturalists, as evidenced by the encounter with Mr. Gray in London.[69] Silence on these matters are not signs of the absence of communication. The very fact that he knew about the Lartet contribution demonstrates Jourdan's level of connection to Paris, which was a hub in the circulation of scientific information. Ultimately, the comings and goings to and from Paris of Jourdan point to it as an important nerve centre, because the centralising force acted as a magnet even on regional collections, such as that of Lartet. Jourdan, though, did not content himself with the objects brought to Paris. His reading and interpretation of the collections hinged on actual on-site visits. In the case of the Pyrenees, he had conducted twenty-three days' field work in the Garonne basin in the spring of 1859, and his practical knowledge of the region was at least complementary to his cabinet work in the Parisian collections, if not a primary requirement.[70]

Jourdan did not publish substantially, and his public contributions were limited to his activities in mostly local learned societies. But his regular travels to Paris, every year and a half on average, were evidence of his good integration into or good level of access to information circulation, because he was indeed well-informed. In spite of lacking publications, Jourdan proved to have been well-introduced in mid-nineteenth-century circles of natural history, or at least he knew his way around in order to access

[68] Original text: "Comparer les nombreux fossiles recueillis à la Croix-Rousse et à La Grive-Saint Alban avec ceux des flancs des Pyrénées apportés à Paris par Mr Lartet et ceux rapportés de Pikemi près d'Athènes par M. Gaudry.": CCEC – JE, "Journal d'entrées", p. 105, entry n° 170, 22 August 1861 (T_1861_12).
[69] See above A. London and Liverpool: a story of alterity and opportunities, p. 255.
[70] On the trip in the Garonne valley: CCEC – JE, "Journal d'entrées", p. 61, entry n° 89, 16 June 1859.

what he needed.[71] Silenced interpersonal relations were also moments in which he could gather attention and build on his worthiness and reputation as a naturalist.[72]

c. Studying Paris

Paris was not only a valued place for collections and cabinet science, it was also studied per se and the central place of the Bassin Parisien, which had been invented as a defining place of geological knowledge after the work of Cuvier and Brongniart published in the first decades of the century.[73] On several occasions, Jourdan also came to the Parisian region for field work, this was also made possible by closer time-distance. A fellow traveller, usually Perret, his main assistant, would accompany his explorations of the immediate surroundings of Paris. The pace was sustained: in the span of the fifteen days from 4 April to 18 April 1860, the two travellers rambled to "Fontainebleau for the sandstones, to Melun for the gritstones, to Montereau for the limestones and lower clays, (…)" following the line of the Seine riverbed upstream and through the Fontainebleau forest, and extending over a good forty-kilometre distance. Another stopover was made around the site of Meudon and Grignon, which were serviced by rail, and eventually several trips were organised to Montmartre, Auteuil, Marly, Passy, Saint-Germain and Beauchamps.[74] Those locations were known for containing fossils, but they could also provide useful comparative points, which were in fact already highlighted by published scholarship. Elie de Beaumont's *Système des Montagnes* may have suggested points of converging interest for the Lyon geologist.[75]

The many occasions on which Jourdan visited Paris were as many opportunities to become very well acquainted with the many actors and locales of Parisian natural history. High-profile institutions, commanding administrations, and the swarming society of naturalists made Paris a central place for the history of science. In his use of the spaces of Parisian natural history, Jourdan did somehow embrace and possibly

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[71] On the publishing strategy of Jourdan, see Chapter 5, 4, B, b. Jourdan's *sonderweg* or the failed publication, p. 398.

[72] Corsi, *Fossils and Reputations*.

[73] Georges Cuvier and Alexandre Brongniart, *Essai sur la géographie minéralogique des environs de Paris: avec une carte géognostique, et des coupes de terrain* (s. l., 1810); Van Damme, *Métropoles de papier*, 35–47; Stéphane Van Damme, 'At the Borders of the Metropolis: Writing the Natural History of Paris in the Eighteenth Century', *Natural History in Early Modern France*, 2018, 161–79, https://doi.org/10.1163/9789004375703_009.

[74] Original text: "Trois avril, mardi soir pour Paris et retour le mercredi 18 du même mois. Séjour à Paris en environs, 15 jours. Aller et retour deux places secondes, omnibus et voiture — ff. 176.10
Course à Fontainbleau pour les grès; à Melun pour les Meulières; à Montereau pour les calcaires et argiles inférieurs. Aller et retour. omnibus — ff. 29.50
Course à Montmartre pour les gypses; aux environs de Chaumont, de Meudon, de Grignon pour les calcaires grossiers et la craie. Frais de chemin de fer et voiture — ff. 18.25
Plusieurs courses à Auteuil, Marly, Passy, St Germain pour les argiles, les grès de Beauchamps etc….": CCEC – JE, "Journal d'entrées", p. 88-89, entry n° 137, 30 August 1860 (T_1860_4).

[75] Léonce Élie de Beaumont, *Notice sur les systèmes de montagnes*, 3 vols (Paris: P. Bertrand, 1852), http://gallica.bnf.fr/ark:/12148/bpt6k6303315b.

willingly acknowledge the superior levels of opportunities there for a scholar. But there was possibly a more utilitarian dimension to it, complementing a claim for recognition from 'the capital city'. And chronology is important too: it is noticeable that the recurring trips started with the rail connection for passengers. Paris may well have been a centre of calculation, but without effective ways of accessing it *from the outside*, its influence was still limited. What all this meant in practice for the *Lyonnais* Jourdan was that the convergence of the acceleration of transport connections to Paris with the concentration of resources there was also advantageous to him, both in his practice of museum directorship and his very objectives as such, in Lyon.

The case of Lyon, in reality, did differ from other provincial cities because the *esprit lyonnais* somehow embraced competition with Paris, and in doing so wished to reshuffle the cards of hierarchy. This was carried out especially through the elaboration of a discourse which voiced a pretension if not to equal the power and influence of Paris, then to secure its role as "second largest city of France". And this was done by ducking out of the competition and by presenting Lyon as *another* model.[76] The ample economic resources of the city bounced back onto the museum, allowing it to benefit from large funding opportunities and political support in establishing the importance of the city.

C. Unearthing Rome

Next to London and Paris, Rome was another key urban centre destination for Jourdan and a companion, in 1866. This was a fairly belated trip, which took place in the closing years of Jourdan's directorship, and after well over ten years of rambling to hundreds of locations and adding thousands of new pieces to the Lyon museum collections. However, except for a list of locations and expenditures (Figure 40 and Figure 41), this very long trip, with regards to the average stay, is hardly documented.[77]

a. A geology of the interstices

On 20 March 1866, Jourdan and a companion set off for the south of France, by train to Marseille, then by coach to Nice, where a boat was going to take them to Livorno via Genoa. The journey was dotted with some stops on the way (namely Montalto, Torneto, Nunziatella and Civitavecchia) and after five full days of

[76] Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale*.
[77] CCEC - JE, "Journal d'entrées", p. 189-190, entry n° 304, 12 May 1866 (T_1866_01); DP-J, "Journal de Jourdan", p. 125-126 "À M. le Frère Indes à Rome. Annonce de l'envoi d'une caisse de fossiles et de moulages en échange".

laboriously hauling themselves from stop to stop, they reached Rome, where they started to work. They were going to stay there from 25 March to 26 April 1866. Right upon arrival, exploration of the city resources began, with a stop at La Sapienza collections. This being done, the two travellers commenced their geological wanderings in various locations of the city and the surrounding area. The journey back took them to Trasimeno Lake and to Florence, Siena and Valdarno before they took the train back to Florence. This is the longest trip undertaken by Jourdan, although it represented a lesser expenditure of ca. 1,200 francs, purchases included.

Rome did not possess exceptional quality for its scientific collections, especially those of interest to Jourdan. In 1842, another Lyonnais traveller and French *député* of the Rhône *département* was but mildly enthusiastic about the small botanical garden of La Sapienza, which in his opinion grew too few exotic species, partly owing to finances failing its director.[78] The author's comments were hardly more enthusiastic about the various cabinets of scientific collections, although there was hope that the Leo XII bull of education would trigger improvement.[79] The Museum of Mineralogy was one of the first collections created by Leo XII which was enriched until the 1860s through a strategy of exchanges with European museums, conducted by the two successive keepers, Gismondi and then Pietro Carpi. By the late 1850s, the museum occupied five rooms in the Palazzo della Sapienza.[80] A professor of Mineralogy before, Ponzi became the keeper of the Museum of Mineralogy in 1864, which he split into two entities: a Museum of Mineralogy and a Cabinet of Geology. The latter received all his attention and the mineralogy collections were in fact plundered to enrich the geology galleries. A Cabinet of Zoology and Comparative Anatomy was instituted only after Jourdan's visit.[81] In addition to these flagship collections, under control of the pontifical power, the landscape of Roman collections and collecting was rather discretely scattered among private homes in the form of some particular collections. Jesuit friar Frère Indes would be one of those collectors and local correspondent savants contacted for guidance and the settlement of future exchanges.[82]

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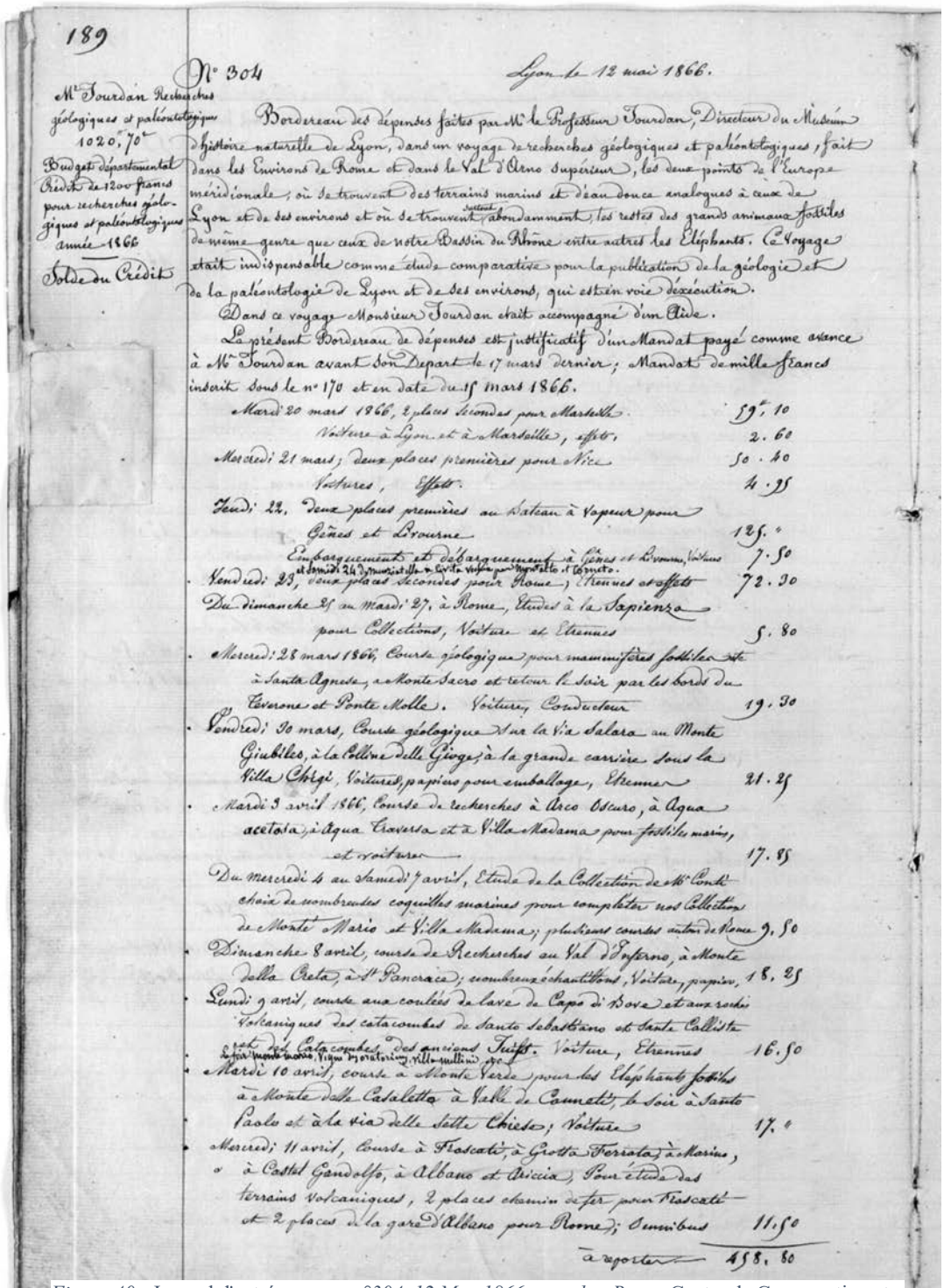
[78] Jean Claude Fulchiron, *Voyage dans l'Italie Méridionale. Les Etats Romains en 1841*, vol. 3, 6 vols (Paris: Pillet aîné [puis] Firmin Didot frères, fils, 1843), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO010013700110113044 6#. The Main Curator of the special collections of BML kindly verified the original catalogue of the former collection of the Palais des Arts and confirmed that the volume had been on the shelves of the municipal library in 1864 at the latest. Another exemplary from Fonds Coste had been acquired by the municipal library in 1855. A third example was perhaps purchased in the 1840s already. The municipal library was split in two sites: Palais Saint-Pierre and the Collège Royal shared the accommodation of the collections.

[79] Ibid., 3:263.

[80] Marcello Barbanera and Ignazio Venafro, eds., *I musei dell'università 'La Sapienza'* (Roma: Istituto poligrafico e zecca dello Stato, 1993), 13–28.

[81] Ibid., 13–28; 29–42.

[82] Jourdan visited Frère Indes: CCEC – JE, "Journal d'entrées" [note inserted between p. 205 and 206] *Note des objets vendus à M. le Docteur Jourdan, Directeur du Museum de Lyon*, by Frère Indes, 10 December 1866. Dr. Bleicher's account for his geological trip in similar times to Jourdan reveals the social and spatial fabric of geological studies



189

N° 304 Lyon le 12 mai 1866.

Mr Jourdan Recherches géologiques et paléontologiques 1020f. 70c

Budget départemental Crédit de 1200 francs pour recherches géologiques et paléontologiques année 1866

Solde du Crédit

Bordereau des dépenses faites par Mr le Professeur Jourdan, Directeur du Muséum d'histoire naturelle de Lyon, dans un voyage de recherches géologiques et paléontologiques, fait dans les Environs de Rome et dans le Val d'Arno supérieur, les deux points de l'Europe méridionale, où se trouvent des terrains marins et d'eau douce analogues à ceux de Lyon et de ses environs et où se trouvent, sortent abondamment, les restes des grands animaux fossiles de même genre que ceux de notre Bassin du Rhône entre autres les Eléphants. Ce voyage était indispensable comme étude comparative pour la publication de la géologie et de la paléontologie de Lyon et de ses environs, qui est en voie d'exécution.

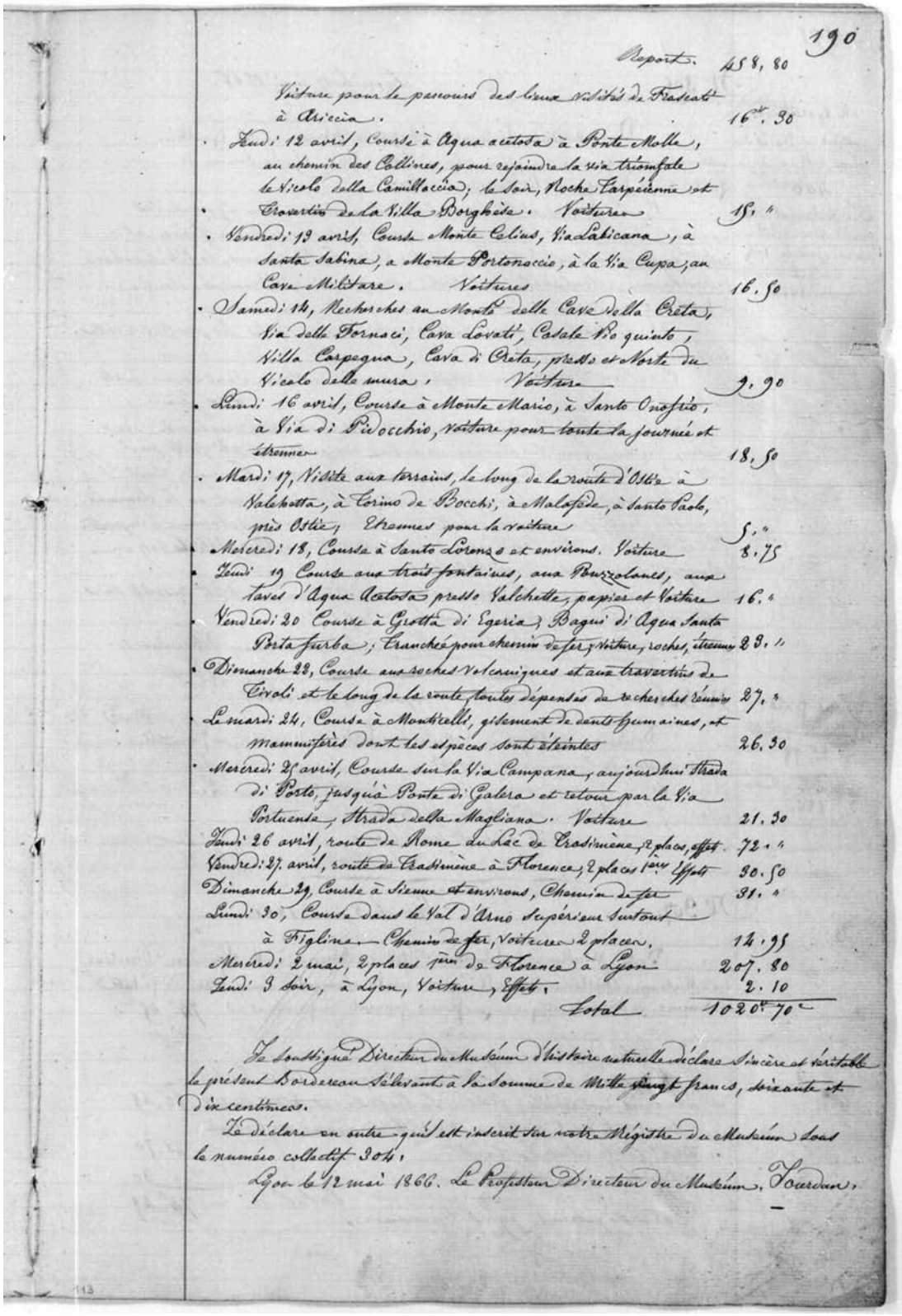
Dans ce voyage Monsieur Jourdan était accompagné d'un Aide.

Le présent Bordereau de dépenses est justificatif d'un Mandat payé comme avance à Mr Jourdan avant son Depart le 17 mars dernier; Mandat de mille francs inscrit sous le n° 170 et en date du 15 mars 1866.

Mardi 20 mars 1866, 2 places secondes pour Marseille.	59f. 10
Voiture à Lyon et à Marseille, effets,	2. 60
Mercredi 21 mars; deux places premières pour Nice	50. 40
Voitures, Effets.	4. 95
Jeudi 22, deux places premières au Bateau à Vapeur pour Gênes et Livourne	125. "
Embarquement et débarquement à Gênes et Livourne, Voitures et samedi 24 de Marsiglia a Civita Vecchia per Montalto et Corneto.	7. 50
Vendredi 23, deux places secondes pour Rome, Etrennes et effets	72. 30
Du dimanche 25 au Mardi 27, à Rome, Etudes à la Sapienza pour Collections, Voiture et Etrennes	5. 80
Mercredi 28 mars 1866, Course géologique pour mammifères fossiles etc à Santa Agnese, a Monte Sacro et retour le soir par les bords du Teverone et Ponte Molle. Voiture, Conducteur	19. 30
Vendredi 30 mars, Course géologique sur la Via Salara au Monte Giubileo, à la Colline delle Gioge, à la grande carrière sous la Villa Chigi, Voitures, papiers pour emballage, Etrennes	21. 25
Mardi 3 avril 1866, Course de recherches à Arco Oscuro, à Aqua acetosa, à Aqua Traversa et à Villa Madama pour fossiles marins, et voitures	17. 85
Du mercredi 4 au samedi 7 avril, Etude de la Collection de Mr Conti choix de nombreuses coquilles marines pour compléter nos Collections de Monte Mario et Villa Madama; plusieurs courses autour de Rome	9. 50
Dimanche 8 avril, course de Recherches au Val d'Inferno, à Monte della Creta, à St Pancrace; nombreux échantillons, Voiture, papier,	18. 25
Lundi 9 avril, course aux coulées de lave de Capo di Bove et aux roches volcaniques des catacombes de Santo Sebastiano et Santa Callista et des Catacombes des anciens Juifs. Voiture, Etrennes	16. 50
Mardi 10 avril, course à Monte Verde pour les Eléphants fossiles à Monte delle Casaletta à Valle de Cannetti, le soir à Santo Paolo et à la via delle Sette Chiese; Voiture	17. "
Mercredi 11 avril, Course à Frascati, à Grotta Ferrata, à Marino, à Castel Gandolfo, à Albano et Ariccia, Pour étude des terrains volcaniques, 2 places chemin de fer pour Frascati et 2 places de la gare d'Albano pour Rome; Omnibus	11. 50
à reporter	458. 80

Figure 40 - Journal d'entrées*, entry n°304, 12 May 1866: travel to Rome.* Centre de Conservation et d'Étude des Collections, Lyon.

in Rome: Mr. le Docteur Bleicher, 'Recherches géologiques faites dans la région de Rome', *Bulletin de la Société d'histoire naturelle de Colmar* 6–7 (1867): 65–99, plate. About mechanisms of the Roman savant sociabilities in comparison with other capital cities see Donato, Lilti, and Van Damme, 'La sociabilité culturelle des capitales à l'âge moderne: Paris, Londres, Rome (1650-1820)'.



190

Report. 458, 80

Voiture pour le parcours des lieux visités de Frascati à Aricia. 16f. 30

Jeudi 12 avril, Course à Agua acetosa à Ponte Molle, au chemin des Collines, pour rejoindre la via trionfale le Vicolo della Camillaccia, le soir, Roche Tarpéienne et Travertin de la Villa Borghese. Voitures 18. "

Vendredi 13 avril, Course Monte Celius, Via Labicana, à Santa Sabina, a Monte Portonaccio, à la Via Appa, au Cave Militare. Voitures 16. 50

Samedi 14, Recherches au Monte delle Cave della Creta, Via delle Fornaci, Cava Lovati, Casale Pio quinto, Villa Carpegna, Cava di Creta, presso et Porte du Vicolo delle mura. Voiture 9. 90

Lundi 16 avril, Course à Monte Mario, à Santo Onofrio, à Via di Pidocchio, voiture pour toute la journée et étrennes 18, 50

Mardi 17, Visite aux terrains, le long de la route d'Ostia à Valchetta, à Torino de Bocchi, à Malafede, à Santo Paolo, près Ostie, Etrennes pour la voiture 5. "

Mercredi 18, Course à Santo Lorenzo et environs. Voiture 8. 75

Jeudi 19 Course aux trois fontaines, aux Buzzolanes, aux Laves d'Agua Acetosa presso Valchetta, papier et Voiture 16. "

Vendredi 20 Course à Grotta di Egeria, Bagni di Agua Santa Porta furba; Tranchée pour chemin de fer, voiture, roches, étrennes 28. "

Dimanche 22, Course aux roches Volcaniques et aux travertins de Tivoli et le long de la route toutes dépenses de recherches réunies 27. "

Le mardi 24, Course à Montrelli, gisement de dents humaines, et mammifères dont les espèces sont éteintes 26. 30

Mercredi 25 avril, Course sur la Via Campana, aujourd'hui Strada di Porto, jusqu'à Ponte di Galera et retour par la Via Portuense, Strada della Magliana. Voiture 21. 30

Jeudi 26 avril, route de Rome du Lac de Trasimène, 2 places, effet. 72. "

Vendredi 27 avril, route de Trasimène à Florence, 2 places 1ère Effet 30. 50

Dimanche 29, Course à Sienne et environs, Chemin de fer 31. "

Lundi 30, Course dans le Val d'Arno supérieur surtout à Figline. Chemin de fer, Voitures 2 places. 14. 95

Mercredi 2 mai, 2 places 1ère de Florence à Lyon 207. 80

Jeudi 3 soir, à Lyon, Voiture, Effet. 2. 10

Total 1020f. 70c

Le soussigné Directeur du Muséum d'Histoire naturelle déclare sincère et véritable le présent Bordereau s'élevant à la somme de Mille vingt francs, soixante et dix centimes.

Je déclare en outre qu'il est inscrit sur notre Régistre du Muséum sous le numéro collectif 304.

Lyon le 12 mai 1866. Le Professeur Directeur du Muséum, Jourdan.

Figure 41 - Journal d'entrées, *entry n°304, 12 May 1866: travel to Rome.* Centre de Conservation et d'Étude des Collections, Lyon.

By the second half of the nineteenth century, the action of visiting Italy and Rome was still perceived as essential in the formation of aspiring young scholars as well as an ever so rich case study in most fields of knowledge. The pioneering geologists had already selected Rome as a land of key mineralogical investigations. In the late eighteenth century, the vestiges of ancient Rome and their richness of variegated stones and minerals brought Rome to become a 'laboratory-region' for the forerunners of a budding geology.[83] Whether it resulted from antique-hunting sprees or urban renewal, every crack or perforation in the ground would reveal items of disappeared persons and societies.[84]

This "immense sepulchre", as Pierre Grimal poetically put it, and the interest of antiquarians in opening and investigating the buried past, created excellent opportunities for investigators of the underground, such as Jourdan.[85] His travelling record lists up to 70 sites across Rome and the surrounding area (comprising Ostia, Tivoli or Albano for instance). Many catacombs were visited, like the San Sebastiano, San Callisto or "Ancient Jew" catacombs, but also areas which were not built-up, like the Janiculum or the gardens of villas. The listed Monte della Cave della Creta was also the location of the Villa Pamphili. The latter exemplified the many sites of extractions of minerals which were targeted by Jourdan. He mentioned several of them (Cave Militare, Cava Lovati) and although they cannot always be located with precision, they still show a pattern of interest in sites which were being explored for other mining purposes and where there was the possibility to make deals with quarry owners. Points of the surging of waters were also considered. On 18 March, they made a stop along the River Tiber. Wet environments within the city were also explored on 3 April, in the area of the Arco Oscuro (in the neighbourhood of Villa Giulia) and the streamlet of Aqua Acetosa. Just as in his own city of Lyon, the 'trenches' opened up for the construction of the railway were also key visiting sites, and Jourdan did not miss an opportunity.[86] In terms of how he followed the main lines of typical sites for investigation, Jourdan's trip is not particularly unusual. Urban geology itself had already been part of his investigating habits back in Lyon, possibly suggested by his late colleague at the Palais Saint Pierre, Artaud.[87]

Jourdan's pattern of Roman exploration very much drew from his long experience and practical knowledge of field work, especially in urban settings. One of

[83] Montègre, 'Un pas vers la mesure du monde', para. 15.
[84] Pierre Grimal, *Italie Retrouvée* (Paris: PUF, 1979), 9–31, http://gallica.bnf.fr/ark:/12148/bpt6k4803427p.
[85] Ibid., 17.
[86] CCEC - JE, "Journal d'entrées", p. 189-190, entry n° 304, 12 May 1866 (T_1866_01). On 20 April 1866, Jourdan visited the area of "Grotta di Egeria, Bagni di Aqua Santa, Porta Furba, tranchée pour chemin de fer […]".
[87] Artaud, *Lyon souterrain, ou Observations archéologiques et géologiques, faites dans cette ville depuis 1794 jusqu'en 1836*. See also below, A. Digging down the city, p. 310.

the significant aspects of field work was transportation, and the star-shaped pattern, to and from Rome, is quite striking. Just as antiquarianism influenced geological practices by identifying cracks in the ground for exploration, ancient routes structured Jourdan's wanderings, like for instance the stops on the way to Ostia, as they made their way on the Via Appia, or the stops on the Via Tiburtina when in the direction of Tivoli. This was a common denominator of visits to Rome, also accentuated by the structure of tour guides embracing itineraries.[88] But more generally, and regardless of which layer of the past it belongs to, the pattern of the trip functioned according to the available transportation system, which was made of countless roads, city gates, but also fresh water supply infrastructure like aqueducts or fountains and eventually, the developing railway, which Jourdan used for his day trip to Frascati, on the way to Grottaferrata, Castel Gandolfo, Albano, where a recent line could take them back to Rome by train. This also shows the limits of relying on trains and the necessity of being multimodal, because the line to Albano via Frascati remained yet to be finished.

The pattern of mobility for Jourdan and his one "helper" ("*aide*") was certainly modelled by urban infrastructure: parks, green areas, archaeological sites and road systems. Though costs are not known with precision, the two visitors travelled primarily on foot or by private car, in the absence of public trolley bus or tramway.[89] The apparent contradiction in carrying out geological field work in the midst of a city and the use of "modern" means of transport should not hide the fact that the exploration of Rome bore many characteristics of the outdoor, with natural, unconstructed sites, altitude and overall prospects. Visited places like the Santa Sabina area and the Aventine were hardly urbanised in the 1860s, and this was the case of most of the south-eastern half of the city inside the Aurelian walls: the area of Roman hills was mainly covered with gardens, fields and pastures.[90]

b. Distance, shipping and trust: dealing with being unknown

Boxes and more boxes of fossils, minerals and samples were amassed during the trip, as the list of expenditures shows. These could not be taken around to the various stopovers Jourdan and his fellow traveller made. Wherever they resided for that month's stay in Rome, the premises must have become a chamber of jumbled items awaiting quick labelling and packing before shipping. Relations of trust were crucial

[88] An example may be found in this 1854 touristic guide of Rome: G. Robello, *Les curiosités de Rome et de ses environs* (Paris: L. Maison, 1854), https://gallica.bnf.fr/ark:/12148/bpt6k2083041/f5.image.

[89] The urban inertia in which Rome had remained until the *Roma Capitale* programme. The latter started with the taking over of the city from the Pontifical States in 1870. Martine Boiteux, Marina Caffiero, and Brigitte Marin, eds., *I luoghi della città: Roma moderna e contemporanea*, Collection de l'École française de Rome 437 (Rome: École française de Rome, 2010), 1–9.

[90] Augusto Fornari, *Pianta della città di Roma / pubblicata nell'anno MDCCCLXIV da Augusto Fornari* (Roma, 1864), https://bibliotheques-specialisees.paris.fr/ark:/73873/pf0001956785.

in this respect. A few months after his return to Lyon, Jourdan wrote to the Deputy Head of the Institute of the Brothers of the Christian Schools in Rome to settle a question of fossil and cast exchanges, which they had previously negotiated in person at the time Jourdan was in Rome. The friar was interested in developing his teaching collection in exchange for some pieces, and to show his goodwill, Jourdan even took it upon himself to have five new casts of selected pieces made by his assistant, to be included into the delivery to the Christian Schools. Deals with a contact in Rome was a first-time experience for Jourdan, who had been distantly in contact with Charles-Lucien Bonaparte in the 1840s and 1850s, but only until the latter's death in 1857.[91] The kind donation to the friar was therefore both a sign of recognition for trusting a new correspondent, as well as a tangible indication of Jourdan's honesty.[92]

Trust was obviously in question, though in a subtle, understated manner, in the same letter. Speaking of a 'set of bones' which he collected in the Valdarno region, he pursued:

> "These bones together with all the others which I was able to collect were left by me with Professor Cochi (sic.) in the storage rooms of the Natural History Museum in Florence; they are still there and it has not yet occurred to me that they should not be sent to me. I did not stay long enough in Rome to not believe in others' loyalty anymore."[93]

Leaving the collected material under the supervision of Cocchi in Florence for shipping them back did not appear problematic: why would he have distrusted the Florence Museum keeper? Yet, behind the ingenuous style, Jourdan still sought to be reassured himself about the recovery of his Tuscan harvest. There is no evidence that Frère Indes, his contact, would have had means of persuasion over Cocchi in Florence. And this allows another reading of the text. Indeed, this should be rather considered as an attempt by Jourdan to fashion his own image with the friar. In this way, he presented himself as trustworthy and righteous, basing his relations on a code of honour and on loyalty. In growing such an image of himself, Jourdan also suggested that he had been deceived, underlined that he was not of this kind, and suggested very subtly his expectations of trustworthiness from his contacts. What the situation also shows, is the difficulty, even for the representative of a fairly well acknowledged type

[91] MNHN – Ms 2604, it. 1740-1748, Jourdan to Charles-Lucien Bonaparte, from 11 August 1841 to 30 December 1856.
[92] See the tepid response of Frère Indes, CCEC – JE, "Journal d'entrées" [not inserted between p. 205 and 206] *Note des objets vendus à Mr. le Docteur Jourdan, Directeur du Museum de Lyon*, by Frère Indes, 10 December 1866.
[93] Original text: "Ces ossements ainsi que tous les autres que j'ai pu recueillir ont été laissé par moi dans les magasins du Musée d'Histoire Naturelle de Florence à Mr. le Professeur Cochi (sic.); ils y sont encore et il ne m'est pas venu dans la pensée qu'on pouvait ne pas me les envoyer. Je ne suis pas resté assez longtemps à Rome pour ne plus croire à la loyauté des autres.": CCEC - DP-J, "Journal de Jourdan", "À Mr. le Frère Indes à Rome", ibid.

of institution and bearer of its authority, to establish contacts from rock bottom and what it cost to be standing at the very end of a branch of a scientific social network.

2. TO THE MOUNTAINS

If the eighteenth century had seen the development of peculiar forms of knowledge production in the mountains, with the experience of the all-embracing views of the panorama allowed by standing high-up in altitude, the nineteenth century was the time of a consolidating interest in the study of mountainous areas, within the greater scheme of filling in the blanks on the map.[94] These areas were also used as a lab for their particular atmospheric conditions and relief in order to test scientific hypotheses as well as instruments.[95] Mountains therefore held an ambivalent position between the universal book of history of the Earth and a very specific milieu used precisely for those singular features.[96]

In many ways, Jourdan walked in the footsteps of naturalists who had preceded him or with whom he collaborated in their lifetimes. But rather than models, they were shared practices and formed a body of operations which were advisable to carry out to anyone in charge of a collection - even more so when entrusted by a public institution with its good keeping. Travelling to the mountains was part of that shared culture which translated into peculiar forms of mobility, which are at the centre of this chapter. To someone like Jourdan, the mountains were accessible because the Alps lay not too far from Lyon, and the development of rail made it faster to travel there. Distance to the main mountain ranges did play a role: Dubuisson or Cailliaud, as museum directors, never visited any mountain range in person; Nantes is one of the most distant points from mountains throughout the French territory. But accessibility and (relatively) easier supplies of minerals were not the only motives: each mountain

[94] Numa Broc, *Les montagnes vues par les géographes et les naturalistes de langue française au XVIIIe siècle, contribution à l'histoire de la Géographie* (Paris: Bibliothèque Nationale, 1969), http://catalogue.bnf.fr/ark:/12148/cb416063138; Briffaud, *Naissance d'un paysage*; Marjorie Hope Nicolson and William Cronon, *Mountain Gloom and Mountain Glory: The Development of the Aesthetics of the Infinite* (Seattle: University of Washington Press, 1997); Charlotte Bigg, 'The Panorama, or "La Nature à Coup d'œil"', in *Observing Nature-- Representing Experience: The Osmotic Dynamics of Romanticism, 1800-1850*, ed. Erna Fiorentini (Berlin: Reimer, 2007), 73–95; Charlotte Bigg, David Aubin, and Philipp Felsch, 'Introduction: The Laboratory of Nature – Science in the Mountains', *Science in Context* 22, no. 3 (September 2009): 311–21, https://doi.org/10.1017/S0269889709990020.

[95] On testing measuring instruments in the mountains: Marie-Noëlle Bourguet and Christian Licoppe, 'Voyages, mesures et instruments : une nouvelle expérience du monde au Siècle des lumières', *Annales. Histoire, Sciences Sociales* 52, no. 5 (1997): 1115–51, https://doi.org/10.3406/ahess.1997.279622; Bigg, Aubin, and Felsch, 'Introduction'.

[96] On the construction of national narratives based on mountains: David Gugerli and Daniel Speich, *Topografien der Nation: Politik, kartografische Ordnung und Landschaft im 19. Jahrhundert* (ETH Zurich, 2002), https://doi.org/10.3929/ethz-a-004274779.

area was singular, and Jourdan also travelled to the Vosges and to the Pyrenees as a way of extending the range of the material used for comparing against the mineralogies of the Rhone valley. But contrary to its apparent ease, travelling to the mountains in the middle decades of the nineteenth century was strenuous, challenging and required organisation and some clear sense of purpose.

A. Missed opportunities

Missing out on decisive opportunities did also happen in areas in which Jourdan was accustomed to circulating quite a lot. He wrote with undisguised disappointment to Arnold Escher von der Linth in Zurich during his Swiss trip of 1857, concluding with how he had regretted not having met him in Zurich during the trip he and his companions took there: "[He] was absent."[97] An encounter with the Professor of Geology of the Polytechnic School of Zurich and specialist of the geology of the Alps could have become very fruitful, after over two weeks of rambling around the lakes, glaciers, moraines, and rocky paths, coming all the way from the region of Geneva and probably with countless thoughts and questions collected along the way. Despite his absence, Jourdan and his two fellow travellers still took the time to pay a visit to the School's collections. They were indeed happy to look at the "beautiful collections of [his] museum" which was particularly important to them in their study of fossilised mammals. The question of the age and dating of the fossils of explored tertiary terrains was one objective. More generally, the collection constituted very valuable material for "filling up the gaps" of knowledge on "contemporary" mammals. Switzerland was altogether a notably important region, being a section of the geological basin of the Rhone river basin, which was at the centre of the scholarly preoccupations of the Lyon Natural History Museum in the time of Jourdan.

With these cognitive objectives in mind, Jourdan thoroughly noted down references of specimens from the labels he could observe from behind the glass window of the museum cupboards as he moved through the galleries. And from this record, he established a list of wishes:

[97] The reports are scattered in different archives. In chronological order: ADR - T368, [no title], 29 August 1858; CCEC - DP-J,"Journal de Jourdan", p. 43-47, *Recherches géologiques et paléontologiques dans le bassin du Rhône*, 9 August 1859; ibid., p. 51-54, *Rapport sur les recherches géologiques et paléontologiques dans le bassin du Rhône*, 4 August 1860; ibid., p. 100-101, *Rapport sur les recherches géologiques et paléontologiques de la fin de 1864 et du commencement de 1865*, 10 August 1865; AML - 78WP017, *Recherches géologiques et paléontologiques dans le département et le bassin du Rhône*, 14 August 1866; CCEC - DP-J,"Journal de Jourdan", p. 123-124, *Rapport sur les recherches géologiques et paléontologiques durant l'année de 1867*, 20 August 1868.

> 1st: on the route to Saint-Gall; two teeth of tapiroid mastodont; teeth of rhinoceros; teeth of [Sus?]Paleogenus
> 2nd: from Keopfnach*; one tooth of tapiroid mastodont; *orygotherium Escheri*, the *chaliconnys Jaegeri*; the *cervus Lunatus*; tooth of mastodont *augustideus**
> 3rd : from Buchberg near Eglisau on the Rhine, tooth of mastodont. [...]"[98]

For his wishlist, Jourdan needed to have seen the displayed collections, and his actual on-site observations in the mountains contributed to making more sense of them. The locational data provided on the label, which appeared first in the list by Jourdan, were elements Jourdan could relate to through his own experience.

Jourdan had been a director of the Lyon Museum for twenty-five years by 1857. His interest had evolved from medicine, to zoology and comparative anatomy and on to geology - the latter particularly developed in relation to his work at the museum. Not a mineralogy enthusiast like Lapeyrouse in Toulouse in his time, whose entire identity was constructed around his knowledge of the Pyrenees, Jourdan's knowledge of the mountains was built especially through field trips, possibly with prior documentation though conversations with other naturalists or by using the resources available from the Palais des Arts's library.[99] However, this hypothesis should be treated with caution, since before the transfer of the rich Thiollière book collection specialising in geology in 1859, the Palais's collections were quite poor and some useful books only reached the municipal shelves in the early 1860s.

These long multiple destination trips must have been planned a little, even though the meagre documentation on this aspect tends to suggest last minute arrangements. Highlights were maybe identified prior to departure, like possibly the visit to the Zurich Polytechnic School, but in the end, Jourdan had apparently failed to announce his visit, which may have caused Escher to be absent, and he was only reached out to later on.[100] Similarly, there were instruments which were to be purchased on site directly, like a map, bought in Zurich, or the passes for the train,

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[98] Original text: "1er D'Elgg; route de St Gall ; deux dents de mastodonte Tapiroïde ; des dents de Rhinocéros ; des dents de [Sus] Paleogenus
2e du Keopfnach* Une dent du mastodonte tapiroid ; l'orygotherium Escheri, le chaliconnys Jaegeri ; le cervus Lunatus ; dent de mastodonte augustideus*.
3e de Buchberg près Eglisau sur le Rhin dent de mastodonte (…)": ETHZ - Hs 4:715, Claude Jourdan to Arnold Escher von Der Linth, 2 January 1859. https://doi.org/10.7891/e-manuscripta-7230.

[99] The catalogue of the special collections of the BML allows one to assess if the book was present in the nineteenth century library, and therefore at hand for Jourdan. Besides, on geology, the bequest of the Thiollière library was an important addition to the municipal library. Among the additional volumes, these bore the stamp of Thiollière: Pierre-Bernard Palassou, *Nouveaux mémoires pour servir à l'histoire naturelle des Pyrénées et des pays adjacen* (Pau: Imprimerie De Vignancour, 1823), http://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001102678807; Bernhard Studer, *Geologie der Schweiz* (Bern; Zurich: Staempfliche Verlagshandlung; Friedrich Schulthess, 1853), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001102970840; Friedrich von Tschudi, *Les Alpes: description pittoresque de la nature et de la faune alpestre* (Berne; Strasbourg; Paris: Dalp; Treuttel et Wurtz; Jung-Treuttel, 1859), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001100236277.

[100] ETHZ - Hs 4:715, ibid.

boat or coach.[101] Another example displays the belatedness of Jourdan's organisation. While he was organising a trip to the Pyrenees planned for the Easter week of 1859, Jourdan contacted Edouard Lartet to offer him the possibility of accompanying him in his field work. Lartet's reputation as a palaeontologist and Pyrenees expert made him the perfect guide indeed, and he at first agreed, before then backing out of the project a few days before setting off, despite Jourdan's insistent tone. Jourdan was extremely disappointed, but was this surprising at all, knowing that he had urged Lartet just a couple of months before departure?[102] However, what the history of this seemingly petty feud between Jourdan and Lartet gives an indication of is how the successful outcome of field work was bound to develop on location. Preparation consisted of ensuring that some of the resources had been secured, but the perceivable irritation of a piqued Jourdan revealed how much he had counted on Lartet for making sense of the trip - to a point where he even voiced how the trip was henceforth in vain. And this comment was perhaps not only rhetorical.[103] The missed opportunities with Escher and Lartet show very well how the success of faraway field work depended highly on the human factor and the existence of interpersonal relations, including those to be developed from the visit. The reliance on others' experience was exacerbated in the context of mountain exploration. The distance from homely sceneries and familiar paths was one reason, which was topped by the perilous nature of exploring ravines and escarpments in the erratic and disorienting relief.

The exploration of the Alps for the purpose of collecting generated a space structured around functional or failing social relations, which conditioned its elaboration. However, the geographical forms of the trip were also important: matters of route, transport and travelling cadences shaped the appropriation of natural knowledge.

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[101] A map was purchased on 7 October 1857 in Zurich: CCEC – JE, "Journal d'entrées", p. 26-27, entry n° 49, 22 December 1857 (T_1857_05).

[102] BUT – Ms 199068_2-32, Jourdan to Lartet, 26 December 1858, http://tolosana.univ-toulouse.fr/fr/archives/ms1990682-32; Ms 199068_2-46, Jourdan to Lartet, 8 February 1859, http://tolosana.univ-toulouse.fr/fr/archives/ms1990682-46; Ms 199068_2-45, Jourdan to Lartet, 12 January 1859, http://tolosana.univ-toulouse.fr/fr/archives/ms1990682-45; Ms 199068_2-41, Jourdan to Lartet, 26 March 1859, tolosana.univ-toulouse.fr/fr/archives/ms1990682-41; Ms 199068_2-44, Jourdan to Lartet, 9 April 1859, http://tolosana.univ-toulouse.fr/fr/archives/ms1990682-44.

[103] "Je regrette sincèrement votre détermination de ne pas faire actuellement un voyage dans les Pyrénées. Vous n'avez, pour refuser de vous joindre à nous aucune raison légitime. Pour moi j'en suis d'autant plus peiné que ce voyage fait sans vous perdra la plus grande partie de son intérêt." BUT - Ms 199068_2-44, Jourdan to Lartet, 9 April 1859, http://tolosana.univ-toulouse.fr/fr/archives/ms1990682-44.

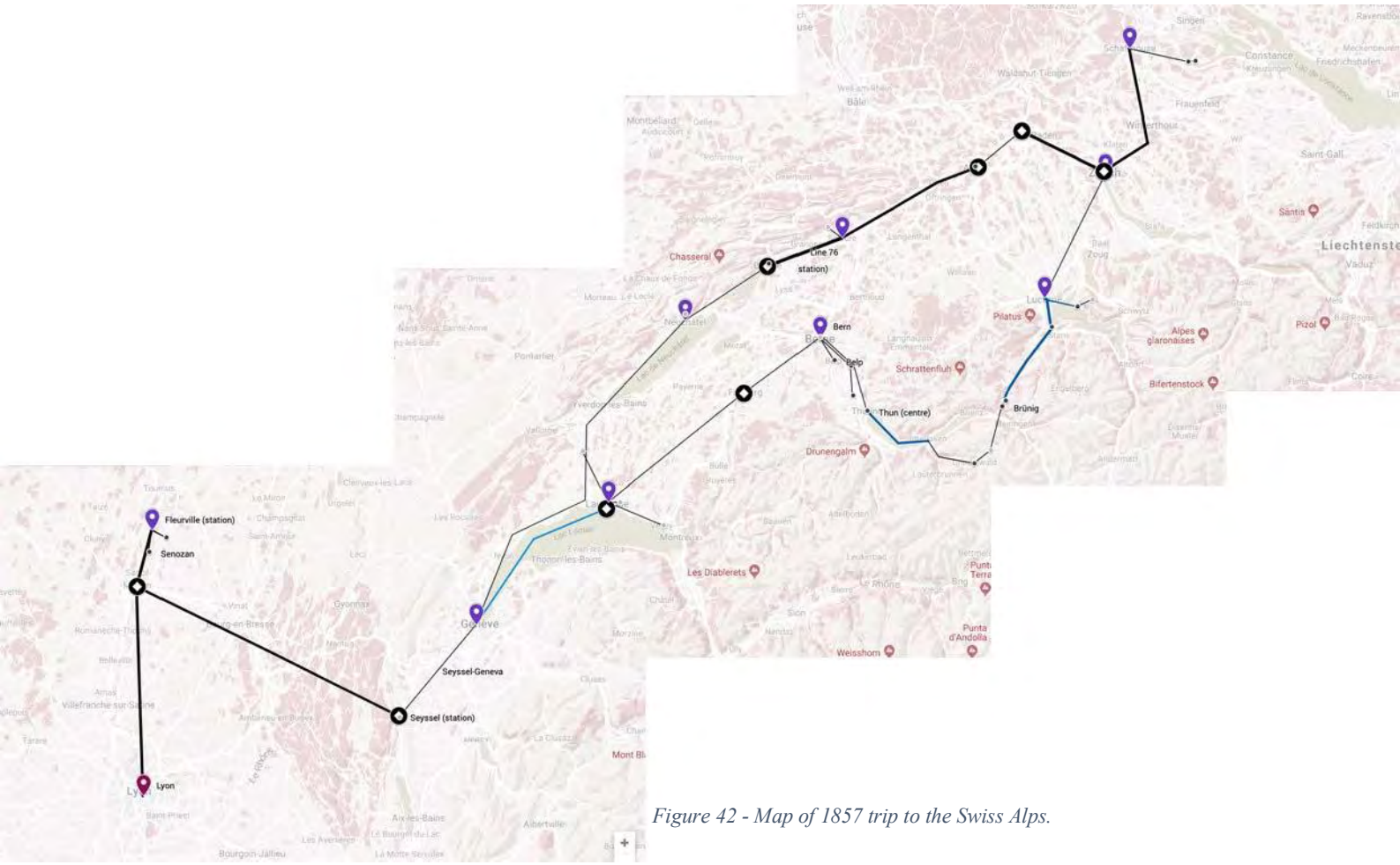

Figure 42 - Map of 1857 trip to the Swiss Alps.

B. Looping back to Lyon: patterns of mobility in the mountains

It was not the first time that Jourdan had visited Switzerland, but it was the second and last important trip to the Swiss Alps (Figure 42). The first recorded field experience of the Swiss Alps had been organised ten years earlier, in the summer of 1847. In the course of a multiple-destination, thirty-five-day-long field trip, Jourdan and Alexandre, his assistant in charge of anatomical works at the museum, passed through Switzerland, where they spent six days. As they were travelling upstream along the river Rhone from the Lake of Geneva, they stopped in Brig and then Fiesch, going back up to the Rhone Glacier, where the spring of the river lies.[104] Then the trip was to continue towards the Rhineland and the Vosges.

The organisation of the second trip in 1857 erased any ambiguity about the travel: Switzerland was not particularly targeted, but the study of the geology of the Rhone.[105] The itinerary of that second trip was organised, like the first one, in the

[104] CCEC – JE, "Journal d'entrées", 11 May 1848 (T_1847_01).
[105] CCEC – JE, "Journal d'entrées", p. 26-27, entry n° 49, 22 December 1857 (T_1857_05).

course of a string of various stopovers which day by day took Jourdan and one fellow traveller first into the Bugey and Ain, with a detour to Mâcon, possibly because it made travelling by train possible to reach Geneva. Once across the border, the pair spent a couple of days around the Lake of Geneva, then moved successively to Fribourg, Berne, Thun, then Zurich, Solothurn, Neuchatel and back to Geneva. But visits to urban centres were not the key objective of the trip, and looking at the detail of the route reveals much about the investigating practices of Jourdan, as well as pointing to the practical operations entailed in producing knowledge about that local area.

Jourdan and his two companions (it was customary for him to travel with assisting companions, especially for field work), departed from Lyon station to Fleurville. From there, their exploration of this part of the Ain took them to the banks of the Saone, the affluent of the Rhone (Senozan, Pont de Vaux). Travelling through Mâcon and Seyssel was useful in order to use the railway and travel more quickly: leaving Fleurville in the morning of 25 September 1857, they arrived in Geneva the same evening, after changing for a coach in Seyssel, since the Lyon-Geneva line was only finished in the spring of 1859. After a whole day's work in Geneva and its vicinity, the group boarded a boat to reach Ouchy, the accessing port to Lausanne. From Lausanne, they radiated east to the area of Vevey and towards the north the day after in Mauremont, before being taken by coach to Fribourg. The following day was spent in the surroundings of Fribourg before a night coach would take them to Berne. For three days, they were based in Berne and conducted excursions mainly in the south-eastern region of Berne, along the valley of the River Aar. They eventually took a boat from Thun in the direction of Interlaken where two days of hiking began, on 3 October 1857. From Grindenwald, the three men and their guide climbed to the pass of the Grosse Scheidegg (1,962 metres), through the Brunig Pass. After a short night in Lucerne to recover, they pursued the ascension of mountainous slopes to the summit of Mount Riggi (1,752 metres), which took place but a decade before the building of a mountain train to ease access to the scenic views. This however allowed observations to be carried out from "the summit of the mountain to its base."[106] The tireless travellers took a boat to Lucerne in the evening and stayed overnight in the city, which was to be their starting point for further explorations for another day. At this stage of the travel, Jourdan and his assistants had completed the most physically strenuous part of their programme and headed north to Zurich by coach. This is where they missed out on the opportunity to meet with Arnold Escher von der Linth at the Polytechnic School. But this was no reason to idle away and they set out instead

[106] CCEC – JE, "Journal d'entrées", ibid., p.27.

for a study of the area of Stein-upon-Rhine and Oeningen. While the first half the trip had taken them 17 days, the existing rail services accelerated the rest of the travel: apart from the section between Bienne to Seyssel via Geneva, the group hopped from Zurich to Lyon. Over 400 kilometres were covered in just five days, which nonetheless allowed field work in Brig, Solothurn and Neuchatel.

The route took the team exactly back to where they had departed from: Lyon. Geological travelling implied detachment from the museum and gradually adding up extra distance from it. Yet the museum remained the centre of those explorations, which, even for shorter trips, depended upon seizing opportunities for multiple visits and explorations on the way - in this case, like the stopover in Fleurville. The use of rail did not destroy this economy of denser travelling: it facilitated it, and possibly transformed the approach to sites in the vicinity of a railway station. Because travelling was a bit faster, it multiplied the number of possible stops. However, travelling was still a physically demanding activity. The effort of climbing up mountain slopes, digging out samples, directing transportation of the collected samples and spending long hours back at the hotel organising and emergency labelling, therefore enduring short nights, and starting over again the next day was strenuous activity. Travelling by train allowed accelerations of certain sections, only to intensify the investigations and possibilities of encounters, returning with sizeable material which could justify the next outing.[107]

The circular pattern of the route organised so as to loop back to Geneva and then Lyon was common to many travels, long or short. This was because as much as possible, the journey back was intended not as the journey back, precisely, but as an extension of the possibilities of knowing. Looking at the map of the 1857 route of Jourdan and fellow travellers offers an image of the practices of field geology in a form of continuum. The above paragraphs have already insisted on the strenuous aspects of outdoor field practice and also of the multiple scansions brought by intermodal traveling (train, feet, coach, diligence, omnibus, most of the time). The sources left by Jourdan are silent about most of the activities throughout the day. But the short list of expenses still allows us to make sense of the micro mobilities of Jourdan and his companions. Travelling made it necessary to secure bed and board, to look for places in locations never visited before. Searching for the local natural history collection one day, booking a guide, finding out about shipping possibilities, preparing the hiking routes and purchasing maps, dressing accordingly and preparing the necessary instruments. Sleeping on the night coach, getting ready for climbing up narrow and steep footpaths during the day, trying to arrange a meeting with a naturalist in the

[107] About physical effort and bodily engagement, see below 4, B, b. Heroes, p. 319.

evening, having dinner. Those "sides" of traveling certainly contributed to the appropriation and the construction of the space of geological enquiry in how it structured the space of a day and the space of a locale.

C. Taking the museum up the footpaths: the physical engagement of collecting

The practical exploration of mountain ranges was foundational in the process of elucidation of the history of the Earth and became a unifying trend in the nineteenth-century construction of geology and the training of geologists.[108] Trained as a physician with a taste for zoology, Jourdan acquired and honed his skills in geology through collecting in the mountains. In particular, his experiencing of the Alpine region demonstrated an approach to mountainous relief which contrasted substantially with earlier times, until the late eighteenth-century century at least, characterised by defiance if not fear of those unwelcoming, dangerous places. The difficulty of representing the mountainscape and the perceived irregularity of its shape had led to much renunciation of its study, and the perception of mountains as a mass which one observed from afar.[109] This resulted in the invisibilisation of what territorial conquest and a sense of prowess made a key feature of the mountains: the summit.[110] The attention paid and the intense curiosity for the whole range of physical aspects of mountainous terrains led to the production of important scholarship and attempts at generalisation in the first half of the nineteenth century. These works still conveyed for some of their authors, the importance of the study of the 'mountains', understood as a uniform category, at a distance. Others sought to heavily use mathematics in order to make sense of those irregularities and translate them into figures. Elie de Beaumont's *Notice sur les systèmes de montagne* was a striking example of the mathematisation of slopes, inclinations, liftings and depressions.[111] The available documentation does not make it obvious that Jourdan directly accessed this knowledge by actually opening the book, but word of mouth, epistolary conversations, perhaps circulation of the works by means of a loan or private consultation indirectly framed a space of circulating knowledge that could not be foreign to an active practitioner of natural sciences like Jourdan.[112]

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[108] See Greene, 'Geology', 173–77.
[109] Charpentier, in the early start of the nineteenth century, observed the mountains from Toulouse. See below 3, C. Making Toulouse the scientific centre of the Pyrenees, p. 296.
[110] Briffaud, *Naissance d'un paysage*, 171–220; Claude Reichler, *La découverte des Alpes et la question du paysage* (Chêne-Bourg: Georg, 2002).
[111] Élie de Beaumont, *Notice sur les systèmes de montagnes*. For a concise presentation of Elie de Beaumont's contribution to the debate on mountain geology and orogeny, see Greene, *Geology in the Nineteenth Century*, 113-21.
[112] See above, Footnote 78, p. 269.

All of the recorded travels were carried out in the framework of a mission for the museum and controlled by the municipal or prefectoral authority.[113] Additionally, most of the travels had the purpose of collecting geological or palaeontological samples, meaning that Jourdan was never faced with the challenge of collecting living specimens. His set of instruments was pretty limited, at least in what was still retrievable to date. Scholarly attention has emphasised how, caught in a time of physical displacement, activities of quantifying, selecting, sampling and observing on the field required specific technologies to collect objects and data, to not forget, to memorise, to store and carry or send the bundle of knowledge *back* to the departure point. The use of instruments allowed operations of collecting nature to be commensurable, that is to "de-contextualise" the sample to "re-contextualise" once within the walls of the museum.[114] Not much is known, as we will see below, about the instruments used by Jourdan, although it is undeniable that certain ones were used. Extracting and on-site labelling were completed by operations to support human memory, or even to show evidence, especially of expenses, to the administration. Jourdan used note-taking technologies in the course of his travels - even if but a few were preserved. Aside from this, he collected receipts which could work as an aide-mémoire, as well as duly requested evidence.

The contained style of the filled-out information of travelling expenses in the *journal d'entrées*, disciplined and in accordance with the rule, was nothing like a romantic sublimation of the mountains. The laconic record should however be complemented by another source: the lists and receipts for objects collected in the course of this trip. Most of the objects themselves have now been merged with present-day collections and are hardly identifiable. Unless an important campaign of recovery of earlier pieces is conducted withtin the present-day Lyon collection, objects collected by Jourdan are silent on his trips. However, available sources translate efficiently what is of importance here: Jourdan's travels are to be seen as collecting travels. Jourdan's practice of the mountain had one purpose above all, namely to accumulate samples and increase the museum collections. His practice of the Alpes was not to provide a study of the massif as a whole. The pattern of his travel rather points to a string of locations and stops, an acute sense of located particularities rather than a sweeping overarching conception of 'the mountains'.

In other words, the space constructed by the foreman of the Lyon museum *outside* of the museum did certainly rely on features inherited through tradition and described in the plentiful scholarship of field science. But here again, similar to the

[113] See Chapter 2, 2. Administrative grip and collecting, p. 154.
[114] Marie-Noëlle Bourguet, Christian Licoppe, and Heinz Otto Sibum, 'Introduction', in *Instruments, Travel, and Science: Itineraries of Precision from the Seventeenth to the Twentieth Century* (London; New York: Routledge, 2002), 8–11.

cases of Paris or London, the whole point of travelling was fairly pragmatic, that is to reach locations where the resources lay. If the outside museum contributed to endorse and further construct mountains as central to geological practice, the shape of that space was by no means some bulky unit appearing as bloc or the sketch of a skyline which one admires at a distance. Practices and construction of space from the perspective of museum activities has a history of feeling the topography, the changing temperature, of walking, of hopping on and off transports, of sweating, of slowly shuffling along footpaths, and dashing from city to city.

The trail of Jourdan's travels seemingly formed a continuous line, or so the map shows (Figure 42). But the image of a continuum to describe the looping route fails to render those moments in which a given place, Lausanne for instance, was in fact the basis for radiating exploration around it, or to put it in other words, to be swallowed in the ripples of the mountain landscapes and experience the morphology of the place at the smallest scale. The construction of the outside museum space did not follow the straight lines of figurative spokes connecting to an equally improbable hub-museum, like an aerial emitting evenly over flat land. The area of influence of the museum followed twisting footpaths, entered through the front gates of other museums and jingled the doorbells of naturalist shops.

3. THE CLOSE-BY: THE CONSTRUCTION OF A SCIENTIFIC HINTERLAND

Among the hundred trips recorded during Jourdan's directorship the concentration of field work along the Rhone river upstream and downstream of Lyon appears very clearly. The source of interest for the area close to Lyon, matching more or less with the *département* of Rhône, may have lain in its greater accessibility as well as a stronger incentive coming from local authorities.[115] But rather than accessibility or response to administrative command, the Lyon scholars were also convinced that they were the most capable of studying local areas because of a greater sense of the knowledge essential to avoid misconceptions.[116]

[115] See Chapter 2, 3. The elaboration of a discourse of the territory, p. 160.

[116] The controversy led to Parisian and Lyonnais geologists publishing two separate volumes for the proceedings: *Congrès scientifique de France, 9e session, t. 1*; *Congrès scientifique de France, 9e session tenue à Lyon en septembre 1841 - t. 2 Mémoires* (Paris; Lyon: Courdon; Gibberton et Brun, 1842), https://gallica.bnf.fr/ark:/12148/bpt6k4115891; Fournet, *Géologie lyonnaise*.

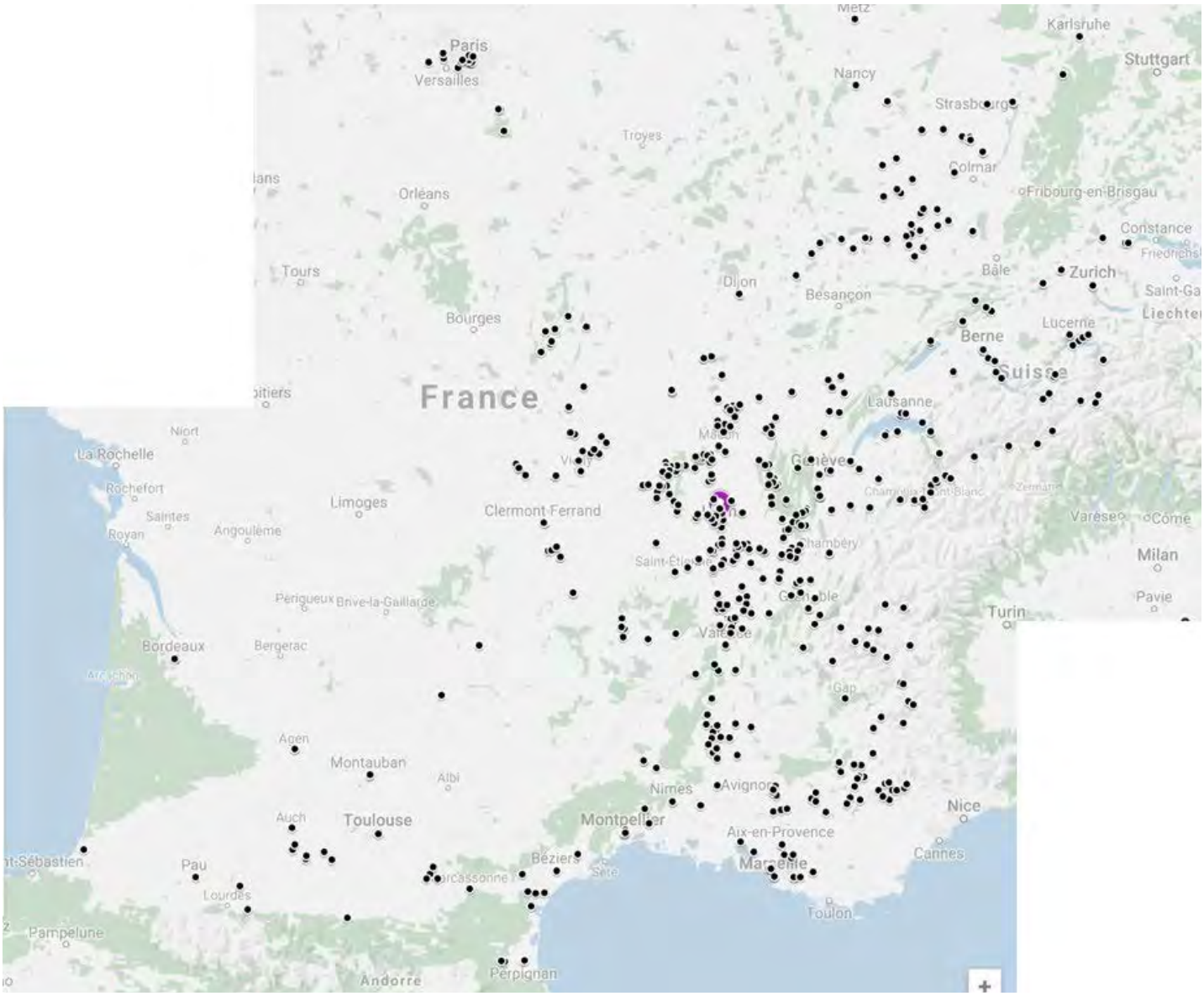

Figure 43 - Overall destinations of Jourdan during his directorship.

A. A scientific hinterland structured by accessibility

Some locations were visited on a particularly regular basis. For purposes of shortness and convenience, registers often abbreviated visited areas by the name of their *département*: "Voyage dans l'Allier" and "Voyage dans l'Ain", for instance, reoccur over and over again. But under that appellation, several locales were clipped together, and regular sites did stand out as heavily investigated, most of them lying less than 100 or 200 kilometres away from Lyon. Explored were both quarries like Gannat (Allier) or "natural" sites, with all of which great familiarity was developed.[117] Mont Pilat, a

[117] About resources in Gannat, see, Edmond Lambert, *Nouveau guide du géologue: géologie générale de la France, suivi d'un appendice sur la géologie des principales contrées de l'Europe* (F. Savy, 1873), 210–204,

small-scale massif lying at the foot of the Massif Central, was frequently visited by Perret, Jourdan's main assistant at the museum.[118] Jourdan himself made a considerable number of stops at the plateau of Saint-Restitut, serviced by both waterways and railway and ideally located at a crossroads to reach Marseille or the southern Alps or to go west towards the Languedoc.[119] All of these sites, however, were specific points identified within a greater geological object under study: the Rhone valley. The development of infrastructure, especially in the course of the nineteenth century, and the use of major river valleys as main transportation corridors, offered valuable material support to the intellectual endeavours of Jourdan.

The maps of overall destinations (Figure 43) of Jourdan form a cloud of dots around Lyon, which are not distributed evenly within a circle, but which effectively indicate a seemingly primary interest of the museum director and his team in the Rhone river basin. The types of places visited were not necessarily "places of knowledge", in the sense that their function was quite distant, at first glance, from any scientific interest as they were primarily dedicated to the extraction of mineral resources or commercial purposes there related.

Just as the mountains were turned into a scientific object in the eighteenth century, mining extraction became an unfaltering source of geological knowledge in the course of its development in the nineteenth century.[120] The perception of the underground evolved from a localised but also daunting environment into an equally bewitching spring of boundless resources to serve the progress of modernity: the terrestrial crust and its contained mineral riches were gradually seen as the engine of progress and human development.[121] This understanding of the underground

https://books.google.fr/books?id=fAgAAAAAQAAJ; Ministère des travaux publics, France, *Répertoire des carrières de pierre de taille exploitées en 1889 : recherches statistiques et expériences sur les matériaux de construction* (Paris: Librairie Polytechnique Baudry, 1890), 17, https://gallica.bnf.fr/ark:/12148/bpt6k9780517q.

[118] Perret and Jourdan were not the only Lyon savants to explore the Pilat. By all means their collecting work served as bases for further studies. See for instance Étienne Mulsant, *Souvenirs du Mont Pilat et de ses environs*, 2 vols (Lyon: Pitrat aîné, 1870), https://books.google.fr/books?id=hT2YvyHGFwEC. The Pilat had been a prized area for earlier botanists to whom it was a form of extension of the city of Lyon. See Marc Antoine Louis Claret de la Tourette, *Voyage au Mont-Pilat Dans la Province du Lyonnois, contenant des observations sur l'Histoire Naturelle de cette Montagne, & des lieux circonvoisins; suivies du catalogue raisonné Des Plantes qui y croissent* (Avignon, Lyon: Regnault, 1770), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001100530265; Giovanni Battista Balbis, *Flore lyonnaise, ou Description des plantes qui croissent dans les environs de Lyon et sur le Mont-Pilat*, 3 vols (Lyon: Imprimerie de D. L. Ayné, 1827), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO0100137001102889933.

[119] The exploration of the plateau by Jourdan and "helpers "also provided material for the study conducted by Fontannes. Francisque Fontannes, *Études stratigraphiques et paléontologiques pour servir à l'histoire de la période tertiaire dans le bassin du Rhône. Les terrains tertiaires supérieurs du haut Comtat-Venaissin: Bollène, Saint-Paul-Trois-Châteaux, Visan* (Lyon; Paris: Georg; Savy, 1876), https://gallica.bnf.fr/ark:/12148/bpt6k5439003t.

[120] Jean-Jacques Terrin, *Le monde souterrain* (Paris: Hazan, 2008); Kevin Troch, 'Ne pas grever l'avenir au bénéfice du présent. Une histoire environnementale de l'extraction du charbon de la fin du XVIIIe siècle à l'Entre-deux-guerres : un développement non soutenable. L'exemple du Couchant de Mons et du Valenciennois' (Université de Namur, Université de Lille, 2018), 69–71.

[121] Fressoz, *L'apocalypse joyeuse*; Christophe Bonneuil and Jean-Baptiste. Fressoz, *L'événement anthropocène la Terre, l'histoire et nous* (Paris: Éd. du Seuil, 2013); Troch, 'Ne pas grever l'avenir au bénéfice du présent'.

resources for geology was reflected in their representation as a horn of plenty, in which the mining areas appeared like bottomless wells of science swarming with samples, fossils and new species to describe to serve the advancement of science.[122] There were dozens of quarrying and mining sites explored by Lyon savants, but the case of Cerin developed below encapsulates most of these features of encountered commercial and scientific opportunities.

B. The making of a scientific site: Cerin

Cerin lies sixty kilometres away from Lyon as the crow flies, in the territory of the municipality of Marchampt and in what is known as the Bugey region.[123] Travelling by coach was necessary to reach the place, which was situated up the foothills of the Jura mountains which flanked the Rhone upstream of Lyon. The typically ridged relief of the Jura massif did not facilitate accessibility to the place.

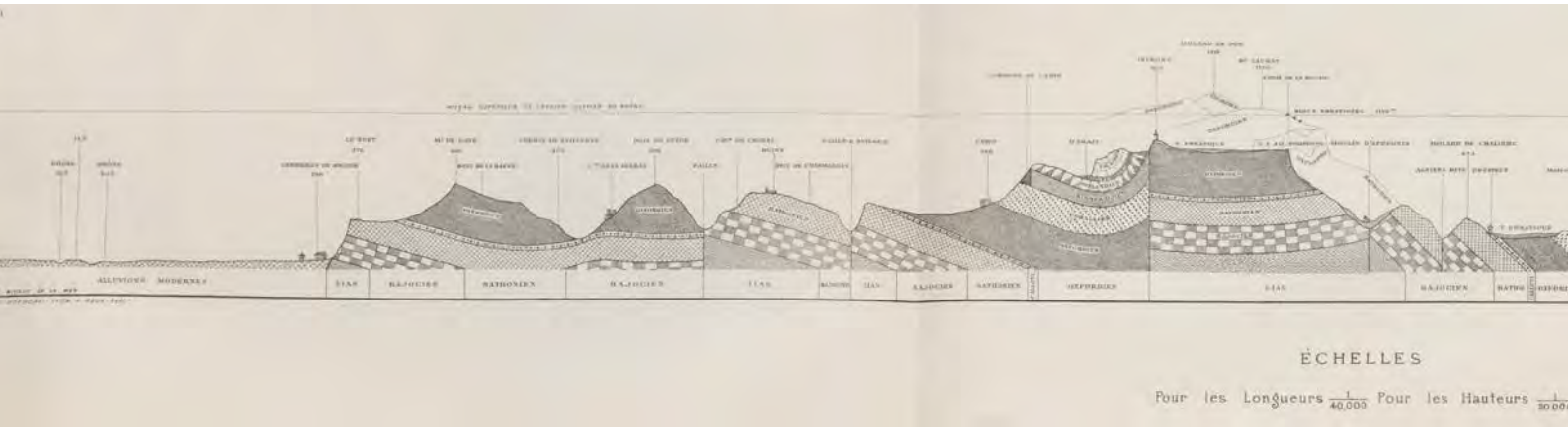

Figure 44 - Cut of Bugey, in Thiollière, Description des poissons fossiles provenant des gisements coralliens du Jura dans le Bugey*, 1854-1873.*

[122] On the vision and visualisation of the underground see Eric Charles Nystrom, *Seeing underground: maps, models, and mining engineering in America* (Reno: University of Nevada Press, 2014). On the perception of boundless resources: Jean-Baptiste Fressoz, '*Mundus œconomicus* : révolutionner l'industrie et refaire le monde après 1800', in *Histoire des sciences et des savoirs. Modernité et globalisation*, ed. Kapil Raj, H. Otto Sibum, and Dominique Pestre, vol. 2 (Paris, 2015), 369–89.

[123] Michel Philippe, ed., *Fossiles de Cerin* (Lyon: Clermont-Ferrand: Muséum; Département du Rhône ; Un, deux--quatre Éditions, 2004).

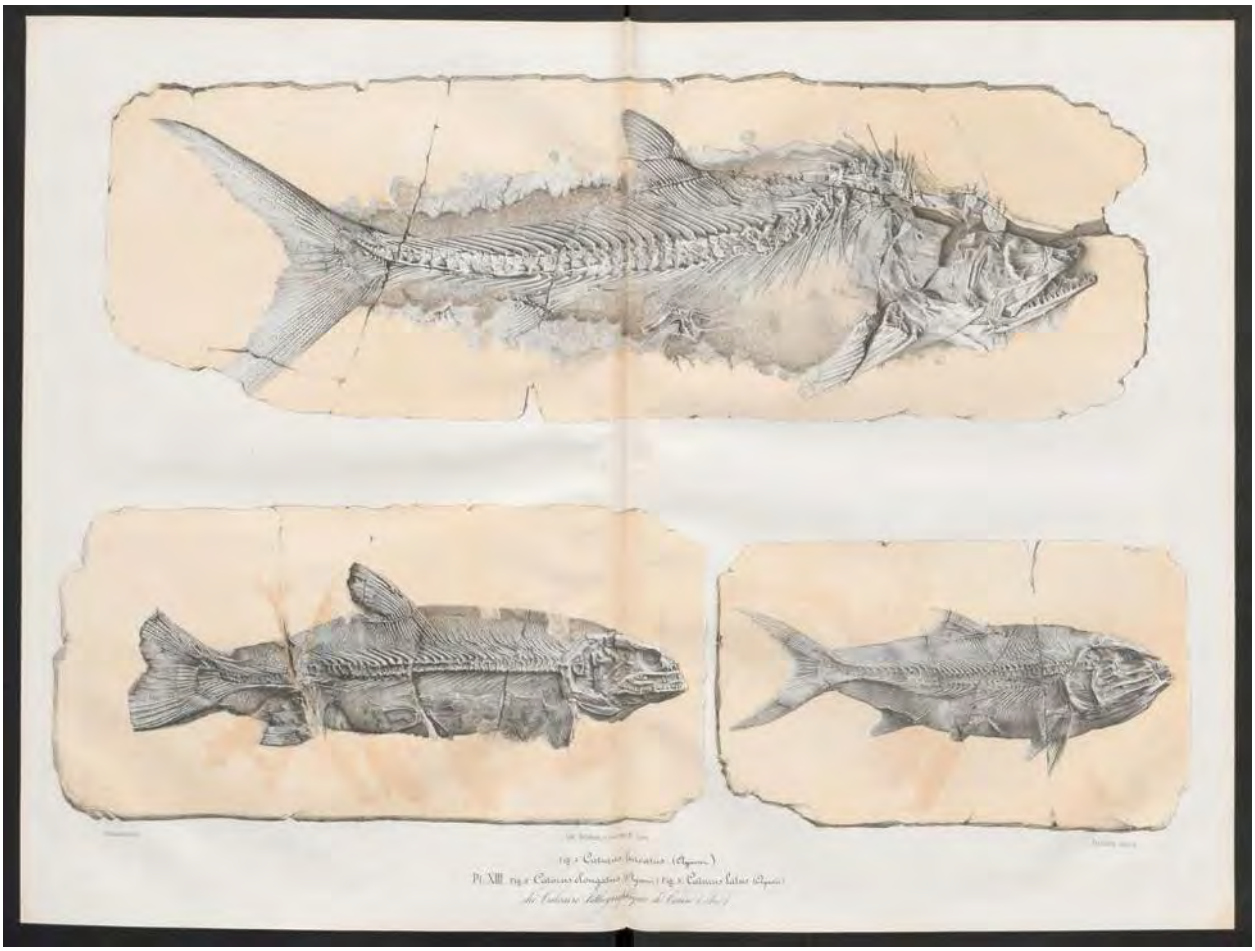

Figure 45 - Plates of fossilised Caturus furcatus,Caturus elongatus, Caturus latus *compared with Agassiz's descriptions, in Thiollière* Description des poissons fossiles provenant des gisements coralliens du Jura dans le Bugey*, 1854-1876.*

Since 1835, the site of Cerin had been exploited for its white limestones, which were used for floor covering, but also for the production of lithographic stones.[124] Soon after the opening of the site, fossils were discovered in the sedimentary layers. This led to the development of intensive connections between the quarry site and the Museum of Lyon, which took the form of on-site visits, commercial deals and scholarly publications.

The torch-bearing scholar for the study of Cerin was not Jourdan, but Victor Thiollière. He was a member of the Societé d'Agriculture, Histoire Naturelle et Arts Utiles, too, which Jourdan presided over for at least a couple of years in the 1850s. Fieldwork in Cerin was also conducted in the framework of the activities of the learned society. Thiollière, then a geologist in his late forties, had fashioned his fame around

[124] A contemporary presentation of the site was written in 1848 by Aimé Drian, 'Minéralogie et pétralogie des environs de Lyon, disposée suivant l'ordre alphabétique', ed. Société d'agriculture, histoire naturelle et arts utiles de Lyon, *Annales des sciences physiques et naturelles, d'agriculture et d'industrie* 11 (1848): esp. 431-432.

discoveries in Cerin.[125] He originally became interested in the site under the recommendation of Aimé Drian, an engineer and also a member of the Society of Agriculture. Many years before, Thiollière granted, Drian had "signalled [to him] the fish of Cirin (*sic*)".[126] The excavation conducted in this area of the Bugey was designed for the extraction of shale oil but was quickly abandoned.[127]

However, the Cerin quarry flourished, not only because of its privileged relations with the museum of Lyon but above all owing to Thiollière's ability to identify its importance in the wider field of geological studies. In a communication to the Lyon Society of Agriculture in 1848, he first presented his liminal study and hopes for the potential of the site.[128] His understanding of the terrain, backed with good knowledge of the geological scholarship, had him hope that the quarries should soon uncover fossilised vertebrates too. This was based on his hypothesis that the geological age of the Cerin limestones conformed to those found in Solenhofen in Bavaria. The opportunity was also used to discuss more generally the dating of the strata and to refute the position of leading geologist Alcide d'Orbigny. If the style was gentle and polite, Thiollière did not conceal that Orbigny's neglect of German and local works were the reasons for being misled.[129] The skilled geologist, in his ability to refer to works of recognised authority like Agassiz's (Figure 45), to convincingly refute leading viewpoints by bringing in new material, and managing his way around an untouched site did fashion a fame which was only increased by his sudden death aged 58, just ten years after starting his study.[130] In the meantime, though, he had had the opportunity

[125] His main publication on Cerin: Victor Thiollière, 'Description des poissons fossiles provenant des gisements coralliens du Jura dans le Bugey' (chez Ch. Savy; chez J.-B. Baillière, 1873 (ed. 1854), Rar 3283, ETH-Bibliothek Zürich, https://doi.org/10.3931/e-rara-41247.
Prior to this, a certain number of notices were published in the annals of the Lyon Society of Agriculture: Victor Thiollière, 'Un nouveau gisement de poissons fossiles, dans le Jura du département de l'Ain', ed. Société d'agriculture, histoire naturelle et arts utiles de Lyon, *Annales des sciences physiques et naturelles, d'agriculture et d'industrie* 1, no. 2 (1849): 43–66; Victor Thiollière, 'Seconde notice sur le gisement et fossiles d'origine organique des calcaires lithographiques, dans le Jura du département de l'Ain', ed. Société d'agriculture, histoire naturelle et arts utiles de Lyon, *Annales des sciences physiques et naturelles, d'agriculture et d'industrie* 3, no. 2 (1850): 111–83; Victor Thiollière, 'Troisième notice sur les gisements à poissons fossiles situés dans le Jura du département de l'Ain', ed. Société d'agriculture, histoire naturelle et arts utiles de Lyon, *Annales des sciences physiques et naturelles, d'agriculture et d'industrie* 4, no. 2 (1852): 353–446. The life of the savant was never studied *per se*, and a few biographical elements can be found in Didier Berthet and Louis Rulleau, 'Collectionneurs et collections au XIXe siècle: Eugène Dumortier et Victor Thiollière', in *La passion de la collecte: aux origines du musée des Confluences* (Lyon: Musée des Confluences, 2008), 105–12.
[126] Thiollière, 'Seconde notice sur le gisement et fossiles d'origine organique des calcaires lithographiques, dans le Jura du département de l'Ain', 175.
[127] Ibid.
[128] Thiollière, 'Un nouveau gisement de poissons fossiles'.
[129] Victor Thiollière, 'Continuation de la discussion sur le niveau géologique des gisements de Solenhofen et de Cirin', ed. Société d'agriculture, histoire naturelle et arts utiles de Lyon, *Annales des sciences physiques et naturelles, d'agriculture et d'industrie* 2, no. 3 (1850): 169.
[130] Thiollière thoroughly compared the specimens brought from Cérin with descriptions made by Agassiz: Victor Thiollière, 'Continuation des indications sommaires sur les espèces d'animaux et végétaux recueillies dans le gisement de Cirin', ed. Société d'agriculture, histoire naturelle et arts utiles de Lyon, *Annales des sciences physiques et naturelles, d'agriculture et d'industrie* 2, no. 3 (1850): 128–66.

to amass an enviable collection of fossils, among which 2,000 pieces originated from Cerin, together with one of the best libraries of geology fundamentals.[131]

After his death, his collections were given to the Lyon museum (Figure 46). Even if Thiollière was recorded as an important benefactor who had planned the gift, the donation was in fact the result of savant manoeuvres by the Lyon scholarly community, represented by the Society of Agriculture, who joined forces in order for his scientific legacy not to be 'lost'. Because Thiollière died prematurely and did not leave a will, members of the society created a commission in order to convince the family to yield the property of the book and specimen collection to the city.[132]

Walking in the steps of Thiollière and acknowledging the importance of Cerin as a site of distinction for Lyon scientific production, Jourdan took over. The museum director recorded his first trip to Cerin in 1858, followed by two others in 1861 and later in 1867. He might have gone there prior to that date, in the framework of the learned societies' activities, but it was only in the late 1850s, at the time of Thiollière's passing, that his connection with the site as the representative of the museum started. The first purchases from Cerin for the geological collection of the Lyon Natural History Museum were recorded in 1861.[133] From then on, a box of fossils would be sent to the museum at least on a yearly basis. The price was negotiated and the annual spending fairly even from year to year: around 200 francs for a couple of dozens of objects.[134]

Monsieur Lapierre, the holder of the right of concession for the quarry, was a recurring intermediary for Jourdan and the two men were regularly in touch, especially since Lapierre was also the owner of the quarry of Creys.[135] As the holder of the concession, he was ideally placed to detect fossils - in a deposit which had proved a rich fossil field since the 1850s. Jourdan, the Lyon director, made a deal with

[131] A quick description of the geological collection of Thiollière, established by Jourdan for the prefect: CCEC – DP-J,"Journal de Jourdan", p. 58-60, Jourdan to the Prefect of Rhône, 2 March 1861. The Catalogue Collectif de France identifies 4,000 volumes to the Thiollière book collection at the Bibliothèque Municipale de Lyon.

[132] Albert Falsan, 'Notice sur la vie et les travaux de Vincent-Eugène Dumortier', *Annales des sciences physiques et naturelles, d'agriculture et d'industrie / publiées par la Société d'agriculture de Lyon* 10 (1877): 23.

[133] CCEC – JE, "Journal d'entrées", p. 97, entry n° 155, 22 April 1861.

[134] Deliveries of fossils occurred on average every year. CCEC – JE, "Journal d'entrées", p. 97, entry n° 155 22 April 1861 (120 francs); p. 101, entry n° 163, 2 July 1861 (250 francs); p. 110, entry n° 181, 20 January 1862 (250 francs); p. 127, entry n° 205, 5 February 1863 (250 francs); p. 140, entry n° 225, 10 July 1863 (250 francs); p. 161, entry n° 258bis, 7 December 1864 (200 francs); p. 182, entry n° 294, 1 February 1866 (200 francs); p. 211, entry n° 336, 12 February 1867 (200 francs); p. 237-238, entry n° 372, 31 December 1867 (500 francs); p. 260, entry n° 412, 9 April 1869 (150 francs).

[135] The quarry of Creys was also exploited for lithographic stones and was considered to be part of the same limestone unit as Cerin. Société d'agriculture, histoire naturelle et arts utiles de Lyon, ed., 'Procès-Verbal de la séance du 20 août. Présidence de M. Lecoq', *Annales des sciences physiques et naturelles, d'agriculture et d'industrie* 3, no. 2 (1858): LVIII.

Figure 46 - Specimen of fossilised Gyrodus sp. from Cerin, Collection Thiollière or Jourdan, CCEC

Lapierre, who guaranteed him first refusal for any new findings.[136] The dealer of limestone also became a discerning fossil merchant. The site of Cerin is an interesting case of the opportunistic transformation of activities: from being the holder of a quarry concession, Monsieur Lapierre also evolved into a seller of geological objects. His flair for opportunity met scientific interests. Gradually, the site of Cerin had become a site of "out-housed" museum work triggered by commercial exploitation, the many surveys and investigations conducted by the Society of Agriculture of Lyon and by the Museum staff itself.

If the delivery to the museum was most of the time managed directly from Lapierre's retail shop in Rue Raisin in Lyon, Jourdan would also dirty his hands every

[136] About the deal made with Lapierre: CCEC - DP-J, "Journal de Jourdan", p. 54, Jourdan to the Prefect of Rhône, "Demande d'une somme de 1,454 francs pour quatre catégories d'acquisition et justification de leur utilité', 25 January 1861.

now and then and visit the quarry himself.[137] Giving a hand to unearthing was even a way to negotiate discounts, as the work of scooping out specimens was physically demanding.[138]

Making the site of Cerin a place of scientific interest and an outpost of the museum was not just about making deals in the backroom of a Lyon workshop and going backwards and forwards between the two locations. Cerin was also an experience. The distance, to start with: the place was not too distant, but reaching the site took a long time because it had to be reached by coach. The study of the site itself was physically engaging - like the example of Jourdan *not* being able to take part in the tiresome research. In a short paragraph of his '*Description des poissons fossiles*' of 1854, the description of the Kidmerridgian stratum, attached to a geological cut, offers a perspective of the experience of surveying the grounds at Cerin.

> "In Armaille just like in Orbagnoux, there are thin schists, barely hard, showing a ribboned aspect on the transversal splits; their colour is dull, brown-grey or brown: whether collided or scraped or lit up, a smell of empyreumatic oil emanates from them. They sometimes enclose siliceous nodules as well as large calcareous lentils or ridges which are compact and marlacious.
> The exploitation was open at the bottom of the stratum. In Cerin, the sheets are thicker and often reach a 0.10: bitumen vanishes, the grain becomes lithographic, the rock resounds and bears a taint of light yellow slightly grey, the sheets or beds are parallel and well regulated: they are separated by a bit of clay[...]."[139]

All the senses of the geologists were put to use in order to collect information about the encountered samples. The colours and chromatic patterns of the considered strata referred to as "sheets" were carefully noted: Thiollière would describe the colours themselves or the brightness of them. The patterns and the internal structure of the sheet would be described, especially concretions so as to highlight shapes of "calcareous lentils" - that is lentil-shaped chips of mineral or the included or surrounded "beds" of limestone. Observing the "compact" or "marlacious" consistency or measuring the thickness would provide other pieces of information in view of a meticulous description of the minerals. However, beyond sight, olfaction and

[137] CCEC - DP-J, "Journal de Jourdan" p. 100-101, Rapport sur les recherches géologiques et paléontologiques de la fin de 1864 et du commencement de 1865, 10 August 1865.
[138] CCEC - JE, "Journal d'entrées", p. 237-238, entry n° 372, 31 December 1867: Lapierre granted a discount of 85 francs for the participation of Jourdan in the extraction of the fossils.
[139] Original text: "(…) A Armaille comme à Orbagnoux, ce sont des schistes minces, peu durs, ayant un aspect rubané sur les cassures transversales; leur couleur est terne, gris-brun ou brune: percutés ou frottés vivement ou enflammés, ils laissent dégager une odeur d'huile empyreumatique. Ils renferment parfois des rognons siliceux ainsi que de grandes lentilles ou des bancs de calcaire marneux, compacte. - L'exploitation était ouverte à la base de l'étage. A Cerin, les feuillets sont plus épais et atteignent souvent 0.10; le bitume disparait, le grain devient lithographique, la roche est sonore et de teint de jaune clair un peu gris, les feuillets ou lits sont tous parallèles et très bien réglés: ils sont séparés par un peu d'argile": Victor Thiollière, *Description des poissons fossiles provenant des gisements coralliens du Jura dans le Bugey* (Paris; Lyon; Strasbourg: Chez Baillière; chez Savy; chez Veuve Levrault-Berger et fils, 1854), 143, http://doi.org/10.3931/e-rara-41247.

hearing led to yet another set of data: the rock is "sonorous" or even "empyreumatic", or in other words, marked by a strong smell of burnt leather or the like.

This synesthetic survey entailed actual interaction between the body of the geologist and the studied minerals, which would have been closely scrutinised - possibly with a magnifier, touched to feel their asperities, placed under the nose to appreciate the smell, knocked on to release their sound. In spite of the fact that the terminology used was in reality very academic and was nothing literary or showing particular inspiration, the physically engaging study of the rock would create a special relationship between the looked at (the minerals) and the onlooker (the geologist), especially in the given geographical context of Cerin, with which Thiollière, Lapierre and Jourdan had all been personally acquainted.

The to-and-fro mobility between Palais Saint Pierre and the quarry of Cerin was only echoing the connections between the two places. But of course, what explained this relationship was not solely comings and goings.

> "When the occasion of the acquisition of the Library of the late M. Thiollière presented itself, as well as his palaeontological collection, it was an honour for me to draw your attention to the Fossils of Cirin (sic) which those collections contained, and I told you that these fossils of Cirin the Reptiles and the Fish, allowed a lot for its value. Since the passing away of M. Thiollière, the quarries of Cirin have seen their activities become increasingly active; and not only have the retrieved fossils been more numerous, but chance had it that two complete skeletons of Reptiles, one *homœsaurus* and one *saphœsaurus*, a complete skeleton of a tortoise and several complete skeletons of large and beautiful fishes were also exhumed. Immediately after M. Thiollière's passing, in order for the riches of Cirin, coveted by the greater museums of Germany and Paris, to not escape our hands, I had M. Lapierre engage himself formally and in written form that he would deliver none of the discovered fossils without prior consultation with us and without our refusal to purchase them. M. Lapierre, in spite of all foreign solicitations he received, has been keeping his engagement."[140]

In this request for the authorisation to purchase fossils, Jourdan exposed many of the aspects which illustrated the particularity of the site of Cerin. He of course underlined the importance of those findings consisting of complete skeletons of

[140] Original text: "Lorsqu'il s'est agi de l'acquisition de la Bibliothèque de feu Mr. Thiollière, ainsi que de ses collections paléontologiques, j'ai eu l'honneur, Monsieur le Sénateur, d'appeler principalement votre attention sur les fossiles de Cirin (sic.) que renfermaient ces collections, et je vous disais que ces fossiles de Cirin, Reptiles et Poissons, en faisaient de beaucoup la principale valeur. Depuis le décès de Mr. Thiollière, les carrières de Cirin ont vu leur exploitation devenir de plus en plus active ; et non seulement les nouveaux fossiles trouvés ont été plus nombreux, mais un heureux hazard (sic.) a voulu qu'on y ait exhumé deux squelettes entiers de Reptiles, un homœsaurus et un saphœsaurus, un squelette entier de tortue, et plusieurs squelettes entiers de grands et beaux poissons. Immédiatement après le décès de Mr. Thiollière, pour que les richesses de Cirin convoitées par les grands musées d'Allemagne ainsi que par Paris ne puissent nous échapper, j'ai dû faire prendre à Mr. Lapierre exploitans (sic.) des carrières un engagement formel et par écrit de délivrer aucun des fossiles découverts sans préalablement nous les avoir soumis et nous avoir fait refuser de les acquérir. Mr. Lapierre, malgré toutes les sollicitations étrangères, a tenu fidèlement ses engagements […].": CCEC - DP-J, "Journal de Jourdan", p. 54, Jourdan to the Prefect of Rhône, "Demande d'une somme de 1,454 francs pour quatre catégories d'acquisition et justification de leur utilité', 25 January 1861.

vertebrates of sizeable dimensions, altogether highlighting the fact that despite having been the area of study of a deceased geologist, the site was still worth attention. This was also underlined by the pressing competitions of authoritative German museums, Jourdan implied, and even the Paris collectors and further "international solicitations". The tense situation around those coveted pieces was however contained owing to Jourdan's negotiating skills: he and Lapierre made an agreement that the museum would benefit from a right of exclusivity for the freshly extracted fossils, until explicit refusal was expressed.[141]

Cerin was not only made present by being displayed in the museum galleries. It also populated the subsequent publishing projects of Jourdan, which remained unfinished and were eventually lost. In an addendum to the posthumous second publication of Thiollière's *Description des poissons fossiles provenant des gisements coralliens du Jura dans le Bugey*, initially published in 1854 and augmented in 1873, the zoologist Paul Gervais added a contribution on the Cerin reptiles. He regretted, in the opening of his notice, that the work on the osteology of the specimens, conducted by Jourdan with the pieces present at the Lyon museum, had led to the making of nine plates for which a description was never published.[142] The museum director did nevertheless commission casts of certain pieces which were exchanged with other museums. Cerin was a flagship area of research for the Lyon museum, and even if fewer traces of its early study were preserved, such testimonies attest to the extent to which the Cerin site, not the quarry, but the site of geological interest, became infused in the activities of the museum, namely on its shelves, but also in its production of plates, prints, casts, together with the economy of exchanges with other naturalists and museums.

Physical displacement and mobility, building interpersonal relations to ensure mutual trust, but also scholarly study and the actual use of those pieces all originated from the quarry, while in the shelves of the museum galleries were the modalities of the construction of Cerin. Interestingly, Cerin did not just exist on its own, but was one dot in an ensemble of several other sites of interest in the Bugey area (Figure 47).

However, the particular dot of Cerin seems to have been singled out because of the work of Thiollière especially. And this shows two important aspects of the museum. The first is the porosity of the space of the museum, which was open and also the result of collaborations with other scholars and structures. This was shown by how the Lyon Museum became the central place for the study of Cerin via the intermediary of the Society of Agriculture of Lyon and the investigations of Thiollière.

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[141] Ibid.

[142] Paul Gervais, 'Remarques au sujet des reptiles provenant des calcaires lithographiques de Cirin, dans le Bugey, qui sont conservés au Musée de Lyon', *Comptes rendus hebdomadaires des séances de l'Académie des sciences* 73 (1871): 603–7.

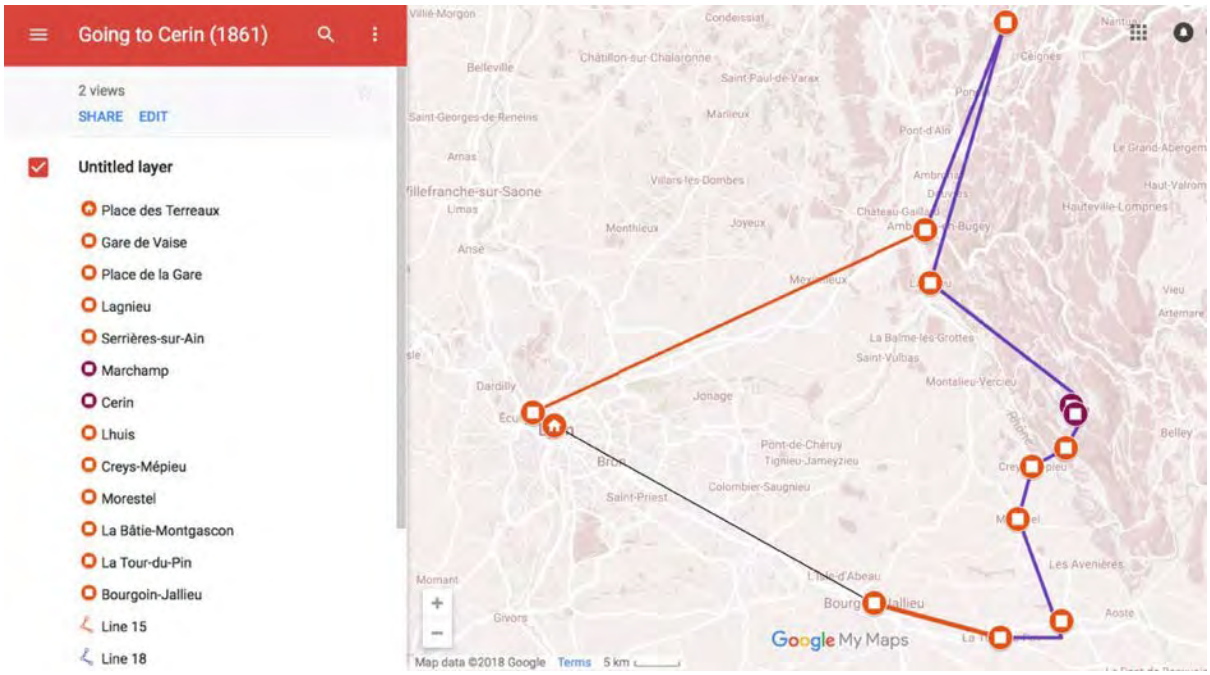


Figure 47 - Map of a trip to Cerin in 1861, including other stops.

More generally, it also reminds us that museums are also places which register and memorise the work of some scholars to then integrate it into a wider ensemble of objects and knowledge. And this was not only carried out through the recuperation of a book and fossil collection then remembered by the apposition of a name on a plaque. Rather, the case of the construction of the scientific gaze on the site of Cerin shows how the appropriation of objects also led to their integration into the museum's self (its collections, its gist, its research agenda and so on) and how this, in turn, contributed to making a quarry a scientific object and the external mirror of the museum's authority, which was jealously guarded by the practical elaboration of a right of pre-emption.

The site of Cerin is important because it casts light on how the geography of the museum, branching out to the outside of its shell, served to form an archipelago of sites which could be key suppliers (naturalist counters for instance), visited sites, or identified collections. Those sites were kept under close intellectual custody by a scientific community eager to preserve their exclusive 'natural right' over those sites.[143] Cases of controversies questioning the legitimacy of national instances in elaborating scientific discourses about 'local' sites occurred. The Société Géologique de France was for instance seriously criticised for its "erroneous" approach to the Monts-d'Or, a

[143] The expression was borrowed from the "right of nature" for Toulouse to claim ownership of Seissan's fossil field. AMT - 3D132 - x8, *Rapport sur les découvertes paléontologiques faites dans le département du Gers par Mr. Édouard Lartet*, by Joly professor at the Faculty of Sciences, 25 August 1845.

small massif just across the Saone which could be regarded, in actual fact, as the western, bourgeois suburbs of Lyon on a hilltop. The controversy concerned the publication of the minutes of the 1841 extraordinary session of the Société Géologique de France in Lyon. The report on the field work organised on this occasion was modified and did not meet the expectations of the Lyon learned societies, who decided to publish their own version.[144]

In the framework of research conducted for and ordered by the museum, the spatial mobility of the director and occasional other members of staff created a space dedicated to investigation and field work. Frequent practice and experience of the field led to the identification of what could be considered "non-scientific sites" and their construction as acknowledged scientific sites through interaction with institutions such as the museum. The museum could be a hub, but within a space which was closely under control. The section above has shown that the archipelago of scientific sites or outdoor places of knowledge around Lyon was patiently connected and formed by a community partly structured by the field *presence* of the museum staff.

The relationship established between the two types of places goes beyond a classical division of an urban site dominating or feeding the hinterland. Jourdan's travels show an area which was indeed within reach by various means of transport. In a more complex set of relations, some sites literally became outposts of the museum of Lyon, like the site of Cerin. In that latter case, opportunistic collaboration led to peculiar forms of associations of places, in this case the museum and the quarry with the relative ascendency of the museum. And this was the result of an important factor: shorter distances.

C. Making Toulouse the scientific centre of the Pyrenees

A valuable point of comparison needs to be made with Toulouse, the city famed for being a privileged centre for the study of the Pyrenees. In this section about travelling, collecting, and the production of specific, local knowledge, this sub-section seeks to examine the modalities of the construction of a discourse on the special relationship between Toulouse and the Pyrenees, and how the Toulouse naturalists' institutions were fostered as having some significance in the development of knowledge of the Pyrenees. Since there was no museum, this symbolic authority over the production of knowledge on the Pyrenees was possibly less tangible, or less concentrated in one building and in the hands of one person, namely Jourdan, than in Lyon. Other than matters of existing institutions or not, the time period explored

[144] Fournet, *Géologie lyonnaise*.

in the case of Toulouse is slightly anterior to that of the case of Lyon. We are talking about a moment, the first third of the nineteenth century, when professionalisation and institutionalisation had not reached such levels of specificity. Rather than voicing the discourses of people interested in the elaboration of a museum for themselves - namely people looking for a position - and considering it as a missing piece of the puzzle of what *should* have composed a city, let us use this situation to look outside of normative categories and just consider the situation as it was: there was no museum and this ought to lead to increased consideration for other forms of the institutionalisation of scientific authority.

A leading hypothesis of this section is how the expertise of the Pyrenees situated in Toulouse, and its deriving authority, was grafted onto the figure of Lapeyrouse. The level of consensus around his figure, locally, casts light on how his work was used to catalyse scientific production. His role as local collector and correspondent for hundreds of European collectors for the plants of the Pyrenees contributed to the generation of a *topos* on the plants of the Pyrenees present at the garden. Eventually, all of that was even passed on to travellers, eager botanists and otherwise, through the reading of touristic handbooks: a certain number of ideas developed in the first pages of Lapeyrouse's *Histoire abrégée* can actually be read in guidebooks about the city of Toulouse.[145]

This further reveals the place of travelling and savant mobility in the making of authoritative knowledge, and the circulation of the substance of knowledge. Travel served the savant to structure his writing, which was also a recording of what he saw, experienced and drew conclusions and knowledge from. This in turn is taken onboard by the scientific community in an attempt to build authority. Eventually, knowledge made from travel contributed to the fixation of the experience, was passed on in the textual form, through the medium of touristic guides. In this form, knowledge about the Pyrenees presented in the guide would serve to make sense of the experience of travel. But whether it took the form of textuality, or the authority of a local figure, it appears again that at the root of all the substance of knowledge lies the gesture of collecting and the practice of the outdoors.

[145] Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes*.

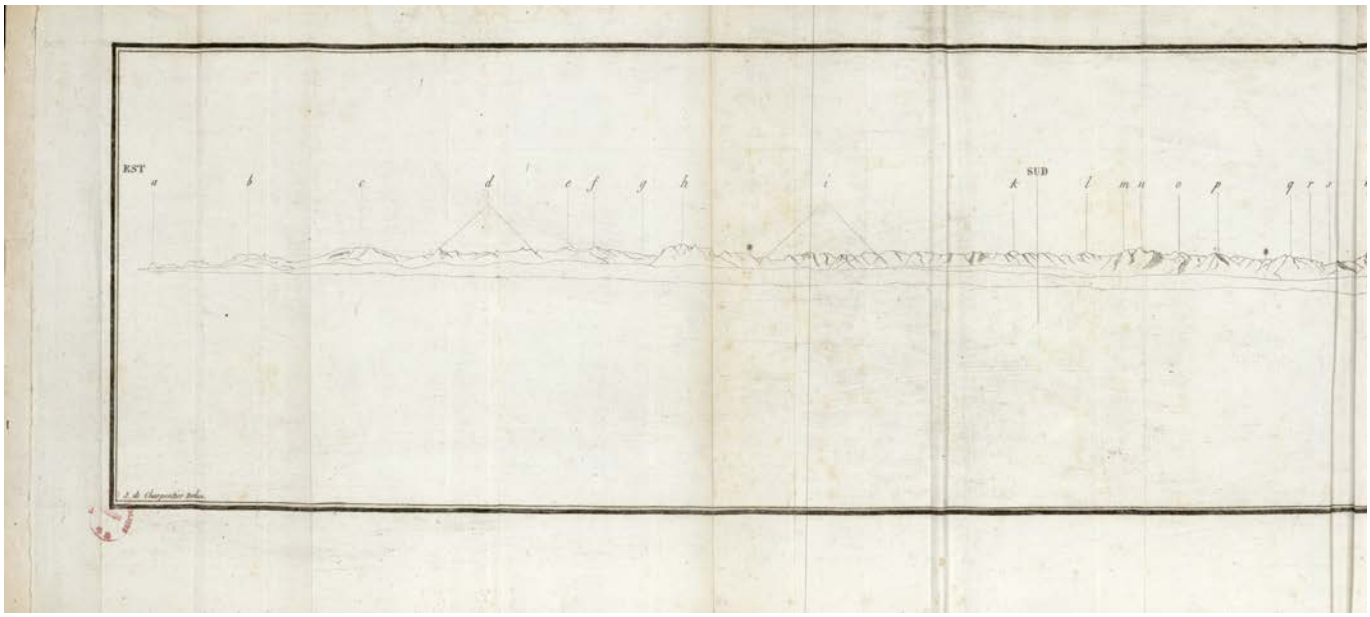


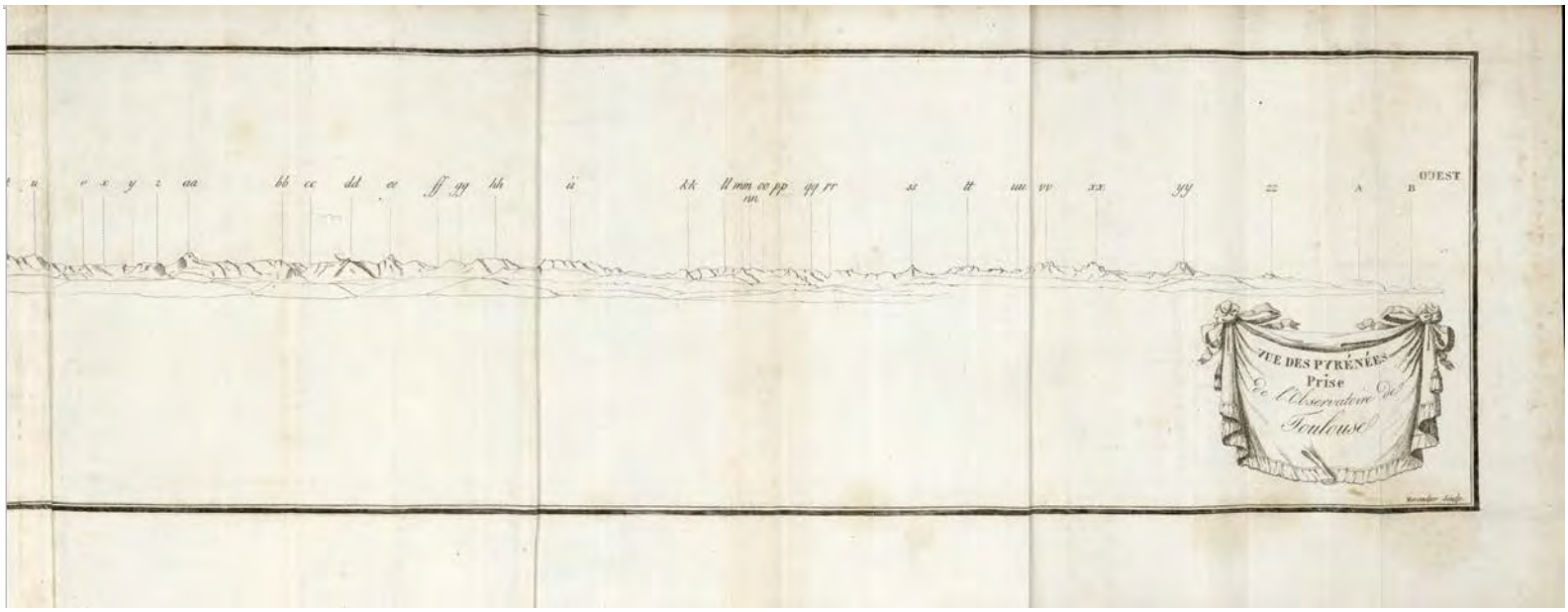
Figure 48 - Charpentier's sketch of the Pyrenean mounstainscape, taken from the observatory of Toulouse, in Picot de Lapeyrouse, Histoire abrégée des plantes des Pyrénées, 1813.

a. The Toulouse exploratory base for the Pyrenees

One way of establishing the commanding power of the city is provided by taking a sidestep and looking at Toulouse. The example of Toulouse shows that the city had been developed as the base point or main port of call for the study of the Pyrenees. This happened altogether independently from becoming a transportation hub, which it never became, at national level, before the development of air traffic. Jean Charpentier, the Swiss geologist, conducted a four-year-long study of the Pyrenees. He described Toulouse as his departure point, but above all as his winter refuge for putting his samples and notes *in order* as the cold and snow prevented all forms of outdoor exploration:

> "I stayed another two years in the Pyrenees, almost entirely occupied with roaming the lands which I had never visited, and to see again those where I had been given the chance to observe the facts most important to observe, or those that are most difficult to grasp. In the meantime, Toulouse was in some way the starting point of my trip: I spent the winters of 1810 and 1811 almost entirely there where I was busy ordering my notes and write about my observations."[146]

[146] Original text: "(…) Je restai encore deux ans dans les Pyrénées, presque uniquement occupé à parcourir les contrées que je n'avais pas encore visitées, et à revoir celle qui m'avaient offert les faits les plus importants à constater, ou les plus difficiles à saisir. Pendant ce temps, Toulouse était en quelque sorte le point de départ de mes excursions : j'y ai passé presque en entier les hivers de 1810 et de 1811, occupé à mettre en ordre mes notes et à rédiger mes observations.": Jean de Charpentier, *Essai sur la constitution géognostique des Pyrénées* (Paris: Levrault, 1823), http://dx.doi.org/10.3931/e-rara-68070.



Interestingly, the first page of his *Constitution Géognostique* mentions the four-year stay "in the Pyrenees" and Toulouse was a recurring stop within his Pyrenean exploration: Toulouse was absorbed by the Pyrenees, rather than being its capital city.

Nevertheless, Toulouse remained the place of choice for the study of the Pyrenees, and as such the authoritative place in Pyrenean-related knowledge, at least for the French side of the mountain range. Being able to see the skyline above the Pyrenean mountain-top with a naked eye was certainly a decisive element in the construction of the connection between Toulouse and the Pyrenees. Charpentier located a spot at Pech-David, roughly four kilometres ("*environ 2000 toises*") out of Toulouse to observe the mountains, which allowed him to both "embrace a vast horizon" as well as "distinguish well the main details".[147]

Accessibility could not be the only argument for the link between Toulouse and the Pyrenees; rather it was above all the available on-site infrastructure and existing community of savants which, in the early nineteenth century, made Toulouse a favourite place of observation of the Pyrenees (Figure 48). Not the least of its flagship institutions was the observatory. At the time of the visit of Charpentier in around 1810, it was located in the central of Rue des Fleurs, in the former "*Maison Observatoire*" of François Garipuy, the late Toulouse astronomer.[148] Even better than Pech-David, the

[147] Ibid., 7.
[148] Lamy, *L'observatoire de Toulouse aux XVIIIe et XIXe siècles*, 2015, 192. For a more detailed descritpion of the *Maison*, see Lamy, *L'observatoire de Toulouse aux XVIIIe et XIXe siècles*, 2007, 55–63.

Observatory of Toulouse was the observation point from which Charpentier had designed the profile of the Pyrenees which found Lapeyrouse's endorsement to the point that he used it for his own *Flore* of the Pyrenees.[149] The ensuing fugitive sketch of a mountain range represented as a jagged line delineating summits conveys a very elusive bond between the city and the mountain range, and the distance is indeed palpable. It however contributed, by visual means, to the recuperation of the Pyrenees by the city. Much more than a point of departure for collecting, Toulouse could become a component of the very field of observation of the Pyrenees, as well as being the main laboratory for its study.

b. Knitting the Pyrenees into the Toulouse collections

The presence of experts in the study of the Pyrenees was an important factor in that, and Lapeyrouse was a key figure therein. Charpentier notably referred to not only Lapeyrouse's work, but also his friendship. Winters in Toulouse were spent hosted at the Lapeyrouse home in Rue de la Pomme,[150] where Charpentier was first in line to benefit from Lapeyrouse's Pyrenean expertise and field knowledge. Lapeyrouse and Charpentier had in fact begun correspondence well before Charpentier's stay in the Pyrenees. The Strasbourg *entremetteur* between Francophone and Germanic land, Jean Hermann, had put the two naturalists in contact, and a first letter is recorded for 1779.[151] The friendship was even prolonged by correspondence with Charpentier's son, Jean, and his sister Caroline.[152] The story of this scholarly but also personal friendship was elaborated with the intermediation of Lapeyrouse's knowledge, taking physical form in his collection. And even after he had passed away, Lapeyrouse's collection continued to sign-post Toulouse as a place of fine resources for anyone interested in the study of the Pyrenees. Those collections were inscribed within the very fabric of the city.

Lapeyrouse's bequest to the city of Toulouse took the form of his mineralogical collection and his influencing touch on the botanical garden, all of which had been fashioned mainly through his explorations of the Pyrenees. His scholarly figure was also held on to as a guarantee to legitimise scientific claims for the establishment of a museum to provide a proper home for his natural history collections. Adding to the scientific caution applied to the mineralogical collection was the work of Charpentier

[149] Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes* cited in Charpentier, *Essai Sur La Constitution Géognostique*, p. 7.
[150] Charpentier, *Essai sur la constitution géognostique des Pyrénées*, xv.
[151] MNHN – Ms 1990, it. 108, Jean de Charpentier (Father) to Picot de Lapeyrouse, 5 March 1779. Rusque, 'Faire circuler les objets naturalistes au XVIIIe siècle. Jean Hermann comme intermédiaire dans les échanges entre la France méridionale et l'espace germanique'.
[152] MNHN – Ms 1990, it. 130-164, Jean de Charpentier (Son) to Picot de Lapeyrouse, from 1808 to 1813; Caroline de Charpentier to Picot de Lapeyrouse, it. 165-177, from 1805 to 1813.

in the ordering and labelling of the mineralogical collection, after it was purchased for the account of the Faculty of Science of Toulouse for teaching purposes.[153] Even after Lapeyrouse's death, the dense fabric of collections, societies and correspondents still made Toulouse a worthy stop for naturalists. For instance, during his 1828 trip to Southern France, Blainville also made a series of stops in Toulouse, both on the route to the Pyrenees and elsewhere (he also departed from Toulouse to reach Marseille), where he met with Gabriel-Délie Béguillet, a former student of Lapeyrouse and owner of a naturalist collection.[154]

Nevertheless, while the mineralogical collection was gathering dust in a cramped backroom of the Faculty of Science in Rue du Collège Royal, the flagship institution of natural history was the botanical garden.[155] From 1800 to 1850, the symbolic importance of the garden as the keeper of natural knowledge was heightened by the glaring absence of a municipal natural history museum. The particularity of the garden was that it was recognised for its wealth in Pyrenean species. Toulouse's botanical garden could therefore be seen as the re-appropriation of the Pyrenees *inside* the walls of the city.

The local history has well registered how it was the *courses* to the Pyrenees conducted by Ferrière and Lapeyrouse that had made the project of a new, consolidated botanical garden possible at the time of the Directory.[156] In Lapeyrouse's own words, he dedicated most of his life to the study of the plants of the Pyrenees and cultivated a "prodigious" number of them, which, he conceded, would not have been possible without the help of travellers presenting him with gifts of plants as they came back from the mountains he had helped to orient them in.[157] Tapping into nearby natural resources inevitable led to having an important proportion of species from the Pyrenees. The importance of the relationship with the mountains was however then consolidated and was not only the result of a favourable session of botanisation: specimens often required to be "replaced" owing to inadequate surroundings or to hailstorms, and trips had to be specially organised. The 1827 catalogue[158] of the

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153 Leymerie, *Notice sur le cabinet minéralogique et géologique de la Faculté des Sciences de Toulouse*, 6. The mineralogical collection was purchased in 1824: F171947, Folder 1819, Letter from Isidore Picot de Lapeyrouse to the Minister of Public Instruction, 11 May 1819.

154 MNHN – Ms BLA 13, *Voyage dans le Midi de la France*, 1828. Florentin Ducos, 'Éloge de Mr. Béguillet', *Mémoires de l'Académie des Sciences, Inscriptions et Belles-Lettres de Toulouse* 3, no. 2 (1846): 272–79. Béguillet later made a couple of attempts to remind Blainville of his past favours. See MNHN - Ms BLA 4, it. 135, Béguillet to Blainville, 19 September 1828 and ibid., it. 136, Béguillet to Blainville, 18 March 1830.

155 AN – F171948, folder "Toulouse-1838": the *Recteur* of the University of Toulouse to the Minister of Public Instruction, 20 July 1838. For the location of the faculty, see AMT – 2 Fi 4, Plan géométrique de la Ville de Toulouse, par P. J. Bellot, 1847

156 Vergne, *Le Jardin des Plantes de Toulouse*.

157 Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes*, viii.

158 *Catalogue des plantes cultivées au Jardin de Botanique de Toulouse à l'usage des élèves de l'École du Jardin* (Toulouse: Imprimerie Douladoure, 1827), http://tolosana.univ-toulouse.fr/notice/049383191.

garden, probably elaborated by Isidore Picot de Lapeyrouse, son of Philippe, shows a relative importance of specimens from the Pyrenees. Each plant is listed together with its place of origin. "Pyrenees" was identified as a separate category. But a detailed analysis shows that quantitatively, the Pyrenees represented 20% of the plants. A share of 25.3% was represented by "common" or "vulgar" plants, possibly collected in the surrounding area of Toulouse - yet not exactly in the Pyrenees. More interestingly, the species originating from the African region (7%), the Asian and Pacific regions (10%) and the Americas (15%) added up to 32%, which represented 31% more extra-European species than from the Pyrenees.

The importance of the Pyrenees in the botanical collection was therefore qualitative and constructed from works of authority such as Lapeyrouse's. It also permeated touristic literature. The historical account of Toulouse and its monuments included a section on the Jardin des Plantes. "Botanists shall find in that garden all the plants growing on the chain of mountains of the Pyrenees", Cayla and Paul explained in 1842.[159] The pictorial representation of the garden, however, hardly evokes a mountainous environment: the plate associated with the straightforward and unelaborated text is picturesque with trees, but perspective emphasised the bordering buildings and the trees along the Allée Saint-Michel (Figure 49).

c. Toulouse, the Pyrenees and the touristic guide

In a moment when touristic literature developed and soared, there were also guides for Toulouse, which always included some discussion of the Pyrenees, whether anecdotal or very elaborate. The group of guides examined below is a non-exhaustive sample, kept in the Toulouse libraries and published from 1800 to 1870. The series remains limited to an *Indicateur Toulousain* published in 1822, multiple re-impressions of *Le Guide des étrangers* from the 1830s and a reworked version for its fifth edition in 1869.[160]

[159] Jean-Mamert Cayla and Cléobule Paul, *Toulouse monumentale et pittoresque* (Toulouse: Typographie de Lagarrigue, 1842), 224–26, http://tolosana.univ-toulouse.fr/fr/notice/163969116.

[160] *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse; contenant une notice sur cette ville. Ouvrage nécessaire aux étrangers, aux voyageurs, aux militaires, aux gens de lettres, aux médecins, aux artistes, aux commercans, aux étudiants, aux personnes pieuses, et à tous ceux que leurs infirmités obligent à aller aux eaux thermales.* (Toulouse: Benichet cadet, 1822), http://tolosana.univ-toulouse.fr/fr/notice/131377523; *Guide des étrangers dans Toulouse et ses environs: contenant des notices historiques et descriptives sur les monumens...* (Toulouse: Imprimerie J. M. Corne, 1833), http://tolosana.univ-toulouse.fr/fr/notice/167614096; *Guides des étrangers dans Toulouse et ses environs. Contenant des notices historiques et descriptives sur les monumens ou édifices publics ou privés anciens et modernes; sur les musée, bibliothèque, observatoire et jardin des plantes ; sur les fontaines, embellissements, etc. ; sur tous les établissemens ayant rapport à l'industrie ou au commerce, comme usines, manufactures, fabriques.* (Toulouse, 1834); *Guide des étrangers dans Toulouse et ses environs, suivi d'une notice sur les eaux minérales des Pyrénées* (Toulouse: Imprimerie de J. B. C. Darolles, 1839), http://tolosana.univ-toulouse.fr/fr/notice/132287218; *Guide des étrangers dans Toulouse*, 5th ed. (Toulouse: Delboy, 1869), https://gallica.bnf.fr/ark:/12148/bpt6k6568957f.

Figure 49 - Plate of Allée Saint-Michel in Toulouse, showing the entrance gate to the botanical garden, in Cayla and Paul, Toulouse monumentale et pittoresque*, 1842. BUT - Tolosana*

Touristic guides were more than a plain and neutral description of a city. Rather, they delivered a discourse on the reality of the city which bordered on fiction.[161] The discourse however fed from scientific literature: this was the case with Lapeyrouse's work, which was a recurring citation in the examined editions of guides. More interestingly, the *Histoire abrégée des plantes des Pyrénées et itinéraires des botanistes dans ces montagnes* was arranged in ways that made it close to a guide.[162] Purposefully designed in small and portable format, the book did not contain classifications of plants, but included notes about in-garden culture and insisted on the discrepancies with field specimens together with the low predictability of local conditions up in altitude, which may affect blossoming periods.[163] Developing a very striking parallel between classification (Linnaean) and the botanist's itinerary in the mountains, Lapeyrouse also insisted on how Linnaean taxonomy was more advantageous than pleasurable (opposing it to Jussieu's): "nomenclature is the guide to the traveller".[164]

[161] Pierre-Yves Saunier, 'Lyon au XIXe siècle: les espaces d'une cité' (Doctoral thesis, Université Lumière - Lyon II, 1992), https://tel.archives-ouvertes.fr/tel-00008880/document.
[162] Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes*.
[163] Ibid., xi.
[164] Ibid., xij.

The two textual genres, the touristic guide and the botanical description, did not only entertain a relatively close dialogue, which was perceivable through material features and plays of citations, they also served the purpose of enabling a fruitful exploration of the Pyrenees.[165]

> "Whichever way is used to reach the Pyrenees, one discovers them from afar. The most favourable point of view has to be taken from the plain of Toulouse. The traveller will find himself then placed facing roughly the centre of the chain, far enough to embrace a vast horizon, and near enough to distinguish and identify its principal details. One contemplates on this chain in respectful awe; she develops with majesty from mount Canigou to the Valley of Aspe. Pech de Bugarach and the main summits of Corbières present themselves to the East, on the foreground of this picture, as magnificent as it is colossal. This an immense rampart whose unexpected aspect awakens in each man a profound sentiment of admiration, as well as it recalls him to his own weakness and impotence. […] The immense wall appears in sumptuous fashion in the horizon, which she overfills completely; it seems like this is the endmost limit to the earth."[166]

In many ways, the above quotation encapsulates most of why the Pyrenees were tangibly important in Toulouse. The introductory assertion that the mountain range may have "occupied a significant place in the history of earth" appears not substantial enough to unpick its meaningfulness.[167] It also illuminates how the fictional reality developed for Toulouse and the Pyrenees was fuelled by an idealised situation for embracing outdoor panoramas.[168] What mattered though was the centrality of Toulouse with regards to the mountainscape, and how the plain of Toulouse was in fact ideally located to embrace the whole of the Pyrenees: at a glance, the individual standing in Toulouse could see it all. It was a privilege to see such a spectacle because in the end, it also resulted in a moral experience of facing one's own human limits.

This was paradoxical because while it provided an opportunity to tickle the limit of human capacity and the finishedness of the world, it still triggered a sense of command over nature and opened perspectives, of owning the entirety of accessible knowledge — since it can fit in the field of vision. But Lapeyrouse notifies the reader:

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165 Anne Secord, '"Pressed into service: specimens, space, and seeing in botanical practice"', in *Geographies of nineteenth-century science*, ed. David N. Livingstone and Charles W. J. Withers (Chicago: Chicago University Press, 2011), 286–92.

166 Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes*, iv. "De quelque côté qu'on se dirige vers les Pyrénées, on les découvre de très-loin. Le point de vue le plus favorable doit se prendre dans la plaine de Toulouse. Le voyageur se trouve placé à peu près en face du centre de la chaîne, assez loin pour pouvoir embrasser un vaste horizon, et assez près pour distinguer et saisir les principaux détails. On contemple cette chaîne dans un respectueux étonnement; on la voit se développer avec majesté depuis le Canigou jusques à la vallée d'Aspe. Le Pech de Bugarach et les principales sommités des Corbières se présentent à l'est, sur le devant de ce tableau, aussi magnifique que colossal. C'est un immense rempart dont l'aspect imprévu excite dans l'homme un profond sentiment d'admiration, et le rappelle à celui de sa faiblesse et de son impuissance. (…) Cette immense muraille se dessine merveilleusement à l'horizon, qu'elle remplit tout entier ; on dirait que c'est la dernière limite de la terre."

167 Ibid., i.

168 Bigg, 'The Panorama, or "La Nature à Coup d'œil"'.

this is only a distant picture, and the unbelievable morphological riches of the mountains shall be graspable only through direct encounter with the relief of the mountains, otherwise the "idea" of the Pyrenees shall not be "exact".[169]

The *Indicateur Toulousain ou Le Guide du voyageur dans Toulouse*, published in 1822, sets the record straight by stating on its title page how necessary the booklet was to be to anyone looking to "fix their attention on (…) what the Pyrenees offer to be remarkable" in relation to the "picturesque" as well as "Mineralogy and Botany, Industry and the Art of healing".[170] The guide was therefore targeted to "Foreigners, Travellers, Soldiers, Men of Letters, Physicians, Artists, Traders, Students" but also to the pious and the sick. In this latter case, the target audience was meant to be those who travelled to the mountains to take the waters for several weeks. The Pyrenees were indeed famous at the time for their spa towns, like Bagnères.[171]

"The object which most strikes the traveller who, from the northern or western provinces, arrives in Toulouse, is the view of the immense chain of the mounts of the Pyrenees."[172] The transitional page leading the reader from a good two thirds of the book in onto pages dedicated to the Pyrenees is explicit about their connection with the city: the fact that the mountains can be *seen* and sensed from Toulouse is enough to establish the connection. The mountainscape offered an enthralling experience causing travellers to divert their gaze to the impressive and looming silhouette, as if they were irremediably attracted by the mountain range - hence the opening section on the Pyrenees. A couple of pages later, a "Table of Heights" summarised in a half a page-sized table the key summits to observe, further proving Briffaud's point about how curiosity for the summits had developed in the later eighteenth century.[173]

A later guide provides a different approach to the Pyrenees, though again confirming its status as the key attraction in Toulouse. The 1839 *Guide des Étrangers dans Toulouse et les environs* announces that it contains a section on the Pyrenean spa resorts. It starts with a presentation of the key historical and 'statistical' facts of Toulouse (section 1) in which the longer history of the area is browsed before the reader is taken to a presentation of an "abridged topography" of the *département*.[174] Large sections of the text relating to monuments or aspects of Toulouse history were inspired or paraphrased from earlier versions of Toulouse guides, when not, in truth,

[169] Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes*, iv.
[170] *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*. See cover page especially.
[171] Briffaud called the Pyrenees the "*montagne thaumaturge*" (the "healing mountain"), in reference to a legendary healing power of the French king), Briffaud, *Naissance d'un paysage*, 273.
[172] *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*, 107. Pages 1-106 are concerned with Toulouse, and pages 107-153 with the Pyrenees.
[173] Briffaud, *Naissance d'un paysage*, 171–220.
[174] *Guide des étrangers dans Toulouse et ses environs*, 20.

actually plagiarised.[175] The 1822 and 1839 guides, although they were separate projects, both start their tour of the remarkable spots of the city in similar fashion, guiding the footsteps of the traveller as they roam through the streets of the city. Both descriptions start, for instance, with the small stone bridge crossing the Canal du Midi, allowing a view onto the gate of Arnaud-Bernard, where presumably the visitor will start their journey.[176] From there already, standing right outside the walls of the city, the traveller's eye may catch a glimpse of the snowy mountain caps.[177] After touring parts of the central highlights of Toulouse, the visitor is ushered into the neighbourhood of Saint-Cyprien on the left bank of the River Garonne. A quick comparison of the 1822 guided tour with an 1815 map of Toulouse suggests that the traveller would not venture away from the streets identified as being funded and controlled by the central government.[178] The map indicates those streets in yellow. Unsurprisingly, as well as copying text, the 1839 guide also found inspiration in the earlier guide for the type of tour, taking the visitor through the same areas of Toulouse (Figure 50).

Additionally, both guides suggest the same turning of the head, at the same point of the tour, and in the exact same wording. It is then, when crossing the Pont-Neuf as the traveller returns to the centre of the city, that looking towards their right they will see "in the distance (…) the village of Vieille-Toulouse, situated on the hills named Pech-David, which is the rearmost ramification of the Pyrenees".[179] The 1839 version is however truncated from this concession:

> "The beautiful mountains we have just named mark out the limit of the horizon, and in spite of the fairly great distance from it, their principal peaks and the most interesting points may be recognised from afar."[180]

After walking down through the Fonderie area to reach Porte Saint-Michel and after having reached the neighbourhood of the key scientific institutions, hosting the observatory, the Academy of Sciences and the Jardin des Plantes, the visitor would reach the central point of the Grand-Rond, where the tour ended with a stroll in "one the loveliest promenades of southern France" where again, they might catch a view of the "aspect of the Pyrenees".[181]

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[175] All the cited guides in this study mention an idea of a viewpoint on the Pyrenees from the hills of Pech-David. Saunier attested to the 'copying' practice in his study of the Lyon guides, especially about the touristic construction of the site of Fourvières: Saunier, 'Lyon au XIXe siècle', 264–68.
[176] *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*, 13; *Guide des étrangers dans Toulouse et ses environs*, 14.
[177] *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*, 14; *Guide des étrangers dans Toulouse et ses environs*, 48.
[178] AMT - 20Fi4, [Plan of Toulouse], 1815. See Figure 50.
[179]. *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*, 19; *Guide des étrangers dans Toulouse et ses environs*, 52.
[180] Original text: "Les belles montagnes que nous venons de nommer bornent ce côté de l'horizon, et quoique l'on en soit séparé par une assez grande distance, on en reconnait cependant les principales cimes et les points les plus intéressants.": *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*, 19.
[181] Ibid., 23.*Guide des étrangers dans Toulouse et ses environs*, 54.

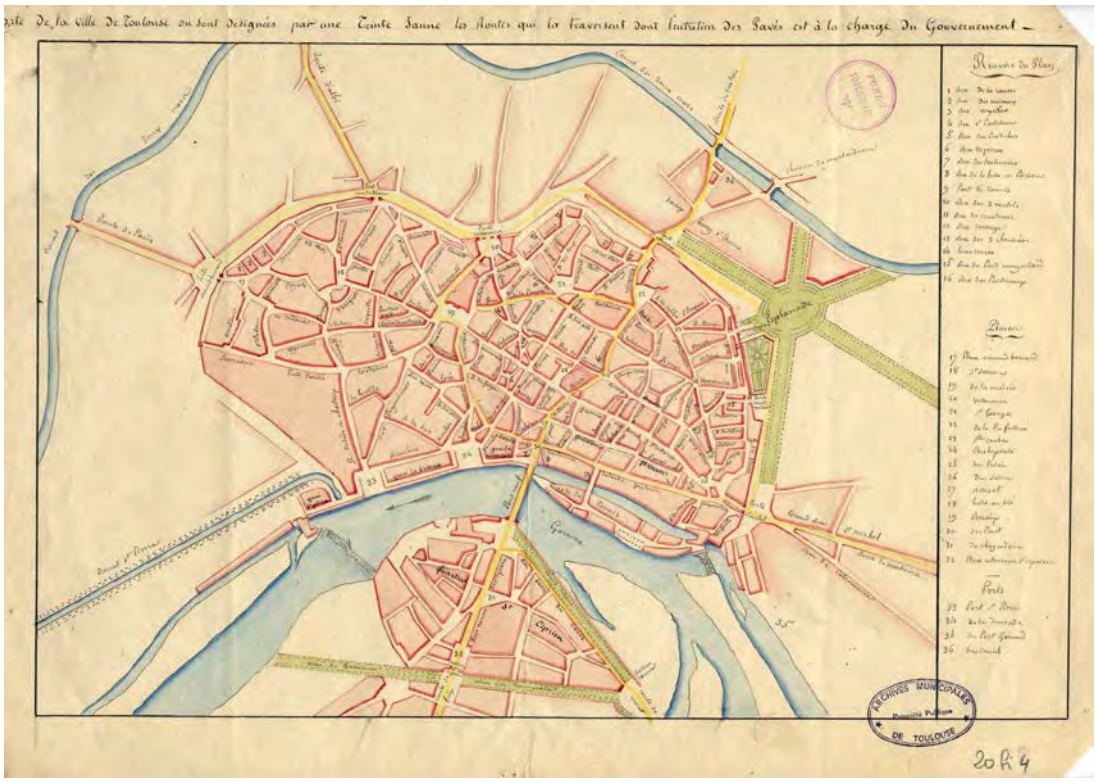

Figure 50 - Map of Toulouse, 1815. AMT.

The guides, which sought to offer an exhaustive view of the city through sampled remarkable highlights, had altogether a very normative effect on the perception of the space of the city. These two copies of city guides to Toulouse, even if they offer a less systematic study than previous surveys conducted for Lyon for instance, show similar traits of the standardisation of itineraries through the city, of litanies of street names, buildings, great men. Standardisation is emphasised by the similarity of itineraries and passages copied from one guide to another.[182] The thread of touristic guides followed the itineraries of the visitor, offering a perception of space as lines stretching from point to point according to the used route, whether road, path or rail.[183] Saunier also demonstrated how the spaces designed for and by the circulation of visitors within the city contributed to the spatial formalisation of an *entre-soi* and a selection of places which the visitor could relate to, intellectually and socially.[184]

When it comes to the Pyrenees, the content of the two guides shed light on the modalities of the inscription of the Pyrenees within the space of the city of Toulouse. The connection was administrative: there was a piece of the mountain chain in the

[182] Saunier's chapter entitled "A la découverte de Lyon" is an in-depth study of the features and evolutions of the touristic literature on Lyon in the nineteenth century: Saunier, 'Lyon au XIXe siècle', 33–100.
[183] Daniel Nordman, 'Les guides-Joanne', in *Les Lieux de mémoire*, ed. Pierre Nora, vol. 2, 3 vols (Paris: Gallimard, 1986), 529-567.
[184] Saunier, 'Lyon au XIXe siècle', 33–100.

department of Haute-Garonne that offered literally common ground. In the pattern of circulation of the visitor travelling from France, Toulouse was also the place to call at prior to reaching the spa resorts in the Pyrenees. Thus, the inclusion of the Pyrenees was a very French approach. But these ways of appropriating parts of the Pyrenees, while metonymically considering those parts as the whole, was also rendered by the panorama. In times of the construction of the panorama as a key touristic feature and a starting point to a visit to any city, Toulouse happened to not have enough relief around it to produce such viewpoint.[185] To see at a distance, one needed to climb up the observatory of Toulouse or into places where the view was clear of buildings, such as from the bridge across a river, or to walk around the promenade, which lay south-east of the city, outside of the walls, and with an open view towards the south, namely, the Pyrenees.[186]

The association between the spaces of the city of Toulouse and the Pyrenees was above all sensory and empirical: the view of the Pyrenean panorama generated stupefaction.[187] To a certain extent, the Pyrenees provided that vanishing point indispensable in the construction of the aesthetics of the nineteenth-century urban perspective.[188] In a way, visitors were themselves the agents of an association of the two separate spaces of the city and the mountains, by means of the experience of roaming around the city. Additionally, the space of the Pyrenees could appear as merely a projection of the sketched outline of the mountain range onto the backdrop of the Toulouse panorama, and this is one way in which the association took shape.

Beyond the perception of an actual site of natural resources, knowing about the Pyrenees required one to go on site and the 1822 guide encouraged visitors to take on the footpaths to reach those points where previous great figures had once stood, like Tournefort: surely this would trigger ideas of genius in the budding botanist.[189] A list of readings, containing classics like Ramond's *Voyage au Mont-Perdu*, Lapeyrouse's *Histoire abrégée des plantes des Pyrénées*, and Du Mège's *Archéologie Pyrénéenne* was recommended to those who nourished some hope of a "fruitful" trip.[190] The transmission of knowledge across generations of naturalists contributed to the

[185] This was even criticised by certain guides. See for instance John Murray, *A Handbook for Travellers in France: Being a Guide to Normandy, Brittany, the Rivers Seine, Loire, Rhône and Garonne, the French Alps, Dauphiné, Provence and the Pyrénées*, 5th ed. (J. Murray: London, 1854), 242, https://gallica.bnf.fr/ark:/12148/bpt6k103226k. About the making of the panorama over Lyon from Fourvière: Saunier, 'Lyon au XIXe siècle', 67–68.
[186] Charpentier watched the Pyrenees from the observatory in rue des Fleurs. See above, 3, C. Making Toulouse the scientific centre of the Pyrenees, p. 296.
[187] *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*, 10.
[188] About the construction of aesthetics of landscapes see Jean-Marc Besse, *Le goût du monde: exercices de paysage* (Arles: Actes sud, 2009).
[189] *L'Indicateur Toulousain ou Le guide du voyageur dans Toulouse*, 123.
[190] Ibid., 127.

construction of the natural space of the mountain, trodden and appropriated by the human.

By stabilising itineraries and imaginaries, guides to Toulouse and the Pyrenees turned into instruments of control over nature and a means of reproducing the experience of collecting in the Pyrenees. The elaborate depiction of the panorama of the Pyrenees fencing in the city of Toulouse where, in turn, the nature of the mountains was knitted into the urban fabric through careful collecting, gardening and studying, certainly contributed to making Toulouse the scientific centre of the Pyrenees.

4. MUSEUMS AS FOREMEN: FIELD, LABOUR AND NATURAL KNOWLEDGE

The cartography of the mobile presence of the Lyon museum representative, embodied as Claude Jourdan, has revealed how collecting for the museum induced the production of an inside-out space of the museum. The design of these patterns was however not the result of a scientific charm and did exist beyond their discursive form. Indeed, they were fashioned by practices of a ritualised gesture of collecting based on field work and inspired by the ambition for an exhaustive inventory of natural resources. The development of faster transport, the consolidated authority of the museum through more systematic bureaucratic mechanisms, and its gradual evolution into a centre of translation of the collected material had brought collecting to a certain degree of change.

As a matter of fact, field work created practical environments where the authority of the museum staff and the museum could both be tried. In other words, confrontation with the space outside of the museum generated opportunities for frictions and the negotiation of scientific expertise. But beyond scientific authority, it is interesting to note how the museum did not only convey a system of norms about natural knowledge, but also a system of norms which echoed those at work in society in general: to a broad extent, the inside-out museum coincided with the extension of a normative space.[191]

The authority of the museum was both presumed and established. This in turn contributed to the consolidation of certain hierarchies where the museum could position itself in a position of domination. I have shown above that when confronted

[191] On the normativity of museums see John Tresch, 'Des Natures autres. Hétérotopies de la science', in *Histoire des sciences et des savoirs. Modernité et globalisation*, ed. Kapil Raj and H. Otto Sibum, vol. 2 (Paris: Éd. du Seuil, 2015), 143–64.

with the central places of scientific production like Paris or London, the Lyon museum director somehow ducked out of the competition by elaborating a pragmatic strategy of considering them *just* unbounded cornucopia for natural objects. There were still at least two ways in which the municipal museum could position itself within hierarchies and convey the norms thereto related. The museum was first a representative institution of the controlling scientific power of the city over the countryside, not only by amassing sampled objects from that area, but also by contributing to further delineation between the experts and the laymen, which echoed a more general trend in society. Indeed, in the act of ordering objects and giving orders, the inside-out museum would hardly lead to the vanishing of discrepancies in the distribution of scientific work: there were the orders, and there were the chores. Each would be assigned to socially different groups of people. Rather, the museum would consolidate and set a clear boundary between the experts and the others, the professionals and the helpers, in a nineteenth-century society relatively preoccupied with order.

A. Digging down the city

In the geography of the Lyon museum order, Place des Terreaux was square one. The urban environment was not only the home-base point, where the gathered and shipped specimen samples were successively "filtered, sanitised and tamed".[192] Similarly, the city was also the place from which the natural world was ordered in view of a collecting trip. The itinerary, the stops, the intermediaries: most of the field operations were mapped there, possibly in the office of Jourdan to be even more precise. Additionally, the development of faster transportation to and from Lyon contributed to making it an accessible hub. Jourdan's receipts show multimodal navigation between means of transport, using boat, train or private coach, or even the omnibus where applicable or necessary.

The physical historicity of urban sites had developed as a favoured object of study since the eighteenth century: savants surveyed the city's botany, geology and archaeology.[193] The context in which public authorities mobilised considerable means

[192] Karin Knorr-Cetina, *Epistemic cultures: how the sciences make knowledge* (Cambridge: Cambridge University Press, 1999), 27; quoted in Thomas F. Gieryn, 'City as Truth-Spot: Laboratories and Field-Sites in Urban Studies', *Social Studies of Science* 36, no. 1 (2006): 5.

[193] Van Damme, *Métropoles de papier*. See in particular Chapter 1 "La nature de la métropole. Une histoire physique", 23-70. Artaud, *Lyon souterrain, ou Observations archéologiques et géologiques, faites dans cette ville depuis 1794 jusqu'en 1836*.

to adapt the urban materiality to the imagined perfection of modernity fuelled the study of the underground even further. This resulted in the multiplication of construction sites which altogether became playgrounds for anyone searching for ancient remains as they offered easy perforation into the depths of the city.

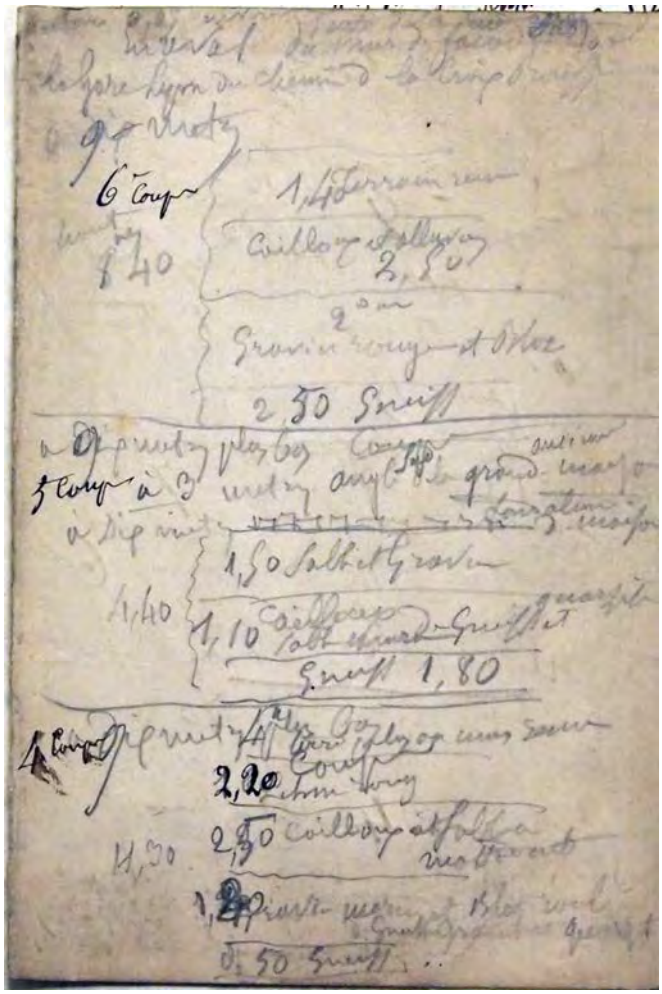

Figure 51 - Notes of Jourdan, separate sheet in notebook. CCEC

Lyon was yet another good example of how cities were considered repositories of specimens and offered good opportunities for collecting. Artaud, the archaeologist and head of the Musée des Beaux-Arts of Lyon (1802-1830), vigorously defended the protection of archaeological finds in a context of rising interest for a deep history of the city and its foundations.[194] Walking around the city for underground findings was a habit Jourdan shared with the former director. Lyon is also a good example of how excavating the city was altogether a symptom of its going through important change. The morphology of the urban evolved in such ways that savants also witnessed the disappearance of certain prized sites of exploration. Eighteenth-century and early nineteenth-century savants used for instance to botanise in the area of Perrache, the tip of the peninsula formed by the confluence of the Rhone and Saone, which had been little urbanised up to the early nineteenth century. The draining and "industrialisation" of the peninsula, as signalled by Balbis in the 1820s, had ruined the natural milieu and the area "was to be soon entirely lost to botanical research".[195]

[194] Artaud, *Lyon souterrain, ou Observations archéologiques et géologiques, faites dans cette ville depuis 1794 jusqu'en 1836*. About the history of the ancient foundations of the city see Van Damme, *Métropoles de papier*, 73–109.

[195] "Il est toutefois une localité qui, souvent indiquée dans les catalogues de mes prédécesseurs, l'est plus rarement dans la Flore Lyonnaise; c'est la presqu'île Perrache qui, déjà envahie d'un grand nombre d'établissement industriels, finira bientôt par être entièrement perdue pour les recherches botaniques", in Balbis, *Flore lyonnaise*, xiv–xv. About urban botanising and the development of regional botany see Denise

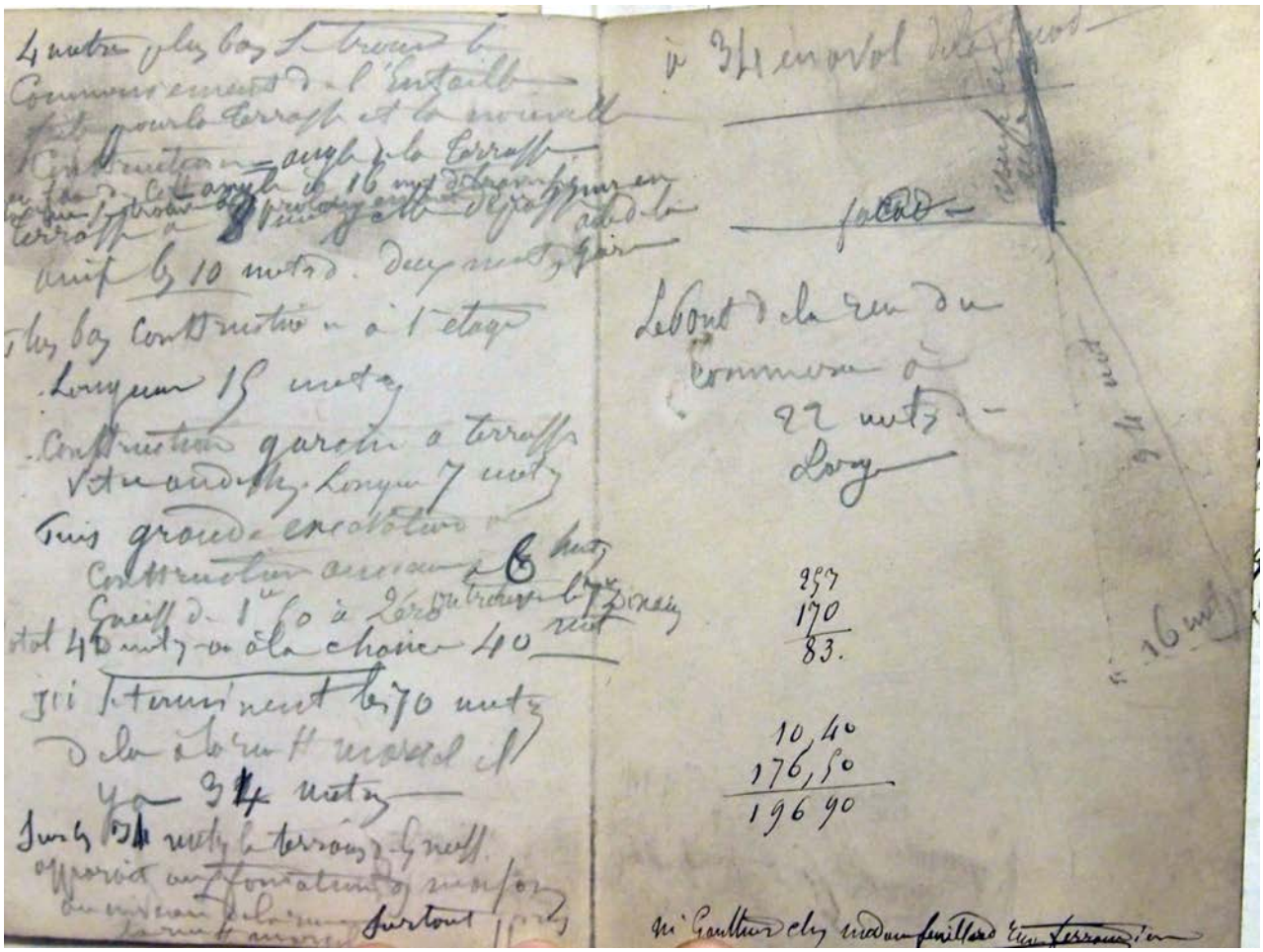

Figure 52 - Notes of Jourdan, separate sheet in notebook (second page). CCEC

The slopes and hill of La Croix Rousse were hardly built-up, in the early nineteenth century, before the explosion of the textile industry and the *canut* housing.[196] The rapid urbanisation of the area and the annexation of the *commune* in 1852 led to a series of new constructions (a new sewage system, railway and Croix-Rousse station, destruction of the outer wall, for instance). Drilling the hill of La Croix-Rousse for tunnels and railways left the underground bare for exploration, an opportunity Jourdan seized many times in his search for minerals and fossils.

On a number of occasions, Jourdan walked up to the Croix-Rousse area. The paper slip presented on this page is but one example left of the work of sampling data

Phillips, 'Friends of Nature: Urban Sociability and Regional Natural History in Dresden, 1800-1850', *Osiris* 18, no. 2 (2003): 43–59. About the development of ecology through botany, see Jens Lachmund, 'Exploring the City of Rubble: Botanical Fieldwork in Bombed Cities in Germany after World War II', *Osiris* 18 (2003): 234–54.

196 About the *canuts* from La Croix-Rousse, see Fernand Rude, *Les révoltes des canuts (1831-1834)* (Paris: La Découverte, 2007), 10–13. On the urban history of La Croix Rousse, see Saunier, 'Lyon au XIXe siècle', 359–459.

on site by Jourdan.[197] Other traces take the form of lines entered in the *Journal d'Entrées* or as receipt stubs for the museum expenses.[198] The *Journal* offers constant recording of the expenditures and the acquisition of objects. It was therefore indirectly and through the financial compensation offered to the workers, that their contribution is put into light.

Time caused a slip of paper separated from its initial lot (Figure 51 and Figure 52) to be inserted instead between the cover and the first page of a notebook Jourdan had kept in his early years, about zoology. The notes on the paper were certainly taken decades later, in the early 1860s, as Jourdan had it in mind to produce a new geological map of Lyon. The leaflet, it appears, was unrelated to zoology. Despite the pencil scribblings made difficult to read by the work of time as well, it allows for some reconstruction of Jourdan's exploration of La Croix-Rousse.

The note attested to three cuts, numbered "6th", "5th" and "4th". There must have been a separate slip of paper carrying at least cuts 1, 2 and 3. By all means, the ink used over pencil and the order of the numbering shows subsequent numbering of the cuts, which were seemingly conducted on the slopes of the Croix-Rousse, downwards, in the direction of the railway station. Moving downhill, Jourdan would proceed to cuts in the underground every 10 metres or so. For every stop he improvised an illustration of the cut, regardless of scale but bearing indications of depth. Each point was indicated by means of distances from a spot easy to remember, like for instance, for the 5th cut, the text reads "10 metres lower down, cut 3 metres away from wall angle South of the big house" followed by a sketched cut.[199]

The apparently hazy and incomplete rendering of what Jourdan saw was in fact quite complete in terms of his appreciation of the data he found necessary to carry back to his office and continue working from. The slip of paper is incomplete to us, over 150 years later, because we miss the part where we are on the ground with Jourdan. But having laid his eyes around him and *knowing* and having experienced the location, it was easy enough for him to precisely locate the point on map. Importantly though, field notes reveal a mixture of savant knowledge of measurements with knowledge produced *ad hoc* and memorised through ways which referred to the visual experience, the memory of the place and textual devices.[200]

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[197] Examples of small wages paid to workers at La Croix-Rousse: CCEC – JE, "Journal d'entrées", p. 92, entry n° 145, 28 March 1861; p. 93, entry n° 147, 20 April 1861; p. 100, entry n° 160, 24 May 1861; p. 109, entry n° 176, 6 January 1862. Occasionally, sellers may have been women, like Madame Sardier, p 139, entry n° 223, 16 June 1863; p. 228.

[198] CCEC - DP-J, "Journal de Jourdan"; AML - 78WP030, "Musée d'histoire naturelle. Registres et bordereaux de dépenses".

[199] CCEC - CO-CLM, *Inventaire mammifères,* [sheet inserted in the notebook], undated.

[200] Marie-Noëlle Bourguet, 'A Portable World: The Notebooks of European Travellers (Eighteenth to Nineteenth Centuries)', *Intellectual History Review* 20, no. 3 (2010): 377–400, https://doi.org/10.1080/17496977.2010.492617.

The entry n°147, entered 20 April 1861, suggests that Jourdan paid a visit to construction sites every couple of days (Figure 53).[201] It must have been an important phase of intense digging in the construction of the railway through the Croix-Rousse, and he certainly did not wish to miss out on any opportunity. He must already have been a familiar figure by the end of March 1861, and the workers knew they had good opportunities for putting butter on bread if they learned to recognise relevant pieces and were fortunate enough to come across one.

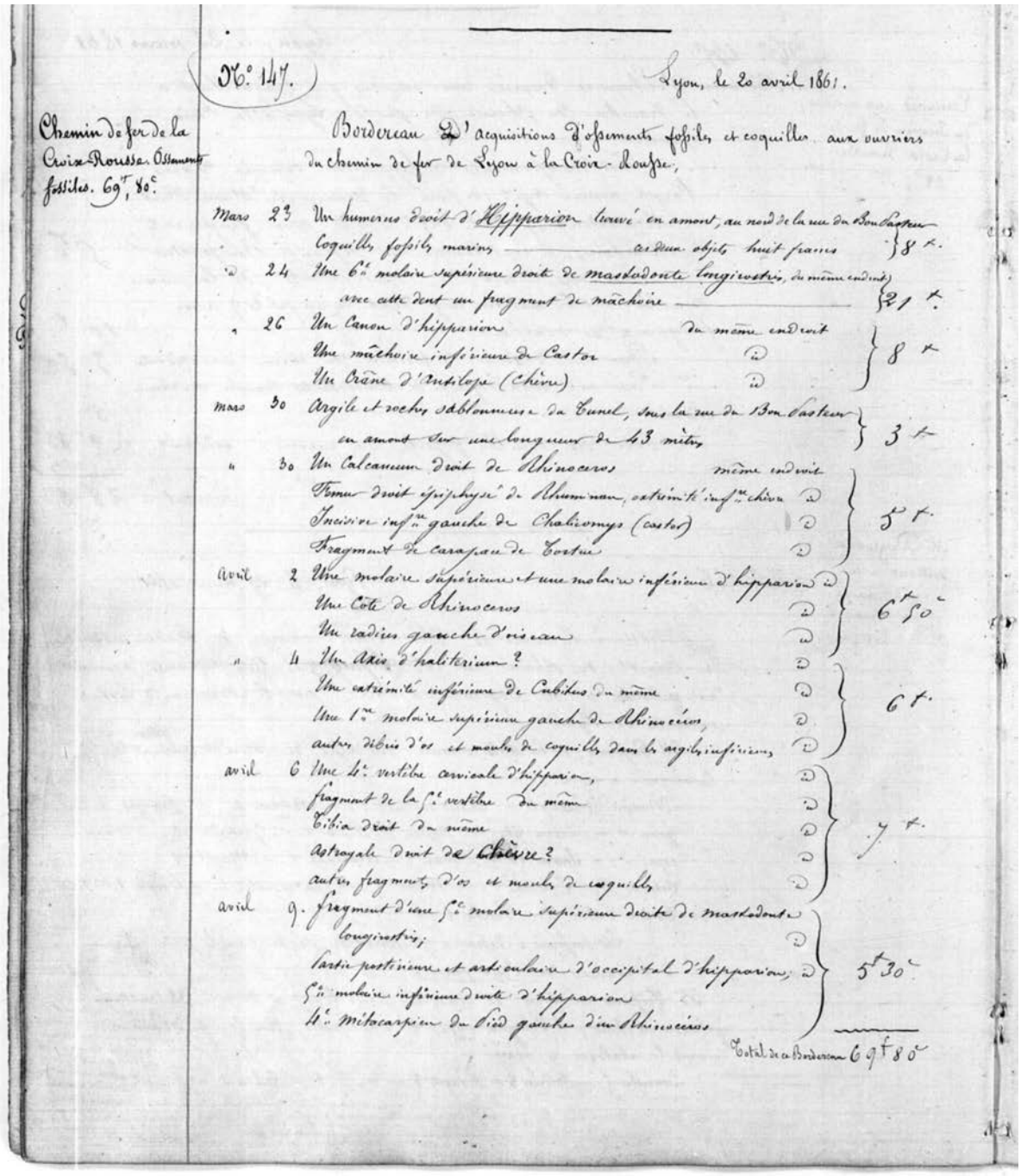
Inputs of small amounts attesting for one-off items of financial compensation are scattered across the *Journal*. Usually, each entry provided identification of the piece it was used to purchase. Unlike entries for sales considered more notable (especially in terms of expenses), the suppliers of the piece, that is, the men digging out the objects and minerals, were completely anonymised. The plural used for "*les ouvriers*" ("the workers") indicates, though, that the fee would not just go to the foreman but that there was possibly a small crowd of on-site workers who had made a deal, individually. Small amounts, and cheap labour, were certainly used to complement the museum collection. In this way, geological and palaeontological samples became objects of opportunity for both sides.

This practice of intra-urban geology resulted in treading the grounds of the city, and perhaps with more interest in those spots where the city was bare of coats of cobblestones and successive layers of backfill. Through this contact with the invisible depths of the city, the museum director also came into physical contact with the social strata of people involved in geology. The social stratification and the organisation of labour was legible too, within the enterprise of looking for fossils.

B. Heroes and helpers: fieldwork hierarchies

The mania for collecting and the bourgeois taste for the creation of those private dystopian worlds within their homes is well known and has sometimes pointed to a practice which had been essentially gentlemanly, masculine, and sometimes even a way to prolong the old regime and cope with the nostalgia of order.[202] Ordering the sampled world was also a way to discipline a perceived tumultuous crowd and the study of collecting has revealed how it was coloured or even structured by a nineteenth-century Western European society obsessed with order and hierarchy.[203]

[201] CCEC – JE, "Journal d'entrées", p. 93, entry n° 49, Copy of the remittance slip for the payment of the workers at the railway of Lyon at La Croix-Rousse, 20 April 1861.
[202] Stammers, 'The Bric-a-Brac of the Old Regime: Collecting and Cultural History in Post-Revolutionary France'.
[203] Bennett, *The birth of the museum*. About hierarchy in geology, see Knell, *The culture of English geology, 1815-1851: a science revealed through its collecting*.



N° 147. Lyon, le 20 avril 1861.

Chemin de fer de la Croix-Rousse. Ossements fossiles. 69f, 80c.

Bordereau d'acquisitions d'ossements fossiles et coquilles aux ouvriers du chemin de fer de Lyon à la Croix-Rousse,

Mars	23	Un humerus droit d'Hipparion trouvé en amont, au nord de la rue du Bon Pasteur Coquilles fossiles marines ——— ces deux objets huit francs	8 f.
id	24	Une 6e molaire supérieure droite de mastodonte longirostris, du même endroit avec cette dent un fragment de mâchoire ———	21 f.
"	26	Un Canon d'hipparion du même endroit Une mâchoire inférieure de Castor id Un Crâne d'antilope (Chèvre) id	8 f.
mars	30	Argile et roches sablonneuse du Tunel, sous la rue du Bon Pasteur en amont sur une longueur de 43 mètres	3 f.
"	30	Un Calcaneum droit de Rhinoceros même endroit Fémur droit épiphysé de Rhuminan, extrémité infre chèvre id Incisive infre gauche de Chalicomys (castor) id Fragment de carapace de Tortue id	5 f.
avril	2	Une molaire supérieure et une molaire inférieure d'hipparion id Une Côte de Rhinoceros id Un radius gauche d'oiseau id	6f 50c
"	4	Un Axis d'haliterium ? id Une extrémité inférieure de Cubitus du même id Une 1re molaire supérieure gauche de Rhinocéros, id autres débris d'os et moules de coquilles dans les argiles inférieurs id	6 f.
avril	6	Une 4e vertèbre cervicale d'hipparion, id fragment de la 5e vertèbre du même id Tibia droit du même id Astragale droit de Chèvre ? id autres fragments d'os et moules de coquilles id	7 f.
avril	9.	fragment d'une 5e molaire supérieure droite de mastodonte longirostris; id Partie postérieure et articulaire d'occipital d'hipparion; id 5e molaire inférieure droite d'hipparion 4e métacarpien du pied gauche d'un Rhinocéros	5f 30c

Total de ce Bordereau 69f 80c

Figure 53 - Journal d'entrées, *p.90, entry n° 47, 20 April 1886. CCEC*

"Cultures of collecting" dug through the many depths and levels of society, and it was not exclusively a sign of distinction of the well-off.[204] The anonymous and the invisible of society would also take part in the giant nineteenth-century fossil hunt; and they would possibly be the ones with dirtier hands from scratching the ground. Authority and posterity was indeed not socially homogeneously distributed.[205] Natural history collecting in a broader sense remained largely an unformalised and socially crossing practice.[206] It notably served as a life insurance and as economic and cultural capital, and levels of professionalism could vary from collector to collector.[207] While practices of inventory and observation were gradually challenged by laboratory and experimental science in the course of the century, collecting remained an essential component of scientific practices throughout, with a peak in collecting at the end of the nineteenth century.[208]

Not only would the museum director be involved: looking for fossils required a crowd of individuals. Both Dubuisson and Cailliaud in Nantes, and Jourdan in Lyon have left records of their physical and social engagement with the field. The section below focuses on the people who are not the usual suspects of geological surveys, but have nevertheless been significant intermediaries, and in some way, suppliers of fossils and minerals in the effort of "completion" in the Nantes and Lyon collections. The field operated as a boundary place where socially diverse worlds would meet. Dwelling on examples taken from Lyon, the section below will also offer some comparative points from Nantes. Above all, the examples shall reveal that the field did not allow a re-shuffling of the social cards: it borrowed hierarchies from working society and allowed little negotiation thereof.

a. Helpers

Jourdan relied heavily on the cooperation of "workers" toiling away on construction sites within the city. But his wanderings would also take him to various other types of openings in the continental crust, such as quarries. As Rudwick noted, finding fossils was as exciting as it was rare and it was common for Cuvier to rely on

[204] The expression was borrowed from the title of the essential work of Nicholas Jardine, James A. Secord, and Emma C. Spary, *Cultures of natural history* (Cambridge: Cambridge University Press, 1996). The volume embraces a long eighteenth century and thereby covers some areas of nineteenth-century natural history. This contribution was published over twenty years ago now and did cast some light on the construction of natural history as a culture, including during parts of the nineteenth century.

[205] Roy Porter, 'Gentlemen and Geology: The Emergence of a Scientific Career, 1660-1920' 21, no. 4 (1978): 809–36; Knell, *The culture of English geology, 1815-1851: a science revealed through its collecting*, 2–8.

[206] See for instance Anne Secord, 'Science in the Pub: Artisan Botanists in Early Nineteenth-Century Lancashire', *History of Science* 32, no. 3 (1994); Romain Bertrand, *Le détail du monde: l'art perdu de la description de la nature* (Paris: Éd. du Seuil, 2019).

[207] Knell, *The culture of English geology, 1815-1851: a science revealed through its collecting*, 2–8.

[208] Kohler, *All Creatures: Naturalists, Collectors, and Biodiversity, 1850-1950*; quoted in Alberti, 'The Status of Museums: Authority, Identity and Material Culture'.

someone watching men working in the Paris quarries, keeping an eye on their finds.[209] Records show a majority of workers ("*ouvriers*", when anonymised) being remunerated either for the sale of a piece, or as compensation for helping to dig out objects as helpers in Jourdan's explorations. In the summer of 1862, in the course of a trip to Saint Géraud-le-Puy and Langy, Jourdan paid a dozen individuals working on the quarries, all with different roles.[210] Olivier, a quarry worker, received 11.20 francs for a cynelos head; Nicolas Hedelin, a quarry master, received 10 francs for fragments of bird skeletons; an anonymous quarrymaster in Pouyllin received 3 francs for a turtle and fragments of crocodile; the father of the Neury family also exchanged bones of birds and ruminants for 5 francs, as did the sons of the same family who made 6 francs for similar objects. Further down the list of sellers, a group of anonymous "young workers and wives of quarry workers" received 5.75 francs for non-specified pieces. On the same day still, Jourdan purchased a fossilised squirrel for 4 francs from the stonemason Monsieur Rey and a rhino tooth for 1.80 francs from foreman Monsieur Bron.[211] It was not unusual either for Jourdan to turn to children to help in spading the soil.[212] In 1864, the contribution of "two workers and children" cost 3.40 francs for a day's work during a trip to Belfort.[213] Overall, there were two types of operations recompensed: it was either a small stipend for the use of a worker's muscle and time, or in the framework of a transaction in the process of acquisition of an object.

While those operations were related to relatively stationary labour, other types of workers could be mobilised. Operations of mobility required a specific workforce, like hiring mountain guides for the exploration of the Alps. Those guides were however always designated by their function, guiding, and were never associated with a name. They usually came with an animal workforce, like donkeys, whose carrying power was extremely useful for the transportation of heavy loads of minerals across fairly long distances and altitudes.

The value of the work of individuals on the field was indexed on a social scale. The fee negotiation for the "workers" on quarries, for instance, was never inscribed in the *Journal d'entrées*. The records show the amount paid for a completed service. Transactions with quarry masters were certainly oral, and they must have authorised payment for the quarry workers, and the occasional help of wives and children. The negotiations conducted with Lapierre copied in December 1867 for an earlier

[209] Martin J. S. Rudwick, *The Meaning of Fossils: Episodes in the History of Palaeontology* (Chicago; London: The University of Chicago Press, 1985), 54.
[210] CCEC – JE, "Journal d'entrées", p. 121, entry n° 196, 8 August 1862.
[211] Ibid.
[212] CCEC – JE, "Journal d'entrées", p. 159-161, entry n° 258, "Recherches pour les terrains tertiaries miocènes et éocènes sur les rives du haut Rhône", 15 January 1865, esp. p. 160.
[213] CCEC – JE, "Journal d'entrées", p. 159-161, entry n° 258, "Acquisition de M. Lapierre (…)", p. 160.

transaction stipulate clearly that the deal was reached in advance.[214] Yet the actual proceedings might turn out differently: a bundle of "fossils" for a total value of 415 francs was dug out of the quarry of Creys, under the command of Lucien Lapierre (who also owned the concession of Cerin). He specified that "in order to harvest new fossils [they] had had the upper layers of a new quarry in Creys cleared out and uncovered." Jourdan was to roll up his sleeves too, "for a small part", and his contribution, for one or more days, had been estimated worth 85 francs. In comparison, the work of the two men and an undefined number of children hired in Planchers-les-Mines in 1864 was priced at 3.40 francs. Used as a handle to obtain reduced-price pieces, the professional status of Jourdan and his scientific expertise certainly influenced an inflated estimation of the value of his muscular energy.

The group of people present on these occasions could mirror the social divisions crossing through society in general. While the museum director also experienced the field, he was still the man giving orders. While Jourdan did not leave records of the team of his helpers when he travelled to the Alps, for instance, those trips were rare occasions for which he and two other companions from the museum were coming along. He would generally travel on his own or with one other person for longer trips. Although his travelling took place decades later, Jourdan's habits in the constitution of an exploring team in the mountains resembled those of Lapeyrouse at the Mont Perdu.[215]

> "I was accompanied by two [of my students], Frizac and my son, a student of the School of Mines, and by Ferrière, Head Gardener of the botanical garden at our École Centrale in Toulouse. Citizen Pasquier had joined us. Five guides carrying supplies and cutting out steps in ice and snow followed the tread of fearless Frizac. Such was the composition of our caravan."[216]

The presentation of the "caravan" of Lapeyrouse striding across the massif of Mont Perdu followed a clearly hierarchical line: Lapeyrouse was followed by his students, then by his faithful gardener and friend Ferrière, by a less well-identified Pasquier, then the guides. The stylistic organisation of the description, to some extent, overshadows the physical efforts of the men carrying and digging on top of climbing

[214] CCEC – JE, "Journal d'entrées", p. 237, entry n° 372, 31 December 1867.

[215] In the manuscript version of *Voyage au Mont-Perdu*, Lapeyrouse ended his text with a note explaining that this expedition had allowed him to collect over 800 plants and that he would hold back his comments on the botany of the Pyrenees for the forthcoming *Flore*. BMT – Ms 956, *Voyage au Mont-Perdu. Observations sur la nature des crêtes les plus élevées des Pyrénées* [ms], by Picot de Lapeyrouse, 15 Fructidor V [1 September 1797]. Picot de Lapeyrouse, *Figures de la flore des Pyrénées, avec des descriptions, des notes critiques, des observations*.

[216] BMT – Ms 956, *Voyage au Mont-Perdu*, ibid., p. 3.
"J'étois accompagné par deux [de mes élèves], frizac et mon fils, éleve des Mines, et par ferriere jardinier en chef du jardin de Botanique de notre école centrale de Toulouse. Le C[itoy]en Pasquier s'étoit joint à nous. Cinq guides qui portoient des vivres, et qui creusoient des gradins dans les neiges et les glaces , sur les traces de l'intrépide ferriere. [telle] étoit la composition de notre caravane. […]".

while the celebration of the leading role of the savant Lapeyrouse and the intrepidity of a near-heroic Ferrière is well emphasised.

b. Heroes

Pricing the physical effort of the museum director revealed that he was no regular worker. But his force resided not only in social status, but also in the fact that he was in contact with the forces of nature. Providing detailed description of the history of those forces over the history of the earth also required defying those forces and facing danger. Collecting minerals took museum directors to daring places like mountains summits.

"We are often afraid […], in the midst of our research, of the diversity, of the grandeur of geological phenomena." In his 1860 report to the Prefect of the Rhône *département*, Claude Jourdan could not silence his enthralment with the forces of nature which he had studied for approximately thirty years and gathered immeasurable quantities of minerals.[217] Jourdan also meant to promote a humble attitude in the study of nature: a topos, but that was very occasional in what is left of Jourdan's writings. Administrative records were not the right place to pour out field emotions. His silence resonated interestingly with notes left by his Nantes counterpart Cailliaud. In the minutes of his geological account of Loire-Inférieure, Caillaud included a footnote in which he accounted for a life-threatening experience he and his team endured in the course of a mineralogical survey along the coast.

> Searches on the islet were gruelling. First, crossing the sea is often troubled with storms, especially during the spring tide which one is advised to choose. The ground is uneven, covered with sharp jagged ridges and excavations where the sea has stayed. The ground everywhere is covered and masked with slippery kelp. We should add that each episode of low tide hardly provides enough time for research, especially further away from the tower, because we needed to be on time to seize the ladder of the lighthouse prior to the return of the sea.
> We conducted plenty of excursions to these premises to collect not only fossils, but also coastal shells for the departmental collection. These searches occasioned many stays at the lighthouse. One, amongst others, was longer than we would have fancied: during the equinox of November 18, we were constrained to retreat into the tower for 14 days of stormy weather, during which no craft could approach us. Quite fortunately, we had with us biscuits, potatoes and sand [gathered as a precaution] containing foraminifera, and the biscuits and potatoes did not run out".[218]

[217] CCEC - DP-J, "Journal de Jourdan", p. 51-54, Rapport sur les recherches géologiques et paléontologiques dans le Bassin du Rhône, 4 August 1860.
[218] MHNN - Cailliaud 8 - "Notes et observations. Recherches géologiques et conchyliologique dans le département de la Loire Inférieure": "Les recherches sur l'Ilôt(sic) furent pénibles ; d'abord les traversées sont souvent orageuses, pendant les grandes marées d'équinoxe qu'il convient de choisir ; le sol est inégal, hérissé de crêtes de roches, d'excavation où la mer a séjourné ; partout des goémons glissants recouvrent et masquent le sol ; ajoutons que chaque marée basse donne bien peu de temps pour les recherches, surtout celles éloignées de

The text of the last sentence of this quotation was reworked multiple times and eventually ruled out entirely on the manuscript. It may have appeared to Cailliaud that those circumstantial matters were of no relevance to his geological description of the *département*. The event took place in 1818, when he was an assistant to Dubuisson - which implicitly shows that he had also been caught in the same trap as Cailliaud that year. It thus might have been blatantly inappropriate for Cailliaud, then a younger naturalist still in the course of his training, to boast about fearful endeavours. It looked much more appropriate, rather, to be heroicised after passing away: Louis Bureau liked to recall his courage and intrepidity as a young Egyptologist, but post-mortem.[219]

Summits like coastal areas were daring places to be collectors of minerals. Established museum directors, like Dubuisson and Cailliaud in Nantes, and Jourdan in Lyon, saw their study time split between various places from which two complementary types emerged: the office and the field. The latter proved to have been significant in their experience of producing knowledge, yet this part of the experiment hardly appears in the administrative files and notes. This absence resulted from the types of documents kept from their respective work. Or it was perhaps not judged relevant. In times imbued with romanticism, discourses on nature recovered from field scientists did however underline the importance of the milieu in determining the results of experiments undertaken in extreme conditions.[220] The changing weather and seasons were be taken account of in preparing for travelling or geological observation - which therefore concerned not only botanists.[221] Other than that,

la tour, car il faut arriver à temps pour saisir l'échelle du phare avant le retour dans la mer. Nous avons du faire de nombreuses excursions sur les lieux pour y recueillir non seulement les fossiles, mais encore les coquilles de la côte pour la collection départementale. Ces recherches ont occasionné bien des séjours au phare ; l'un, entre autres fut plus prolongé que nous l'eussions voulu : durant l'équinoxe de Novembre de [18XX], il fallut nous retirer dans la tour durant 14 jours de mauvais temps, sans qu'aucune embarcation put nous aborder. Heureusement que nous avions du biscuit, des pommes de terre et du sable [recueilli par précaution] contenant des foraminifères, et que le biscuit et les pommes de terre ne nous ont pas manqués".

[219] AMN - 2R565, *Muséum d'histoire naturelle. Notice* [print], by Edouard Bureau, undated, p. 92-93.

[220] Lachlan Fleetwood, '"No Former Travellers Having Attained Such a Height on the Earth's Surface": Instruments, Inscriptions, and Bodies in the Himalaya, 1800–1830', *History of Science* 56, no. 1 (2018): 3–34, https://doi.org/10.1177/0073275317732254.

[221] See for instance the considerations of Charpentier, about his description of the Pyrenees, which he made during the winter and had to amend with the help of M. de Mursat who knew the mountains well and had noticed the relief was deformed by the presence of snow at the time of observation: "j'allais donc avec Mr. de [Mursat] au pont pour examine avec lui, qui connait assez bien la position des montagnes, le dessin. Nous trouvames que l'ensemble était for exact, mais que le dessin dans le détail était trop addouci, c'est-a-dire que les découpures et les échencrures dans les montagnes sont plus nettes plus vives dans la nature que sur mon dessin, et que les cretes paraissent plus herisées ; mais cela provient de ce que j'ai fait ce dessin à l'epoque ou ces montagnes étoient couvertes de neige, qui en comblant les creux addoucit d'une manière extraordinaire les cretes et fait disparaitre beaucoup de creneaux, que l'on reconnait du temps d'été. En conséquence il fau remarquer dans l'explication de la plancgen que j'ai pris la vüe à la fin d'hÿver, et que la quantité prodigieuse de neige qui à cette époche s'y trouve addoucissoit considéreablement la crete, qui vu pendant et à la fin d'étét, dépouillée de neigen paroit moins unie mais plus hérisé par des petits points": MNHN - Ms 1990, it. 151, Charpentier to Lapeyrouse, 7 October 1812

exploration in extreme areas like mountainous regions was often associated with tests of manliness.[222] The detail of how collecting in difficult conditions proceeded can hardly be retrieved. Sources are too scarce. From the bits and pieces left, one can perceive that the outdoor collecting practices of Jourdan, or Cailliaud, were inscribed in tradition, which can be retrieved for instance in Lapeyrouse.[223] This tradition had naturalists physically try nature as part of their lifetime training, in their learning of their own inferiority to nature.[224] But somewhere between humans and nature, there was a specific place for museum naturalists who dared to confront nature, came to seize pieces of it to bring back to their museums and tame within their classificatory systems. In doing so, they came closer to nature. Empirical practices of nature, at the time of the development of laboratory science, hallmarked the work of the Lyon and Nantes museum directors and bestowed them with further scientific authority. The natural history museum thereby further extended its influence far outside its walls.

C. Hierarchies of knowledge?

The examples above have shown that opportunistic field geology was also enabled by the opportune use of working hierarchies. It went beyond making the museums of Lyon and Nantes the respective ordering centres: it also shows how the work associated with the collecting for and the making of the natural history museum could lodge itself into existing social structures just as much as it reproduced them for its own benefit. At some point however, the interest of Dubuisson or Cailliaud or Jourdan reached a point of common interest with workers, or with gardeners or guides or people socially more or less distant. If hierarchies were marked socially, their contribution to the elaboration of knowledge needs to be examined.

Vernacular knowledge, or non-expert knowledge played an essential role in the production of natural knowledge, here in the context of collecting minerals for the museum collections. Whether Jourdan, or Dubuisson or Cailliaud, they all relied on indications provided by individuals they met on site. Stories, legend, contacts were provided by those who inhabited the places visited as part of geological surveys.

[222] Milam and Nye, 'An Introduction to Scientific Masculinities'; Michael S. Reidy, 'Mountaineering, Masculinity, and the Male Body in Mid-Victorian Britain', *Osiris* 30, no. 1 (2015): 158–81, https://doi.org/10.1086/682975; Michael Robinson, 'Manliness and Exploration: The Discovery of the North Pole', *Osiris* 30, no. 1 (2015): 89–109, https://doi.org/10.1086/682968; Terrall, 'Masculine Knowledge, the Public Good, and the Scientific Household of Réaumur'.

[223] Ferrière notably "beat the chamois hunters" in the Pyrenees: Picot de Lapeyrouse, *Histoire abrégée des plantes des Pyrénées et Itinéraire des botanistes dans ces montagnes*, xvij.

[224] About the educational virtues and transformative experience of outdoor practice, see Hodacs, 'Linnaeans Outdoors'. Bruce Hevly, 'The Heroic Science of Glacier Motion', *Osiris* 11 (1996): 66–86.

Thank-you notes were sent to on-site hosts in the woods during a quarry survey.[225] Series of pre-identified men were contacted for route directions, for details about the history of the use of that deposit, including the fishmonger who explained that such a species was only found once every twenty-five years![226] Reading between the lines of administrative correspondence or in the survey notes between measurement transcripts allows a glimpse into the practices of on-site exchanges of information.

Contacts established were maybe less challenging in the sense that there was a common cultural background to these interlocutors. The museum directors never found themselves in navigator La Pérouse's situation, relying entirely on encountered Ainu men to find their route. That moment in which La Pérouse and the Ainu men appropriated one another's knowledge through a map focused on this paper device as the place of controversy between differentiated regimes of knowledge. In this case, the map would be a boundary object, helping different social worlds to touch and meet and communicate.[227] It might be less fruitful to look at fossils as boundary objects: the concept appears less operatory for worlds which at least in appearance were less far apart. The matter was of course posed in different terms in Lyon, for Jourdan, as he was himself an autochthon. But the need for intermediaries contacted in advance by the Nantes municipality[228] in order to mediate the visit of Cailliaud was certainly a sign of a cultural gap which, regardless of geographical distance, needed to be bridged for the sake of mineralogical survey. Collecting locally of course implied practices which were different from travelling to the unknown and relying on local knowledge when the commanding person finds themselves precisely in a position of not being knowledgeable.

By all means, fossils and looking for them did bring different social worlds together. Because it was "material-evidence-obsessed", geology became infused into the popular culture of the nineteenth-century.[229] This is how the search for geological material involved every stratum of the society, and made each social stratum involved "profit from the finds from those below it".[230] Knell exposed how the geological survey exploited social stratification and its mortar of social affiliations, how claims to status

[225] AMN - 2R569, Minute of the Mayor de Nantes to Anonymous, 3 September 1849. Another example: Cailliaud requested that Célestin Vignaud, owner of the Forêt de Touvois, be thanked "for his hospitality in his woods", for "favouring [cailliaud's research] in every possible way" while he worked at the quarry of Chaux. AMN - 2R569, Cailliaud to the Mayor of Nantes, 31 October 1849.

[226] MHNN - Cailliaud 8, [undated]; MHNN - Dubuisson 1, *Catalogue de la collection minéralogique, géognostique et minéralurgique du département de la Loire-Inférieure*, vol.1, 1830, p. 45; AMN - 2R569, it. 22, Dubuisson to the Mayor of Nantes, 10 September 1824.

[227] Isabelle Surun, 'Du texte au terrain: reconstituer les pratiques des voyageurs (Afrique occidentale, 1790-1880)', *Sociétés Représentations* 21, no. 1 (2006): 223. Pascale Trompette and Dominique Vinck analysed the "career" of the concept of boundary object: 'Revisiting the Notion of Boundary Object'.

[228] AMN - 2R569, Cailliaud to the Mayor of Nantes, 4 May 1843.

[229] Knell, *The culture of English geology, 1815-1851: a science revealed through its collecting*, 325–26.

[230] Ibid., 326.

and pride were levers from which to derive an income. Fossils were "a universal currency".[231] But more interestingly, what mattered was that the possibility of currency exchange generated specific places in which negotiation and communication were possible.

Despite their differences of subcultures, the individuals from each respective social place could find common terms to communicate with in that "trading zone".[232] The social interaction here, composed of establishing contact, negotiating and collaborating designed field operations in ways that Roy MacLeod also associated with trading zones, in terms of bringing together in the same place complementary skills in the course of production of knowledge during an expedition.[233] Boundary object or trading zone are useful terms for analysing spaces (geographical or social) in which there is a common design to produce knowledge. But the analytical grid they provide maintains, nevertheless, an obsession with solving the problem of "expert" versus "non-yet-stabilised' knowledge - instead of reading this in social terms which simply point to inequality. Perhaps what matters here, more than knowledge production, is labour, and how it was operated within those invisible subcultural frames which, in a given place and time, matched form. "Workers", "helpers", "children", "guides" were people at work and their co-operation relied on compensation. The moral economy of exchange developed ad hoc; the manner for securing trust was also financial - not that this should be an argument to lessen the quality of engagement of everyone involved.[234]

Jourdan too, was at work - and his dedication to museum administrative tasks supports his high sense of professionalism and sense of being accountable for his duty. Somehow, field experience, a scheme elaborated and projected from the museum perspective and applied to places that are not usually associated with scientific exploration, was just integrated in the banality of the everyday for others. Knowledge certainly transited - and this was necessary to recognise the items and settle on a price.[235] Those moments were however about sweating rather than the elaboration of complex classificatory discourses, which were then conducted in the quiet of Jourdan's

[231] Knell, *The culture of English geology*, 326.

[232] Peter Galison, 'Trading Zone: Coordinating Action and Belief', in *The Science Studies Reader.*, ed. Mario Biagioli (London; New York: Routledge, 1999), 137–60; Peter Galison, 'Trading with the Enemy', in *Trading Zones and International Expertise: Creating New Kinds of Collaboration*, ed. Michael E. Gorman (Cambridge: MIT Press, 2010), 25–52.

[233] MacLeod, 'Discovery and Exploration', 37.

[234] On the development of instruments in corresponding to settle a moral economy of exchange, see Anne Secord, 'Corresponding Interests: Artisans and Gentlemen in Nineteenth-Century Natural History', *The British Journal for the History of Science* 27, no. 04 (1994): 383, https://doi.org/10.1017/S0007087400032416.

[235] James A. Secord, 'Knowledge in Transit', *Isis* 95, no. 4 (2004): 654–72, https://doi.org/10.1086/430657. About the development of a working-class habitus in the study and elaboration of natural knowledge, see Secord, 'Science in the Pub'.

or Cailliaud's office. Operations on the field were occasions of the extension of the museum's laboratory, they were the occasion of the exertion of the museum's authority outside its walls, but it was a shared authority and shared ordering capability, with the local workers granting consent and trust to let Jourdan into what was in fact their space.

CONCLUSIONS

The shape of the museum was not bound exclusively to the silhouette of its stone building. The cartography of this extended, *inside-out* museum should not be read like a linear evolution in time and space: the influence of the museum did by no means spread homogeneously from square one like it was a victorious land conqueror. Patterns would change according to context and needs.

The typology of spatial patterns the museum leaned onto may be broken down into four types. Each type may be identified according to characteristics of geographical distance, travel length and regularity, types of conducted on-site operations and the modalities of the social and intellectual relations generated with those sites. One type was the result of planned visits to the prominent places of scientific authority, like London, Paris or Rome. A second type was formed by the exploration of some key sites of naturalist and geological practice, namely the mountains, the Alps in this case, though the Vosges and the Pyrenees were also, to a lesser extent, inspected. The third group was made up of a more elusive group of 'close-by' locations, which were characterised by recurring visits, the stability of contacts there and increased accessibility (with the development of rail services) to the sites, which were surveyed on a more regular basis and generated a primary extension of the museum. If the case of Lyon built an interesting extension of its museum in Cerin, the relationship of Toulouse to the Pyrenees provided an inverse example of how the Pyrenees were brought *inside* the city. Eventually, Lyon itself formed the core of the structure, being a site of investigation itself through the practice of intra-urban explorations.

The necessity of the discovery and accumulation of specimens to feed the museum collection led the natural history museum to elaborate and sustain specific relations with the urban and non-urban natural environment. The peculiar geography it generated organised itself around multiple scales and points but was also structured by social relations: the geography of the museum very much mirrored the mechanisms of inclusion and exclusion of the society in general. Power plays and hierarchies, in spite of the opportunities opened up by the fossil hunts, were hardly ever swapped

around. The hundreds of hands who unburied museum material completely disappeared from the scientific narratives exposed in the museum display or in the minutes of formal academic discussions. The places stridden for the purpose of collection, the very space exhibited through the mediation of samples and specimens, is presented in a completely uninhabited form.[236] All humans and sociabilities were cleaned off the objects. Reaching some transposable and universal scientific discourse required the concealing of signs of the processes of collection. A paradoxical situation when localism and contextuality were such prized attributes of the three collections in this study.

[236] On the question of appropriation of space in the context of colonisation, Hélène Blais, 'Coloniser l'espace: territoires, identités, spatialité', *Genèses* 74, no. 1 (2009): 145–59, https://doi.org/10.3917/gen.074.0145.

Chapter 5
In place: working out the municipal collection

Shortly after a visit to the Lyon Museum in 1839, Prosper Mérimée, the famed Inspector General of Historical Monuments, wrote to the Mayor of Lyon from the Hôtel d'Europe in Lyon.[1] He complained about the skeleton of a sperm whale which, "in one of the lower rooms of the Palais des Arts", "obstructs the passage and masks almost entirely several interesting inscriptions of [the Mayor's] beautiful museum".[2] The situation became all the more worrying to him as he was told this was "no temporary disposition".[3]

Bones of a sperm whale, a cumbersome lot, were a difficult specimen to stage. It was incidentally stored in that gallery, more than staged. And what especially seems to have troubled Mérimée was the incongruous presence of a piece of zoology next to antiques. It was out of place. Mérimée's protestation reveals that it was stored rather than actually staged in the museum galleries, at a moment when specific storage areas hardly existed. This episode is exemplary of a set of tensions which underpinned issues of collection-making in the museum of Lyon and elsewhere in the nineteenth century: practical matters of finding room for the objects, organising the display and deciding the uses of the collection.

Also inherent in Mérimée's words is the *topos* of provincial museums set up as a bric-a-brac of random things, lacking rationale and ignorant of the latest findings in taxonomy and museum arrangements, consequently failing to match those. This

[1] AML - 78WP001, Prosper Mérimée to the Mayor of Lyon, 16 July 1839.
[2] Original text: "Un squelette de cachalot, placé dans une des galeries basses du Palais des Arts, obstrue le passage, et masque presque entièrement plusieurs inscriptions intéressantes de votre musée.": ibid.
[3] Original text: "On m'assure que cette disposition n'est point temporaire.": ibid.

would also apply to the modes of conservation of objects, missing the latest innovations, ignorant of regulations and therefore in a poor state of conservation.[4] Those museums would fail to conform to models of collections elaborated in Paris, suffer from their distance to Paris. However, traces of circular letters regulating exhibits were scarce after 1815, and visits by Parisian 'experts' were very rare - at least it did not result in any form of regular control materialised in reports. Neither Lyon, nor Toulouse, nor Nantes has kept any such documents.

Whilst the Lyon 1814 inventory may give a sense of great haphazard organisation to the then Lyon natural history collections, it also translates considerable, often solitary, effort to make the best of the situation.[5] Every item was placed somewhere, in accordance with the constraints of the premises chosen to host the collection. Place, again, is essential to understanding the situation of the museum.

This chapter is about the objects which formed the collections. It is concerned with natural productions turned into specimens, into displayable or storable things as well as "spin-off" productions such as maps, casts, and engravings, which served as transitory objects in the process of knowledge production. The hypothesis developed here is that the objects collected in the museum were the material translation of a scientific discourse produced on locality.

Natural history collections were strongly related to the situation of the museum hosting them, and that was the result of practices of collecting and the socio-spatial map of the collecting web deployed by the museum directors. The difference between a museum in the capital city or in a middle-sized city is that the latter was not assigned with a discourse of universalisation. Or at least it did not receive acknowledgment: the claims for being a "capital city of the Rhone" never really unfolded beyond the offices of Jourdan and the Prefect or the intellectual circles of the city of Lyon.[6]

Specialisation of collections

Museum collections were therefore specialised in the local. In times for which the disciplinary specialisation of the life sciences is usually emphasised, the provinciality of the collections is usually pointed to as mediocre or scientifically

[4] AMT - 2R21, [Report on the state of Musée de Toulouse by Charles Georges, "ancien commissaire-expert du Louvre", undated [after 1853]; l'MNHN - Ms2358a, fo. 6, "Papiers Adolphe Brongniart - Facultés des Sciences des départements 1, inspection de 1854 à Besançon, Dijon, Grenoble, Lyon".

[5] For an overview of the natural sciences and the presumed shift from descriptive natural history to specialised scientific practice, see Nicole Hulin, *Les sciences naturelles: histoire d'une discipline du XIXe au XXe siècle*, Histoire des sciences humaines (Paris: L'Harmattan, 2014); Gillispie, 'De l'histoire naturelle à la biologie: relations entre les programmes de recherche de Cuvier, Lamarck et Geoffroy Saint-Hilaire'. This view has been contested, as I explained in the introduction. See 2. For a situated history of the natural history museum, p. 30.

[6] See Chapter 3, C. Inventorying the Rhone: thirty years of harvesting fossils for the Lyon museum, p. 163.

outdated. The question lies further: as scientific practices tended to neutralise the study of life in controlled environment, like the laboratory, the municipal natural history museums stood as places of scientific commensurability, with a complex relation to the universal.[7]

Paris and the National Natural History Museum had formed an uncontested centre of calculation for natural history since the latter's foundation during the French Revolution, as Emma Spary and Pierre-Yves Lacour have shown, but also throughout the whole of the nineteenth century.[8] Its ever-changing structure of chairs and the constant refinement of their names suggest very much a process of specialisation, providing an illusion of the 'advancement' of knowledge and the necessity to fractionate disciplines as the extension of the domain of knowledge widened indefinitely.[9] Specialisation also resulted from savants competing against one another to be the first to provide a more accurate classification.[10]

Making sense of the scientific knowledge produced in municipal museums of natural history requires us to think beyond disciplines and to look at those "bodies of material" of which the museum was full. Following or during field work, or even before it, documents, data, plaster casts, engravings were made, ordered, exchanged. The municipal museum was more than just a typewriter issuing publications, as it also produced non-paper objects which were used for transactions or the public(is)ation of activities. The ensemble of all of these objects is to be considered part of the museum collection since registered in ways which makes it often difficult to distinguish what was "scientific" and what was "accessory". Consequently, this chapter will look at the bulk of objects composing the collections, in attempt to grasp science in the making[11], as it is used for the purposes of researching, teaching, publishing.

Because the nature of the collections was not defined by scientific categories, it was defined by use. The disciplines such as "zoology" and "geology" which would for

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[7] About specialisation see Introduction, p.2. For a situated history of the natural history museum, p. 30.

[8] Spary, *Utopia's Garden French Natural History from Old Regime to Revolution*; Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*; Claude Blanckaert et al., eds., *Le muséum au premier siècle de son histoire* (Paris: Éd. du Muséum national d'histoire naturelle, 1997).

[9] About the changing structures of teaching of natural sciences in France see Nicole Hulin, *L' enseignement secondaire scientifique en France d'un siècle à l'autre: 1802 - 1980; évolution, permanences et décalages* (Lyon: Inst. National de Recherche Pédagogique, 2007), 26; Nicole Hulin and Jean-Marc Drouin, 'Enseignement et sciences naturelles au XIXe siècle', *Revue d'histoire des sciences* 51, no. 4 (1998): 403–8, https://doi.org/10.3406/rhs.1998.1333. About the institutional history of the Muséum National, see Claude Schnitter, 'Le développement du Muséum national d'histoire naturelle de Paris au cours de la seconde moitié du XIXe siècle: «se transformer ou périr»', *Revue d'histoire des sciences* 49, no. 1 (1996): 53–98, https://doi.org/10.3406/rhs.1996.1248.

[10] Gillispie, 'De l'histoire naturelle à la biologie: relations entre les programmes de recherche de Cuvier, Lamarck et Geoffroy Saint-Hilaire', 230.

[11] Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton (N.J.): Princeton University Press, 1985); Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton, N.J.: Princeton University Press, 1986).

instance be used to name the galleries and related collections of the museum of Lyon mainly operated as a binding category whose content was in fact imperfect. Each of the three cases of Lyon, Nantes and Toulouse revealed the content of collections in close contact, overlapping and rubbing, in blurred disciplinary categories.

Specialisation of collections happened, not in the sense described above but in a localist sense. It was all about the appropriation of categories formulated elsewhere and the re-working of content. Specialisation was inseparable from production of knowledge in the museum, as it was bound to materiality and situational constraint. In spite of discourses of infinite nature there were limitations to what nature would be gathered, studied and presented at the museum. The range of nature in the municipal museum was conditioned by financial means, infrastructure/equipment, and human resources, and altogether their agents' social capital. But it was also conditioned by cognitive programs co-defined by the museum director, his intellectual entourage and the political authorities.

Objects of the museum were the media of the discourse on locality. This chapter seeks to examine in which practical terms it was expressed. Knowledge, science was not just squeezed out from the objects on the shelves of galleries or stored in cupboards. Many operations, manipulations, gestures were associated with making the objects' material and meaning speak.[12] They contributed to making the museum a place which was more than a walk-in encyclopaedic project, where one would wander to consult descriptions. The proceedings of these operations made the museum a place just for storing, but also for experimenting. This chapter will explore how municipal natural history museums were laboratories of tinkered, groped for, incomplete and local expert knowledge, and how knowledge ultimately moved around within categories and nomenclatures, mostly exogenous. It will also explore how these frames were altogether supple enough to be bent and folded locally: a made-to-measure discourse on nature, scaled with the local. In trying the illuminate the content of the collections, this chapter will seek to show the terms of locality as related by the material contained in museums.

1. LISTS OF THINGS: FRAMING OBJECTS IN INVENTORIES AND CATALOGUES

Paper technologies have recently seen quite a surge in interest. Questions have been centred on what it means to produce inscriptions onto paper, in association with

[12] Tim Ingold, *Being Alive: Essays on Movement, Knowledge and Description* (London; New York: Routledge, 2011).

considerations for the material of the document produced. In other words, what it did to the text to be inscribed on the medium, to take material form? Inversely, how was the medium worked out; what were the strategies to represent what was on the mind into often flattened form on paper?[13]

In the more specific case of the history of science, scholars have been particularly concerned with the management of 'information overload',[14] in a context populated with representations of specimens literally flowing into museums without stopping and naturalists overwhelmed with the task of naming and finding the right name. This took practical and material form in the management of incoming objects that need to be "fixed" into the museum collection by means of their name and description being inscribed onto a register. The gesture of keeping record of the comings and goings of objects has attracted more attention for the eighteenth century.[15] However, historians of science have started to study nineteenth-century practices of recording museum objects, such as inventories, catalogues and labels.[16]

The types of inscriptions and media sporting object information ranges from package slip to carefully written inventories. While the focus below will be on the inventories, it is not possible to isolate these from the rest of the documentation, as there was not necessarily a specific term for them, and 'catalogues' in nineteenth century documents can refer indifferently to the register for collections as well as a list of items purchased from a merchant claiming for payment.[17] Like objects on shelves,

[13] Jack Goody, *The Logic of writing and the organization of society* (Cambridge: Cambridge University press, 1992); Lorraine J. Daston, 'Scientific Objectivity with and without Words', in *Little Tools of Knowledge: Historical Essays on Academic and Bureaucratic Practices*, ed. Peter Becker and William Clark (Ann Arbor (Mich.): University of Michigan Press, 2001), 259–84.

[14] Blair, *Too Much to Know: Managing Scholarly Information before the Modern Age*; Müller-Wille and Charmantier, 'Natural History and Information Overload'; Denis and Lacour, 'La logistique des savoirs'; Boris Jardine, 'State of the Field: Paper Tools', *Studies in History and Philosophy of Science* 64 (2017): 53–63, https://doi.org/10.1016/j.shpsa.2017.07.004.

[15] An example for an earlier time: Pugliano, 'Specimen Lists'; Isabelle Charmantier and Staffan Müller-Wille, 'Carl Linnaeus's Botanical Paper Slips (1767–1773)', *Intellectual History Review* 24, no. 2 (2014): 215–38, https://doi.org/10.1080/17496977.2014.914643; Müller-Wille, 'Linnaeus' Herbarium Cabinet'; James Delbourgo and Staffan Müller-Wille, '"Listmania": Introduction', *Isis* 103, no. 4 (2012): 710–15, https://doi.org/10.1086/669045; Anke te Heesen, 'Accounting for the Natural World', in *Colonial Botany: Science, Commerce, and Politics in the Early Modern World*, ed. Londa L Schiebinger and Claudia Swan (Philadelphia: University of Pennsylvania Press, 2005), 237–51; Anke te Heesen, *The Newspaper Clipping: A Modern Paper Object*, Rethinking Art's Histories (Manchester: Manchester University Press, 2014).

[16] See the current doctoral work of Anne Greenwood-MacKinney: 'Die Natur registrieren: Listen und Praktiken des Auflistens in der Akkumulation und Zirkulation naturkundlicher Objekte in Berlin, ca. 1770–1850' (Doctoral thesis, Humboldt-Universitaet zu Berlin, pending); see also Ludovic Besson, 'Le grand casse-tête des étiquettes', *La Lettre de l'OCIM. Musées, Patrimoine et Culture scientifiques et techniques*, no. 153 (25 June 2014), https://doi.org/10.4000/ocim.1379; Ludovic Besson, 'Victor Planchat, cheminot naturaliste au Sénégal à la fin du XIXe siècle. Apport de ses collections à l'histoire coloniale, l'ornithologie et la linguistique', in *Le spécimen et le collecteur: savoirs naturalistes, pouvoirs et altérités (XVIIIe-XXe siècles)*, ed. Dominique Juhé-Beaulaton and Vincent Leblan (Paris: Publications scientifiques du Muséum National d'Histoire Naturelle : CTHS, 2019), 37–63.

[17] Term is used on a receipt: AML - 78WP017, Bill of purchase issued by Mr. Lapierre, 12 February 1867.

written documents translate a concern with seriality.[18] Inscribing the names of objects was not solely an act of "science" and although associated very closely with classification, it was also highly bureaucratic.[19] Perplexity with what looked an insuperable burden to place every object in a catalogue (inventory and on shelves) often appeared in correspondence with authorities who demanded that it be done.

A. Museum administration and production of lists

Museums produced lists in substantial quantities, and of all types. Archival boxes are crammed with lists of purchased equipment and small accessories, of consumables, lists of prepared specimens, lists of people to name for the board, lists of specimens contained in an incoming package, lists of objects collected from the field. Less occasionally are there complete inventories of collections, which were, ultimately, a different type of list. Listings were usually found in the form of paper slips, reused papers, covered with manuscript writings in ink, which were more or less legible. Sometimes they would be pre-printed with a company logo; most of the time they were just scribbled ink-and-paper.

Whether they were referred to as 'catalogue' or 'inventory', the most valuable type of list in the museum was the listing of the objects in the collection. The terminology would not be neutral, though: the catalogue bore a finished aspect, it was inscribed in a bound register, sometimes covered in leather, and a voluminous object.

The *Catalogue de la collection minéralogique, géognostique et minéralurgique du département de la Loire-Inférieure*, completed in 1830, stretched out over three volumes of registers.[20] They have the looks of final drafts. The cover itself is not particularly rich; it is plain and vaguely imitates leather. The title page bears the stamp of the secretary's office of the *Mairie de Nantes* and each of the three volumes have the same. The author, Dubuisson, signed his name and declared his status strategically *around* the stamp. The convenient arrangement of space and signature is bewildering, having both been provided by different offices. It cannot be ruled out that Dubuisson thoughtfully, or on demand, left a blank space for the municipal authority to affix their mark. But a subtle change in the writing seems to indicate that the volumes were submitted with only just the title to the administration. After the mark of the municipality was affixed,

[18] Nick Hopwood, Simon Schaffer, and Jim Secord, 'Seriality and Scientific Objects in the Nineteenth Century', *History of Science* 48, no. 3–4 (2010): 251–85, https://doi.org/10.1177/007327531004800301.
[19] Denis and Lacour, 'La logistique des savoirs'; Markus Krajewski, *Paper Machines: About Cards & Catalogs, 1548-1929* (Cambridge (Mass.): MIT Press, 2011).
[20] MHNN, Dubuisson 1, Catalogue de la collection minéralogique, géognotique et minéralurgique du département de la Loire-Inférieure, appartenant à la Mairie de Nantes, recueillie et classée par FRA Dubuisson, conservateur et professeur au Muséum d'histoire naturelle, [1830].

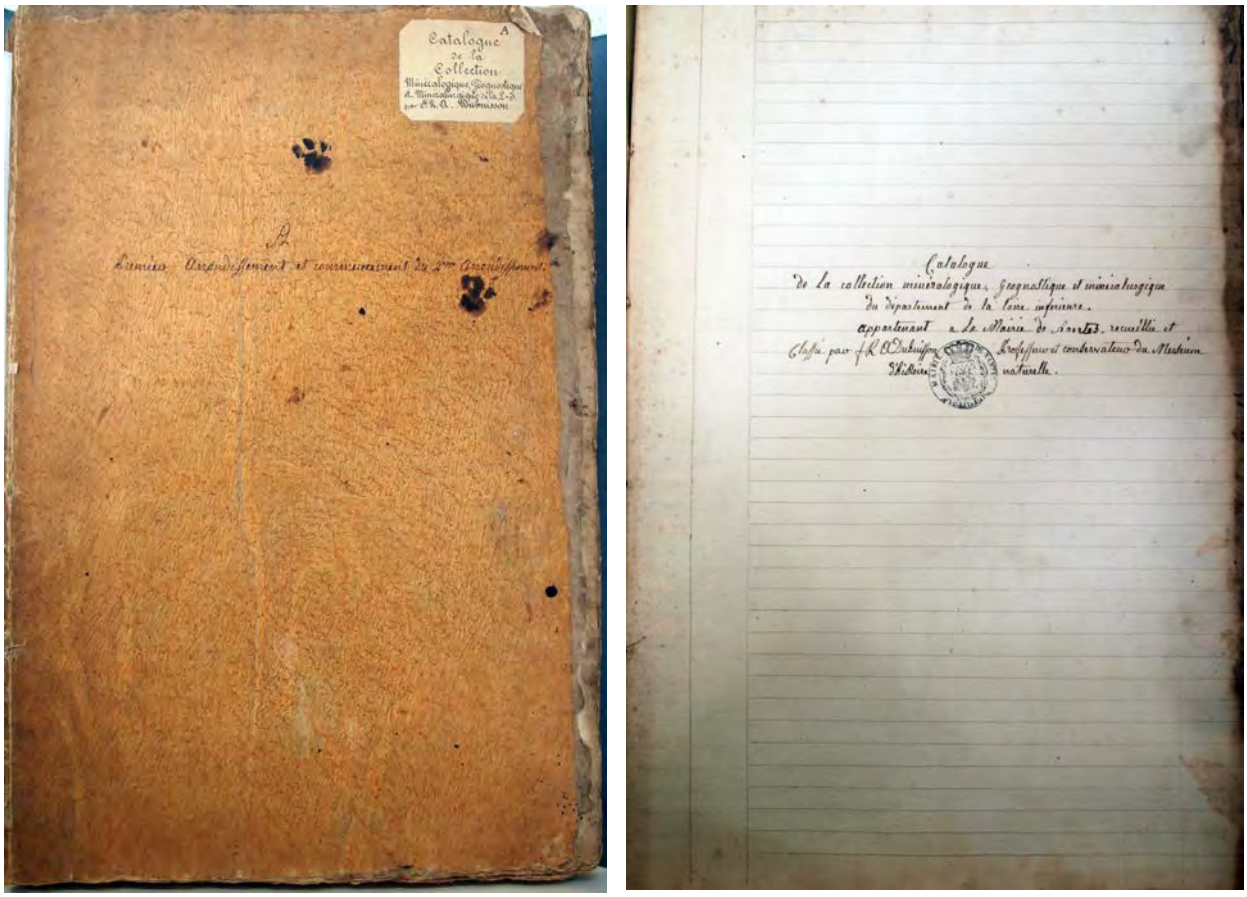


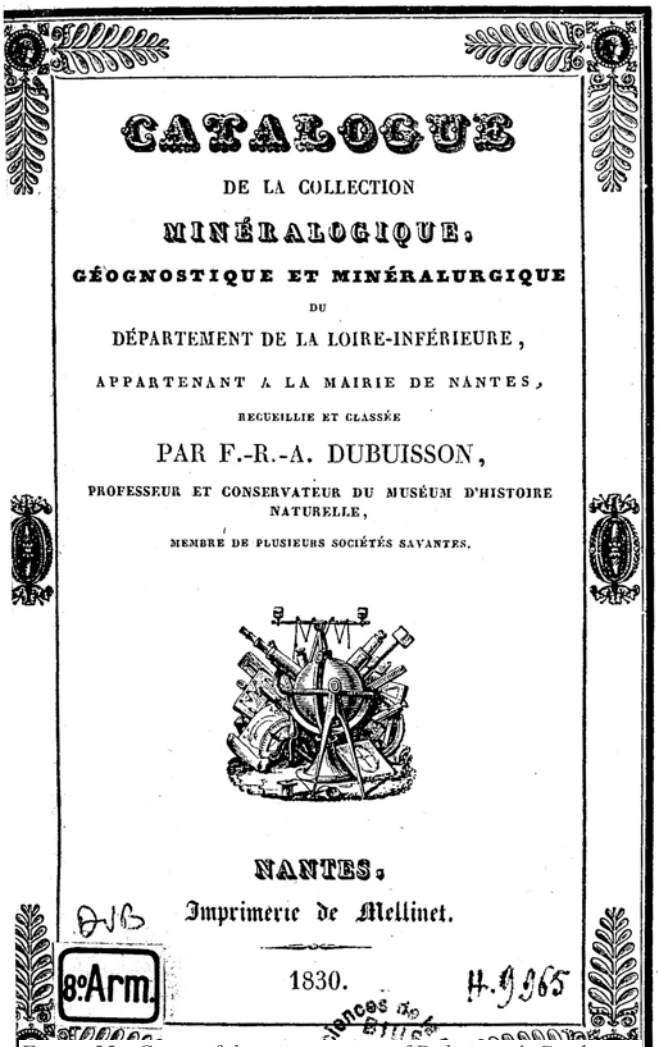
Figure 54 - Dubuisson, "Catalogue de la collection minéralogique, géognostique et minéralurgique du département de la Loire-Inférieure (...)" Vol. 1, 1830. Muséum d'Histoire Naturelle de Nantes.

Dubuisson added his signature. In both cases however, the title pages of the volumes display very clearly the dual administrative and scientific auspices under which they were made: the *Mairie* and Dubuisson, "*Professeur et Conservateur. Muséum d'histoire naturelle*" (Figure 54).[21]

While the signed volumes give an impression of a finished product, officially validated by authorities, confrontation between the manuscript and print versions of the catalogue points to the more ambivalent nature of the catalogue, with regards to how it put an end to and froze the collecting process. The manuscript version of the catalogue was published in 1830 at Mellinet in Nantes. The ornament of its front and back cover is quite simple and unoriginal (Figure 55). It displays the regular symbols of an erudite publication from the early nineteenth century. The content was augmented with a thirty-page introduction providing generic information about mineralogy and resembling a textbook. But the most striking difference is the differing idea the manuscript and print versions of the catalogue respectively give of the

[21] AMN - 2R566: Dubuisson to the Mayor of Nantes, 30 November 1833.

collection. While the print catalogue lists down the objects composing a fixed set of minerals, the manuscript catalogue was left open for additions and is paradoxically bursting with empty, blank spaces. The marginalia occasionally added here and there to the final text also shows that the process of cataloguing was not a smooth and continuous one (Figure 56); that even though it had reached some level of finishedness, it was always perfectible, there was always some detail which could be specified. Cataloguing was all of that: inscribing on registers, making the collections tangible to the authorities first and then the audiences, visitors to the collections, as well as savant readers from scientific libraries outside of Nantes. Though it has the appearance of an end project, the reworking of the text and empty spaces show it was only a textual image caught at a given moment, never able to settle work which was continuously in progress.


CATALOGUE

DE LA COLLECTION

MINÉRALOGIQUE,

GÉOGNOSTIQUE ET MINÉRALURGIQUE

DU

DÉPARTEMENT DE LA LOIRE-INFÉRIEURE,

APPARTENANT A LA MAIRIE DE NANTES,

RECUEILLIE ET CLASSÉE

PAR F.-R.-A. DUBUISSON,

PROFESSEUR ET CONSERVATEUR DU MUSÉUM D'HISTOIRE NATURELLE,

MEMBRE DE PLUSIEURS SOCIÉTÉS SAVANTES.

NANTES,

Imprimerie de Mellinet.

1830.

8°Arm.
H.9965

Figure 55 - Cover of the print version of Dubuisson's Catalogue de la collection minéralogique de la Loire Inférieure*, 1830. Jubilothèque - Bibliothèques UPMC.*

(78)

27. HERBIGNAC.

Le bourg d'Herbignac repose sur le granite, le micaschiste le joint au sud, le quartzite schistoïde se trouve également au sud, près Pompas, et au S. O. se dirigeant sur Assérac. La surface du sol est composée d'argiles de différentes natures, qui sont employées de temps immémorial à des ouvrages de poterie; ces argiles paraissent reposer sur le micaschiste, alternant avec le granite et l'eurite.

1. H. E. 1.er Argile glaise de l'Etang de Trevelec, au sud d'Herbignac.

2. H. E. 1.er Talc chloritique blanc terreux décanté, pris au sud de la maison de Trevelec, à un quart de lieue au sud d'Herbignac.

3. H. E. 1.er Talc chloritique blanc terreux décanté, mais plus beau que le précédent, du même lieu.

4. H. E. 1.er Argile glaise grisâtre, du bas de la lande du Feau, près la maison de Trevelec, à un quart de lieue au sud d'Herbignac.

5. H. E. 1.er Argile glaise grise-jaunâtre, de l'étang du Kert, en Pompas, au sud et à trois quarts de lieue d'Herbignac.

6. H. E. 1.er Manganèse phosphatée, brun rougeâtre ferrifère compacte, de la métairie de Keron, à un quart de lieue N.-O. d'Herbignac.

7. H. E. 1.er Manganèse phosphatée terreuse, brun noirâtre, dans l'eurite grenue, du même lieu.

(79)

8. H. E. 1.er Eurite amphiboleux rougeâtre avec manganèse phosphatée brunâtre, même lieu.

9. H. E. 1.er Eurite amphiboleux rougeâtre, même lieu.

10. H. E. 1.er Eurite, amphiboleux rougeâtre, pénétré de manganèse phosphatée, même lieu.

11. H. E. 1.er Quartzite schistoïde pénétré, de fer carburé, au N. O. et à l'O. de la métairie de Keron, à un quart de lieue d'Herbignac.

12. H. E. 1.er Quartzite schistoïde avec indice de feld-spath, coloré en gris par le fer carburé, du même lieu.

28. SAINT-JOACHIM.

La constitution géologique de cette commune est une tourbière sous laquelle percent le granite, le gneiss, et le micaschiste, ces roches ont été observées plus particulièrement à Rozet, à l'endroit où a été construite l'écluse de ce nom.

1 S. J. 1.er

29. LAVAU.

De Donges à Lavau sont des prairies d'alluvions à travers lesquelles s'aperçoivent le gneiss et le granite, sur lesquels est assis le bourg de Lavau, le terrain tourbeux s'observe à l'Est, au Nord, et au N. O.

1 L. A. 1er.

Figure 56 - Detail of a print transcript for Herbignac, in Dubuisson, Catalogue de la collection minéralogique (...). *Muséum d'Histoire Naturelle de Nantes - Jubilothèque (Bibliothèque UPMC)*

B. An instrument for administrative control

The catalogue, especially in published form, symbolised the realisation of the museum and its opening to the public. This was the case for instance with the opening of the museum in Toulouse. The catalogue was indeed a form of publication and was initially published so that the visitors would have some documentary and intellectual equipment to support their visit, even if the information contained in those very simple and cheap booklets was very basic and hardly showed more than the title of the work.[22]

The decree dating back to the French Revolution was the principal piece of regulation making provision for the organisation of museum collections. It notably settled that the objects of a museum should be noted in an inventory, which appears to have been perhaps more widely followed in the case of artistic collections. The decree institutionalised the inventory for all museum collections.[23] Despite this, the inventories of naturalist collections for the early years of Nantes and Lyon were tiresome to get, and no published version could be retrieved, with the exception of the 1830 Dubuisson catalogue.[24] What is for certain though, is that it gave the administration responsible for the museum the right to demand an inventory.

In spite of this, very few inventories or full-coverage catalogues have been preserved to date, and it is difficult to keep up precisely with the evolution of the collections. For the 1800-1870 period, roughly, a fragmentary grasp may be recovered from the Dubuisson catalogues of mineralogy delivered in 1830. In Toulouse, the first collections associated with natural history were the Lapeyrouse and Rocquemaurel collections, for which an inventory was released as one step through the process of acquisition of the collections.[25] It is to be noted that the Lapeyrouse collection is documented by two registers: one can be thought to have been established by Lapeyrouse himself, the other was carried out while the collection was kept at the Faculty of Science. It is notable as well that the numerous inventories were produced

[22] François Lucas, *Catalogue des tableaux et autres monumens des arts, formant le Museum provisoire établi à Toulouse* (Toulouse: Robert, 1795); J.P. Lucas, *Catalogue critique et historique des tableaux et autres monumens des arts du musée du Toulouse*, 5e éditions (Toulouse: Caunes, 1806).

[23] Maryse Rizza, 'Le dossier d'œuvre: une vision meta entre la vie de l'œuvre et la vie du musée', in *Capitaliser les ressources documentaires en musée*, ed. Stéphane Chevalier and Angelina Meslem (166: OCIM, 2019), https://ocim.fr/ouvrage/capitaliser-les-ressources-documentaires-en-musee/; Poulot, *Musée et muséologie*.

[24] François-René-André Dubuisson, *Catalogue de la collection minéralogique, géognostique et minéralurgique du département de la Loire-Inférieure, appartenant à la mairie de Nantes* (Nantes: Impr. de Mellinet, 1830), http://jubilotheque.upmc.fr/ead.html?id=GR_000356_001.

[25] MHNT - A_06_6_14, Catalogue de la collection de minéraux de M. Picot de Lapeyrouse classés d'après la méthode de Werner, s.d. and A_06_6_15, Catalogue de la collection de minéraux de M. Picot de Lapeyrouse classés d'après la méthode de Werner, 1840. For the inventories of the Rocquemaurel successive donations, see AMT - 2R24, Notes des armes ou objets d'industrie des peuples sauvages de l'Océanie pour le Cabinet de la Ville de Toulouse,Note des minéraux donnés au Cabinet de Toulouse, 10 February 1841; AMT - 3D132, Catalogue des objets d'histoire naturelle donnés à la ville de Toulouse par Mr. de Rocquemaurel, 2 October 1842. A published catalogue was issued in 1858, following the opening of the gallery: Notice des objets dont se compose la galerie ethnographique (Toulouse: Imprimerie Dieulafoy, 1858).

in the first years of existence of the new Natural History Museum in Toulouse.[26] They were not, strictly speaking, catalogues of the museum collection as there was no museum as such. In Lyon, apart from the 1814 inventory carried out by Gilibert, no comprehensive catalogue was ever provided - in spite of promises to do so.[27] Collections can be tracked through the *Journal d'entrées* and notebooks in which Jourdan would note down the accession of collection objects.[28]

The place and significance of the inventory is visible in the case of Lyon. Because the collections, or at least groups of objects changed locales an indefinite number of times until the arrival of Jourdan in 1832, inventories appeared as a key document to track those changes. In 1802, it was decided that the natural collection was to be one section of the exhibitory and teaching project at the Palais Saint-Pierre. But a few years later, the collection was relocated to a place formerly known as "La Déserte", an old convent situated downhill of the Croix-Rousse, where it could share next door premises with the botanical garden, also under the custody of Gilibert, the director and botany specialist. The years between 1814 (death of Gilibert) and 1832 (appointment of Jourdan) were fairly chaotic. Mouton-Fontenille operated as a shadow director for many years before his status was confirmed by the municipality and that generated some confusion between the municipal collection and his own - an ambivalence which he consciously nurtured, and which also translated in terms of location in hesitations as to where the naturalist collection was settled. The promising young director appointed to replace him, Clerjon, died in his thirties. When Jourdan took his position in 1832, he took over the curation of the natural collection, excluding the botanical garden under the management of Seringe.[29]

The correspondence exchanged between Gilibert and the municipal authority is especially enlightening about the production and uses of inventories. In a letter dating from July 1813, Gilibert responded to the request of the mayor to be provided with a comprehensive inventory of the natural history collection. He was willing to jog the memory of the mayor, as the work of inventory was "long and burdensome", he wrote. There was indeed an existing "detailed" inventory which was "deposited" with the prefectoral authority "in the past" in the form of an in-folio. The inventory was most certainly executed before the responsibility of the museum was transferred to the municipality in 1806. Probably considered outdated, also because of the adventurous

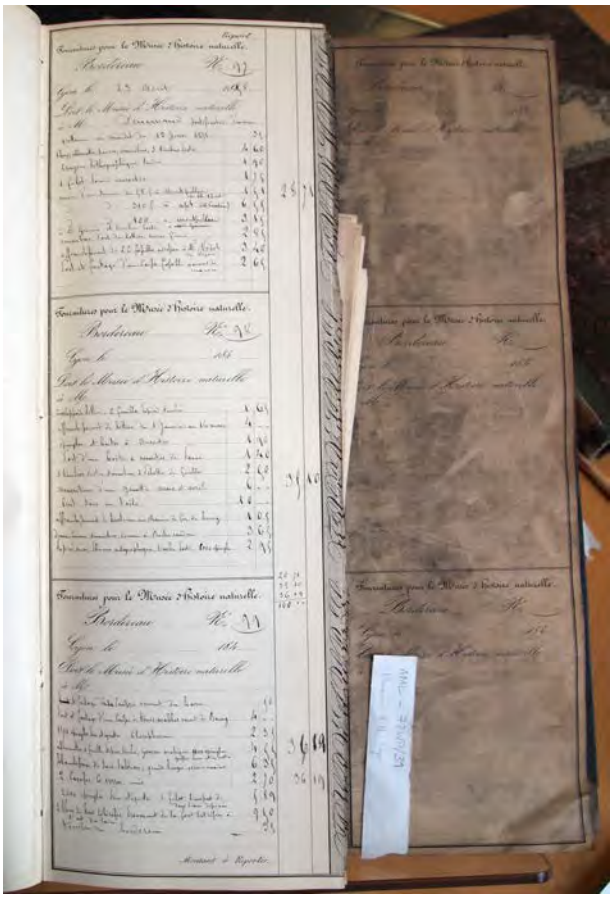
[26] See the following catalogues: MHNT - A_06_9_22, "Zoologie"; A_06_09_30, "Zoologie"; A_06_9_43- "Zoologie"; A_06_9_42, "Anatomie comparée".
[27] AML - 78WP017, Inventaire général du musé (sic) d'histoire naturelle de Lyon fait double. En 1814.
[28] CCEC - JE, "Journal d'entrées"; CCEC - CO-CC-JT, "Catalogue roches envoyées par Paris", CO-CON "1793-1834", CO-CON, "1832-1834".
[29] More about the locational uncertainty of the Lyon collection can be found in Chapter 3 ,1 , A. The changing locations of collections, p. 189; see also Audibert, 'Le musée des Confluences, une histoire'.

existence of the collections ever since they had been opened to the public, the municipal authority had already ordered such a document from Gilibert twice, in May 1811 and in September 1812. Gilibert obstinately replied that his response was to be always the same: the inventory already existed. He had already explained the matter several times, he wrote, and the letters in which he had explained himself for his refusal are probably archived as well.[30]

Gilibert specified that an abridged version of the inventory was at the disposition of the administration from inside the cabinet itself.[31] This further confirms that the inventory may have been considered to carry some scientific meaningfulness (hence its presence in the cabinet directly). But the fact that the unabridged version was in the possession of the administration shows that the inventory was essentially, at least in the 1810s and for Gilibert, a document of bureaucratic nature symbolising the entry of the collection objects into the regulated and legal property of the municipality. Taken in the swirl of paper documents that were part of an internal track of circulation of paper and then archived, like Gilibert's letters that he cited, inventories were also materially a bureaucratic instrument. The point to which Gilibert resisted carrying out the task even shows the little legitimacy the request had in his eyes.

Where there was a catalogue, there was an earlier request from the municipal administration that the museum director was striving to meet - because establishing a catalogue was a strenuous activity and there was usually no one to share the task with - or with whom they were willing to do so. The existence of the 1814 inventory, realised by Déjean and Sionest together with Gilibert's son, confirms, however, that the administration would act with insistence in order to have certain tasks done, especially for the sake of the integrity of the administration.[32] They had been however forced to wait for Gilibert's passing away to carry through.

[30] AML - 78WP021, Gilibert to the Mayor of Lyon, 23 July 1813.
[31] Ibid.
[32] AML - 78WP017, Inventaire général du musé (sic.) d'histoire naturelle de Lyon fait double. En 1814.



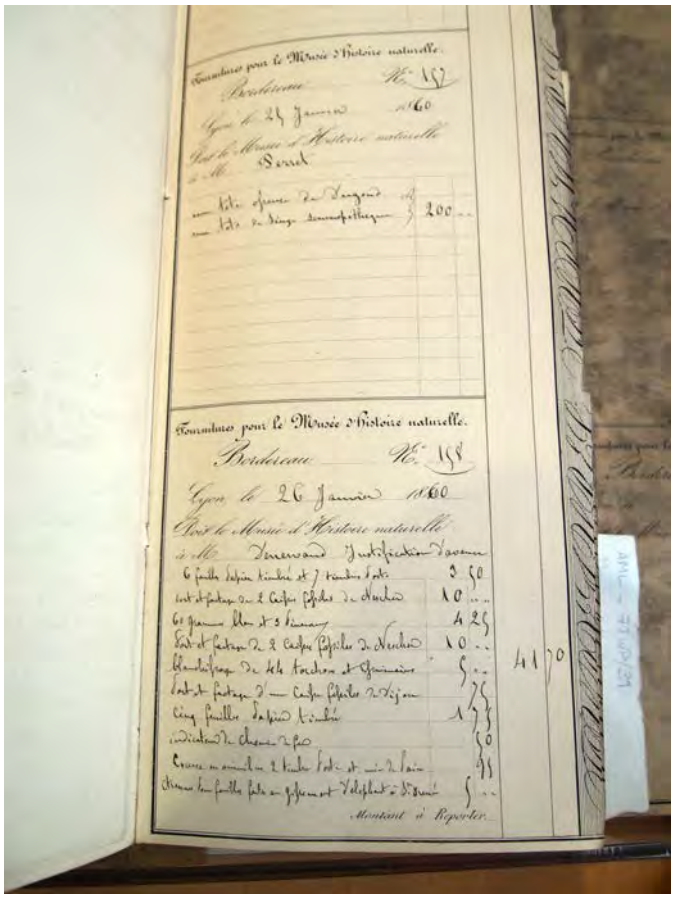


Figure 57 - Registers and stubs used to keep the record of purchase at the Lyon museum (1858-1860). AML

C. An instrument for logistics of objects

Along those lines of administrative determination, catalogues would also accompany the transfers of objects, whether to a new locale or to a new owner. This was exactly the reason why in 1811 the municipal decision to move the collection back to La Déserte was acknowledged by the museum authorities at the Palais Saint-Pierre: an inventory - the inventory Gilibert declined to do several times - was meant to be drawn up for the purposes of overseeing the transfer of objects from one locale to another.[33]

The operation was also requested by the administration in the case of a change of directorship, like for instance when Latil replaced Balbis at the Jardin des Plantes.[34] This was all the more necessary after a chaotic period such as the post-Gilibert years. The request for yet another inventory generated much paper exchanges between the museum and the building of the Mairie, their neighbour on Place des Terreaux.[35] But more importantly, Déjean, the new director, even though he acknowledged the existence of previous inventories, said they were extremely difficult to use due to inaccuracies: the collections had been in too many hands and had moved back and forth to the Palais Saint-Pierre so many times that they were illegible and non-usable anymore.[36]

Catalogues were a way to circumscribe in a suitable manner masses of things as well as to mark possession. Marking the inscription onto paper of the objects gathered in many places and from many donators and suppliers, the catalogues provided the collection with a homogenising common denominator: the register onto which they were copied. When it was not possible to embrace with the eye the entirety of the collection and scattered objects, the catalogue also bestowed onto hardly discernible materials a legal testimony of the tangibility of the collection. Inversely, the catalogue could be used as the symbol of the collection, as the token of the collection which was given into the custody of the museum director. For instance, in 1818, Mouton-Fontenille was requested to sign the Lyon 1814 inventory under a mention handwritten by the deputy mayor Evesque, which established that Mouton was the new keeper of the collection "until further notice".[37]

[33] AML - 78WP021, Regny to the Mayor of Lyon, 17 May 1811.
[34] AML - 78WP020, [nomination of Louis Henri Latil following the resignation of Gianbattista Balbis], 26 July 1830.
[35] A series of letters were exchanged about the collection's inventory following the passing of Gilibert: AML - 78WP021, Stanislas Gilibert to the Mayor of Lyon, 14 October 1814; ibid., Stanislas Gilibert to the Mayor of Lyon, 20 October 1814; ibid., Déjean to the Mayor of Lyon, 25 October 1814.
[36] AML - 78WP021, Déjean to the Mayor of Lyon, 25 October 1814.
[37] AML - 78WP017, Inventaire général du musé (sic.) d'histoire naturelle de Lyon fait double. En 1814.

Whether in Nantes or Lyon, little inventory documentation seems to have been produced between the 1830s and respective take-overs in the late 1860s, which also took place in Toulouse with the opening of the new museum, as shown above. From the 1830s, Cailliaud or Jourdan would keep listings of objects which appeared in the form of billing slips or alongside declarations of expenses during trips. Listing objects was associated essentially with declaration of cost.[38] Cailliaud never seemed to have been troubled by the administration about cataloguing.

Jourdan's listing techniques evolved from separate slips of paper to register, though. Beforehand, he would also keep lists of incoming objects as separate billing slips or in notebooks meant to be written and used by him. Those notebooks often also contained other types of information and were hardly ever used for administrative purposes. However, there must have been a change of policy regarding the control of the expenses of the museum, since columns of pre-print slips of purchases were introduced. The bound volume was organised into sets of frames lined in two columns: the external part of the page was meant to be torn off and provided as declaration of expense, while the other remained attached to the volume as stub. There were two types of volumes, one for accessories of the museum and one for collections. Examining the content of the frames shows that in the long run it was difficult to separate the two (Figure 57).

Jourdan also started to keep a bound register called "*Journal d'entrées*".[39] The decision to start such a register was made by the municipal council in 1848. An extract of the municipal decree was even copied at the start of the register.[40] A note from 1852 explains, in addition, that previous registers were then finished and that the new one was only started after the previous volumes were complete.[41] These were eventually bound together with the new register, which explains the varying categories, bordering and paper size in the first round of pages. The *Journal d'entrées*, in spite of its usefulness today for researchers wishing to identify objects from past collections, was not a catalogue in the statutory sense. In 1856, Jourdan mentioned "catalogues" where an incoming list of 170 specimens brought by him from a trip to Paris would be recorded.[42] None of these were retrievable. Absence in the present day certainly cannot be interpreted without doubt as absence then. But it certainly does show the

[38] AML - 78WP017, "Musée d'Histoire Naturelle, ca. 1805 - ca. 1900"; AMN - 2R565, Muséum d'histoire naturelle. Administration".
[39] See Chapter 2 for further analysis of the *Journal d'entrées*. see Chapter 2, 3, C, a. Documenting the scientific trips: the *Journal d'Entrées*, p. 164.
[40] CCEC - JE, "Journal d'entrées", unpaginated, [copy of the opening of the new registry by the Deputee Mayor of Lyon], May 1852.
[41] Ibid.
[42] CCEC - JE, "Journal d'entrées", p. 16, entry n° 30, Catalogues de divers modèles en plâtre d'ossements fossiles donnés au Musée de Lyon par le Muséum de Paris, 27 June 1856.

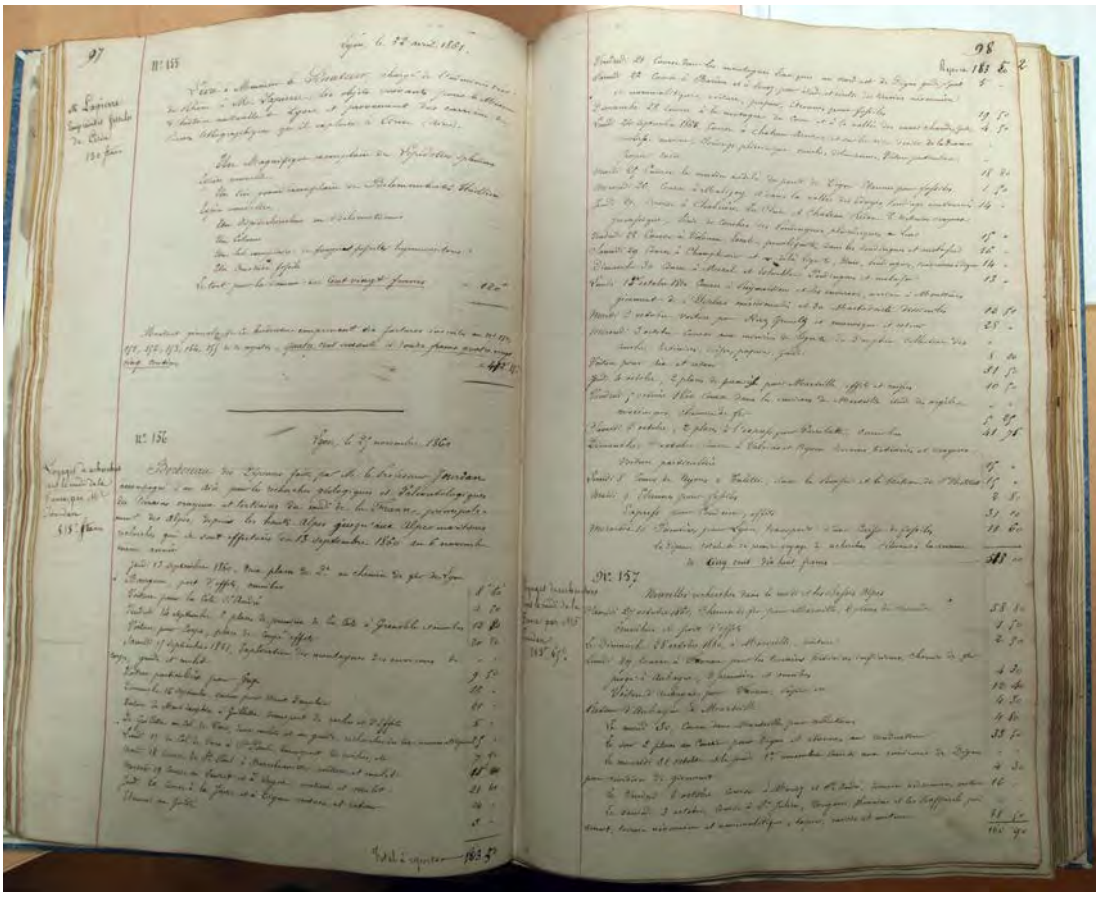


Figure 58 - Journal d'entrées, *p. 97-98, 1861. CCEC*

evolving value of these documents in the longer term. Inventories were considered the sealing of the arrival of an object in the museum collection and its permanence there with no ending date.

Inventories were documents for eternity, in a way. Nevertheless, the small numbers of those early inventories preserved to date lead to questioning their effective realisation and practical ascendency on museum work, that is, beyond the discursive importance attributed to inventory-doing in correspondence. They also show how the successive administrators of the museums have dismissed the importance of the inventories and perhaps got rid of them - just like objects can be de-accessed. Inventories might aim to materialise permanence *sine die*, but they were also only just paper documents, losable and disposable, with limited validity.

The use of inventories as bureaucratic tools did not change much in the course of the period, except that municipal administrations seemed gradually less obsessed with demands regarding them. They were replaced by a greater attention to expenses and the integration of careful follow-up on purchases. This task, by contrast, appeared to have been carried out without much reluctance. The temporality of keeping

constant records of entries differed from cataloguing: executed in shorter sequences of work and on a regular basis, this mundane job was still less strenuous than mobilising entire weeks for counting up objects. Notably though, the lesser demand for inventories was also certainly bound to the stabilisation of the collection and the actuality of the museum, in connection with greater trust in the figure of the museum director, who had also shown evidence of their own appropriation of a certain bureaucratic culture.

D. The burden of keeping the inventory

The reluctance of museum directors in the execution of exhaustive inventories did not simply derive from indolence or bad faith: cataloguing was a difficult task to execute. The 1813 report of Gilibert to the municipal administration provides some detail of the actual work involved. Gilibert mentioned an inventory, which was apparently lost, which he had had carried out by his son Stanislas Gilibert and his friend Sionnest. Time, he wrote, had already been wasted for the relocation of objects from the Palais Saint-Pierre to La Déserte, and for no pay, he added. Establishing the inventory required one to put the objects in "methodological" order first, so that the collection was useful for study. Gilibert also requested that he be seconded by several commissioners and a scribe.[43] The situation was all the more irritating to Gilibert, who insisted on the unbearable weight of his duties for one sole person in addition to the fact that he had been left to curate the collections without financial support and therefore at his own expense.[44]

The 1814 inventory in Lyon saw three persons engaged for 23 sessions of work. In reality, Déjean, director the cabinet of natural history and botanical garden, and Sionnest organised sessions of cataloguing across the months of October, November and December 1814.[45] Stanislas Gilibert, the son of the late museum director who had passed away in September 1814, initially announced as one of the operators of the inventory, only showed up on the first day.[46] The decree nominating them for the work was issued on 13 October, and they started working on 18 October. Work was then sequenced in discontinuous groups of days: 26 to 31 October, 3 November and eventually 21 November to 3 December. The last session was organised with a start

[43] AML - 78WP021, Gilibert to the Mayor of Lyon, 23 July 1813.
[44] Ibid.
[45] Claude Sionnest was a friend of Gilibert and member of the Society of Agriculture of Lyon. His name was recommended by Déjean himself for his knowledge in natural history and because he suspected Sionest's friendship with Gilibert had made him acquainted with the collection already. AML - 78WP021, Déjean to the Mayor of Lyon, [1813].
[46] AML - 78WP017, Inventaire général du musé (sic.) d'histoire naturelle de Lyon fait double. En 1814.

in the morning and then finished in the evening. The two agents were most certainly willing to finish the inventory that day, especially as the remainder of the inventory must have appeared as manageable at that stage. This shows several aspects of the making of inventories. It leaves little doubt that making an inventory was a sheer burden.

Keeping the inventory, in the case of Nantes, became a statutory obligation in 1838.[47] Before this date, it did it not appear as such in the description of the director's obligations as part of the museum rules. The booklet insisted in the role of the director, a "*conservateur*" in French, in the good keeping ("*conservation*") of the collections, and that included his responsibility in terms of classification, by placing and labelling the objects. The document did not mention an inventory. The work of the directors was ambivalently carried out in collaboration with or under the surveillance of the supervising committee.

This situation, as one could have expected, displeased Dubuisson strongly as he felt his authority and work were constantly being questioned. A conflict over catalogues raged in his last years, between the municipality asking for them, Dubuisson who was extremely reluctant to do them, and the committee which tried to mediate the matter and pushed Dubuisson to complete the work. In 1834, Dubuisson, aged 71, was an old man. In a trembling and unassured handwriting, he opened up in pathetic manner about "the completion of the task [of cataloguing] which may be regarded as of little importance", and how the "sort of impatience" surrounding his work was disheartening. He insisted on the collecting work actually done to quiet rumours of his inaction and explained how much classificatory work remained to be done before the catalogue could be completed. He also assured the mayor of his goodwill and how he had a scheduled plan for the completion of the catalogue. The letter was ended with the poignant acknowledgement of his failure in elaborating "Nantes as the most curious of all repositories of natural history in France", and how he was "well aware now that this project should be abandoned".[48]

Dubuisson felt genuinely held back in his effort and was deeply displeased about having to answer for his actions to upper tiers above him. Inversely, the administration considered the situation equally unsatisfactory. The mayor himself tried to ponder the tensions around the inventories and mediated some responses to ease the situation

[47] The *conservateur* was expected to keep the catalogue of specimens. The supervising Committee was to control these catalogues twice a year: AMN - 2R565, art. 8, *Muséum d'Histoire Naturelle. Règlement* [ms], 15 September 1838. The elaboration of the updated museum regulations followed a consultation and comparison with regulations applicable in other municipalities, like Bordeaux: AMN - 2R565, the Mayor of Bordeaux to the Mayor of Nantes, 30 November 1841.

[48] Original text: "Javois eu precedemment le projet de faire de Nantes l'un des dépots le plus curieux d'histoire naturelle de france. Je vois bien quil faut renoncer a se projet. (sic.)" AMN - 2R565, Dubuisson to the Mayor of Nantes, 14 October 1834.

between the museum committee and Dubuisson. In a letter he wished to remain confidential, the mayor acknowledged the fact that Dubuisson was now an elderly man ("*vieillard*") and, without much subtlety, urged the committee members to grin and bear it with a sense of "humanity and necessity", while they "wait[ed] for time to bring some change to such a state of things", in other words, for Dubuisson to pass away.[49]

Cataloguing in Nantes was not a single person's work. Rather, it shows how the activity went beyond the sole competence of the director. But in this case, it especially shows how, if authority was shared on paper, there was a hierarchical relationship which put the museum director under the surveillance of the committee, which itself answered to the municipality. The directorship of the Nantes museum, until at least the start of Cailliaud's mandate, was strongly double-headed. In ways which were already highlighted by Gilibert's difficulty towards the end of his life to meet with strenuous administrative expectations, the coincidence of Dubuisson's great age and poor health with the exigencies of catalogue-making considerably sharpened the tensions over a task which was already unpopular.

2. SCALING CLASSIFICATION TO THE LOCAL

The task was unpopular because it was considered secondary to classification, whereas the authorities assumed the inventory to be paper evidence of work done. To Dubuisson, the mayor had better come and visit the collection, which he repeatedly invited him to.[50] Cailliaud, for the same reasons, also invited the committee.[51] By all means, inventories, as both cases presented above suggested, could not be isolated from classification. This, in turn, was another reason for the high level of tension over listing objects: because it was related to order, and there were disagreements over which order should be prominent. The obsession with order was also manifest outside of natural history cabinets and infused in nineteenth-century French society as a whole. Behind the scientific coloration of the quarrels between Dubuisson and the museum surveillance committee over the inventory lay tensions about precedence and acceptance or dismissal of a certain order.

Local authorities were readily inclined to promote order as a greater outcome for the collection. In the early years of the Lyon museum, a period of successive

[49] Original text: "Veuillez donc examiner, M. le Maire, s'il ne conviendrait pas, par raison d'humanité autant que par nécessité, d'attendre que le temps ait apporté quelque changement à une telle situation de choses" AMN - 2R565, Mayor of Nantes to the Museum Surveillance Committee, 12 September 1834.
[50] AMN - 2R565, Dubuisson to the Mayor of Nantes, 3 February 1834.
[51] AMN - 2R569, Cailliaud to the Museum Surveillance Committee, 7 September 1844.

transfers, the prefect suspended operations of transfer owing to concerns regarding orderly proceedings:

> "It matters that the locale destined to keep all the riches of the cabinet be arranged and organised, that the transport be carried out with great levels of order, care, and method and that the lay-out and classification be operated altogether at the same time".[52]

Order, still, did take a peculiar place and material manifestation at the natural history museum. All actors were unanimous about order: second in place after accumulation in the objectives of the museum, the good curation and keeping of the collection meant to give it order and then keep it in order.

The museum director would collect specimens, take notes, and label them, sometimes directly on the field. He would purchase and make orders for groups of specimens - in accordance with the leeway of budgetary conditions - or supervise the delivery of private collections donated to the museum. These practices, whose outcomes and modalities have been presented throughout this work, took place between 1800 and 1870. To some degree, there was homogeneity in the activities of the men in charge of museum collections, as their task was essentially to foresee and organise and make room for accumulation.

A. Classification and museum authority

The importance of classification translated into the hierarchy of the museum and how responsibilities were distributed. In Nantes, the regulations of 1820s designated the museum director, the "Conservateur", as chiefly responsible for the classification, as he was the keeper of the keys of the cabinets - which by all means seems to indicate that doubles were not made. The director was also the custodian of the collection and guaranteed the integrity of the material. The regulations also precisely noted that taking "care" of the collection was to be a "daily" activity. The director was in charge of the classification, together with the surveillance committee, and more generally, most of the operations and choices conducted by the directors were made under the close supervision of the committee members. The examples developed above show how much the members of the committee never hesitated to step into museum affairs. The collaboration between the two instances, director and committee, is underlined in the case of classification which should be made "in concert".

This of course, did not eliminate possible quarrels. In the minutes of a reply drafted by Favre, the Mayor of Nantes, he actually liked to recall the just order of

[52] AML - 78WP021, Prefect of the Rhône to the Mayor of Lyon, 23 October 1812.

things by referring - with apt diplomacy - to what he thought he understood of the organisation.[53] Thus, the mayor made abundant use of formulations expressing restraint or incertainty. The order of the administration presided over the order of the collection. In this situation, the committee had seized the mayor because Dubuisson had refused to amend his classification. The committee judged he did not work fast enough, and his classification did not "measure up with scientific standards".[54] Geologist Charles Bertrand-Geslin, who worked most of the time in Paris but was a member of the committee, shared his strong disapproval for the "state of neglect" ("*état d'abandon*") in which the museum of Nantes had been left.[55] Dubuisson, on the other side, hardly appreciated that individuals messed with the ordering of minerals in the cupboards directly, as Bertrand-Geslin apparently did.[56] With or without an order from the municipality, the committee did interfere with the classification, and de-accessed a certain number of objects.[57]

In spite of written rules to order the proceedings at the museum, the collegiate nature of the organisation of work, with classification at its culminating point, made it difficult to avoid tensions. The final words, according to the mayor, were to be given by the Faculty of Science, with whom the mayor promised to settle the debate, if necessary: which in the end placed the mayor in a central, mediating position.[58] The scientific outcome of classification was delved into discourses of higher scientific interest, coated with pledges of servicing the greater good of an enlightened public. What it also illuminates is the relations between individuals whose sensibilities could sometimes overrun their administrative persona and thus creating wrestling over hierarchies and egos.

B. Diverse and overlapping classifications

Classification was the paramount of the scientific gesture of the savant's hand and intellect. Comparing the sites of Lyon, Nantes and Toulouse clears away,

[53] AMN - 2R565, the Mayor of Nantes to the Supervising Committee, undated [1834].
[54] The Committee complained about specimens of mineralogy "shockingly" displayed: AMN - 2R565, the Supervising Committee to the Mayor of Nantes, 19 November 1833. The expression "*à la hauteur de la science*" was authored by Dubuisson himself, as he detailed his objectives in organising such a display. See Dubuisson's responses in AMN - 2R566, Dubuisson to the Mayor of Nantes, 30 November 1833 and AMN - 2R565, Dubuisson to the Mayor of Nantes, 24 August 1834 and 14 October.
[55] AMN - 2R569, Charles Bertrand-Geslin to the Mayor of Nantes, 10 May 1834.
[56] AMN - 2R565, Dubuisson to the Mayor of Nantes, 6 January 1834. The trembling handwriting of Dubuisson's response betrays his ageing condition in AMN - 2R565, Dubuisson to the Mayor of Nantes, 29 August 1834 and 14 October 1834. Dubuisson was very critical against the supervising committee in AMN - 2R566, Dubuisson to the Mayor of Nantes, 30 November 1833.
[57] Ibid.
[58] AMN - 2R565, the Mayor of Nantes to the Supervising Committee, undated [1834].

however, all expectations regarding a uniformed pattern of classification in the French museums.

In none of the case studies were any specific instructions regarding classification provided by higher instances. In Bordeaux, the museum regulations specified that inventories should be led "according to the classifications of naturalists for each branch", but no such mention appeared in the regulations of Lyon and Nantes.[59] No print document such as a circular letter of instruction was issued from Parisian places of authority either, such as the Museum or the Ministry of Public Instruction - at least, none have been kept in the masses of administrative documentation. Low levels of standardisation appear to have characterised classification as it was not, for the period ranging between 1800 and 1870, clearly formalised by any scientific or institutional authority. The act of classifying specimens rather functioned according to a series of conventions inherited from longer-term practice, from exchanges between naturalists, collectors and museum keepers, and also, from the taming of difficulty posed by the materiality of collections.

During this period, there was little controversy about the arrangement of objects in the museum and their distribution between public galleries and hidden storage. All specimens from the collection were to be exhibited in the gallery cabinets according to a systematic arrangement. Interpretation of systematics could of course vary, and some objects could be away in the preparation room, or in teaching theatres. This did not mean that all pieces were visible, since minerals in particular were organised in drawers which could be locked and inaccessible without requesting a special intervention by the museum directors entrusted with the keys. The question of "bipartite" collections only arose in discussions after the 1860s.[60] At the museum of Nantes, the main division of space remained that of the exhibition galleries and the backstage spaces of offices, laboratory and library. But even in the building project of the 1860s, no such thing as a storage area was conceived. The relevance of such storage areas might indeed have been sharper in museums hosting very large collections (like the Museum in Paris or the British Museum in London). But the interest in seeing the whole collection in municipal collections, which were also hosted in smaller premises, was also maybe because their purpose differed.[61]

Inventories were not just useful then to keep control of the collection, they were also the transfer onto paper medium of a suitable classification of the collection. As a source, they cast light on the classificatory variety, in practice. To contemporaries, the

[59] AMN - 2R565, the Mayor of Bordeaux to the Mayor of Nantes, 30 November 1841.

[60] Renske Langebeek, 'L'aménagement des collections d'Histoire naturelle aux XVIIIe et XIXe siècles', *La Lettre de l'OCIM. Musées, Patrimoine et Culture scientifiques et techniques*, no. 134 (2011): paras 8–9, https://doi.org/10.4000/ocim.841.

[61] Langebeek, 'L'aménagement des collections d'Histoire naturelle aux XVIIIe et XIXe siècles'.

consultation of the catalogue equated with a visit of the collection. As such, they also give some idea, a couple of centuries later, of the practical organisation of a collection.

a. The Lyon collection in 1814: hotchpotch collections

The description below dwells essentially on the inventory carried out in 1814. As a municipal document, it mentioned all pieces of municipal property, and that included pieces of furniture or accessories (Figure 59).

The classification of the 1814 Lyon Cabinet of Natural History was organised at La Déserte, across two storeys, respectively designated "First floor" and "Second floor". Without an actual map of the building, it is difficult to establish whether there was a ground floor; this one might have been used as the home of the museum keeper, since Gilibert effectively lived on site.[62]

Roughly, the rationale of the inventory was to break the collections into groups of objects according to the three kingdoms of nature. A closer study reveals that while order seemed straightforward in the inventory, the reality of organisation on the shelves of the cupboards themselves was slightly more haphazard. The operations of the inventory were indeed organised so as to present the "Books" ("*Livres*"), "Animal Kingdom" ("*Règne animal*"), "Vegetable Kingdom" ("*Règne végétal*"), "Mineral Kingdom" ("*Règne minéral*"), closing with a list of pieces of furniture. Session after session, an inventory of objects thought be part of a given category (the kingdom) and subcategory was carried out.

The approach may be judged orderly in appearance, if it were not for the vague sub-categories, which were closer to hotchpotches and challenged an idea of stable systematics. "Diverse objects. Human and other" ("*Objets divers. Tant humains qu'autres*") is a good example of this: among over a hundred pieces, the group comprised an "injected dog's heart in a glass cage", "a human monster with two bodies united by the abdomen with only one head kept in spirit", "a kingfisher in spirit", "a skeleton of a seal's head", a "bear's claw", one "ram's horn" and so on.

Conversely, the situation was significantly neater in groups of objects organised according to known systems of classifications. The part of mineralogy organised according to the system of Haüy contained 262 items (sometimes also a group of several samples). The group of objects, which did not comprise each and every mineralogical specimen at the cabinet, was clearly brought to the forefront in the "large glass cabinet" in the first level of the museum. However, taxonomic systems were merely applied to the collection of the Lyon museum in 1814, and only

[62] AML - 78WP021, Rey-Mouleau, Administrator of the Council of the botanical garden, to the Mayor of Lyon, 12 July 1808.

SESSION NUMBER AND DATE	CATEGORY	SUB-CATEGORIES	
	* Categories were usually treated over several days. Sub-categories were sometimes also treated over several days, depending upon size of group of objects.		
Session 1 - 18 October 1814	"Livres"		
Session 2 - 26 October 1814	"Régne animal"	"Oiseaux"	"Présentés au vol et conservés en plusieurs fascicules sous formes d'herbiers"
			"Oiseaux sans cages et sur la cheminée. Ceux-ci sont empaillés"
			"Oiseaux sous cages vitrées"
Session 3 - 27 October 1814			*suite*
Session 4 - 28 October 1814		"Insectes"	"Enfermés dans une commode à dix tiroirs et fermées par deux portes"
		"Objets divers. Tant humains qu'autres"	
Session 5 - 29 October 1814			
		"Poissons"	
		"Animaux marins divers et autres objets ayant appartenu à des poissons".	
		"Objets tant au plancher que sur les armoires"	
Session 6 - 31 October 1814			
		"Coquilles"	
Session 7 - 3 November 1814			
Session 8 - 4 November 1814			
Session 9 - 21 November 1814	"Règne végétal"	"Herbiers"	
		"Fruits"	
Session 10 - 22 November 1814		"Bois"	
Session 11 - 23 November 1814		" Armes, vêtements et autres objets indiens"	
		"Productions marines vivantes et fossiles"	
Session 12 - 24 November 1814			
	"Règne minéral"		
Session 13 - 25 November 1814			
		"Minéralogie déterminée et classée d'après le système d'Haui (sic)"	
Session 14 - 26 November 1814			
Session 15 - 28 November 1814			
Session 16 - 29 November 1814			
Session 17 - 30 November 1814		"Pierres, cristaux, et autres objets mélangés"	
Session 18 - 1 December 1814 - morning			
			"Marbres"
			"Productions volcaniques"
Session 19 - 1 December 1814 - evening		"Schistes, ardoises et empreintes"	
Session 20 - 2 December 1814 - morning		"Pierres, roches, et autres objets divers"	
Session 21 - 2 December 1814 - evening		"Divers objets mélangés et sans ordre"	"Fossiles"
Session 22 - 3 December 1814 - morning		"Objets divers placés indifféremment"	
Session 23 - 3 December 1814 - evening	"Mobilier"		

Figure 59 - Schematic representation of days of inventory and content of cabinet at La Déserte in 1814.

concerned a small minority of pieces. Indeed, looking at the schematisation of the collection in the building helps understand the actual organisation of the museum, which contrasts with the order of the inventory. It also helps cast light on the logics of inventory and classification at that point in the history of the Lyon museum, at the end of Gilibert's time.

Following the inventory might lead one to thinking that the rationale of the inventory was to list down the objects as they came up in cabinets, looking at one cabinet after another. Across from the list of objects, resuming from n°1 at each

session, is an "observation" column. It is used to locate the object in the cabinets, sometimes referring to a particular label fixed on the cupboard (e.g.: "*Insectes*"), sometimes to a number (e.g. "*n°1, 2*" etc), sometimes to a type of cabinet (e.g.: glass cases, drawers etc). This column is very useful to show how the inventory makers in fact circulated around the museum in order to list down all the objects connected to a category. The hazier the category, the greater the circulation. This was even accentuated with bulkier pieces or "non-standard" pieces. Those posed the particular problem of space, and therefore could be found placed essentially wherever there was room. Hence the four large stuffed birds (flamingo, stork, swan, pheasant) settled on the mantelpiece, or the skins of snakes or the thought-to-be-leopard above the cupboard. Similarly, "volcanic productions" were scattered all over the three rooms used for display.

The case of the 1814 museum of Lyon, overall, reveals the state of the collections after roughly a dozen years of officialised municipal existence. It shows a piecemeal collection which was the product of diverse collectors: the collection of birds and herbaria made by Mouton-Fontenille and a collection of Indian artefacts probably collected by some missionary are clearly noticeable in the inventory. The collection was also hauled several times up and down the Croix-Rousse hill slope. These factors of heterogeneity were substantial challenges to the systematic classification of objects.

This situation had also caused the municipal collections to be of low scientific quality, or to be euphemistically called "encyclopædic". Expertise existed, but the extent of its application was limited to the operations realisable by one person, as museum keepers often worked alone. This appears clearly in the 1814 inventory: some parts of the collection are well organised, others less so. This situation was linked to capacity in organising the samples but also to interest in organising them. The collection was the property of the municipality. The museum director kept them and made property tangible through the inventory. But these things gathered over time were sometimes of little interest to the savants, despite bearing symbolic power for the municipality. This interesting case encapsulates the difficulty in passing around collections and appropriating the work of someone - a transitional moment of translation was necessary - and sometimes even the impossibility of doing so. It also shows how keeping the museum meant both playing around with objects inherited from the community and developing one's own signature collection.

Longer directorships brought the continuity necessary to slowly build collections. That did not prevent Cailliaud in Nantes or Jourdan in Lyon from juggling their time between mineralogical surveys and incoming objects of all sorts. The fact that the collections were public, and the difficulty of articulating individual influence over them at the same time as multiple agents also sought to affect them, caused an

important challenge for classification. It would be too reductive to see the relative chaos within the shelves only as the result of low scientific standards. Classification also depended on situation.

b. The example of Nantes: classifying nature locally

In 1815, Dubuisson had been at the head of the Cabinet of Natural History of Nantes for slightly less than a decade (since 1806). The report he sent to the mayor of Nantes in April of that year provides an overview of the state of the cabinet at a similar time to the case of Lyon presented above.[63] A different type of document, the report does not allow linear comparison with regards to the contents of the collection. More importantly though, it reveals, there too, how situated the Nantes collection was.

Dubuisson's text was comparable to a written visit to the collection. In the first level of the "precious establishment", a circular room exhibited the mineralogical collection of the productions of the *département*. Those samples were precisely those gathered by Dubuisson himself in the framework of departmental mineralogical surveying. They were just, as he wrote, ready to be ordered in the cabinets, as he was eventually supplied for a set of 3,000 wooden stands to display them in suitable fashion. This group of objects was composed essentially of Dubuisson's own collection, purchased by the municipality in exchange for a life annuity rent, and by the new additions. Part of the samples of mineralogy were destined to teaching, and together with the surpluses of the mineralogical collection, they would fit in the empty cabinets of the vestibule. The room in particular was meant to show the collection in its best light: the rotunda was perfect for this. This also gave Dubuisson's collecting skills, in passing, the best form of publicisation.

A brand-new room, in the southern area of the museum, was to host a collection of fish. Ichthyology was an important section of the collection. Dubuisson, a self-taught chemist, had developed competence in the manipulation of chemicals and preparation of fish, in particular. Of course, Dubuisson also conceded, there were "local advantages" in supplying for specimens of fish, being "in a position (…) of maritime port". After he had reconditioned the fish according to a "new method" he himself developed to preserve their "fugitive colours and every appearance of life", they could be placed in the new room.[64]

[63] AMN - 2R565, Dubuisson to the Mayor of Nantes, 26 April 1815.

[64] Original text: "La salle neuve du sud est destinée à l'icthyologie; mais un très petit nombre d'objets sont préparés pour en faire le fond. Il doit m'être permis, Monsieur le Préfet, de vous rappeler que suis l'auteur de la nouvelle méthode qui dans la préparation des poissons, leur conserve après la mort les couleurs fugitives et toutes les apparences de la vie. la position dans laquelle nous nous trouvons comme port de mer donne pour traiter cette partie de l'histoire naturelle, des avantages locaux qui réduisent de beaucoup les frais d'achats des individus propres à être préparés." AMN - 2R565, Dubuisson to the Mayor of Nantes, 26 April 1815 [copy of a letter addressed to the Prefect of Loire-Inférieure].

Mineralogy and ichthyology were strategic collections for Nantes. They were organised respectively according to the systems of Haüy and Cuvier, meaning that they represented an area particularly take care of.[65] After all, both those branches of natural history were then very important to understanding the long history of living beings and of the earth and the Nantes collection reveals contextual interest in those fields.[66] However, rather than the universality of science, the localness of the collection was put to the fore as a solid argument for the utility of the collections, and thus funding. This rhetorical strategy goes to a point where the cabinet appeared stripped of most of the objects: where were the Buron, and Kérambart collections, for instance? Dubuisson's very selective description of the museum premises and collections underline the importance of how natural history needed to be scaled to a local context to be better grasped by authorities also sensitive to local economic development.

c. Classification according to local mineralogy

It was a common feature of local science to scale itself into the framework of the *département*, which was an administrative division that had been particularly well appropriated by savants outside of Parisian spheres.[67] It was particularly visible in botany. The Jardin des Plantes in Toulouse continued its reputation as a garden of the Pyrenean species well after Lapeyrouse had passed away and under the term of Moquin-Tandon.[68] Balbis wrote a *Flore lyonnaise*, published in 1827-1828, which ordered the local species into universal systems of classifications, Candolle's, in that case.[69] And more notable again is the attempt to offer a specific classification of botanical species at the Jardin des Plantes of Nantes, which Ecorchard presented in his *Spécimen d'une flore*.[70] Mineralogy did, however, hold a specific place in the elaboration of local natural knowledge and its scaling to the local. By 1815, mineralogy represented a section of the museum collection which was given particular care. In

[65] Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 404.

[66] About the interest in ornithology, see for instance Paul L. Farber, *The Emergence of Ornithology as a Scientific Discipline: 1760-1850* (Dordrecht; Boston; London: D. Reidel Pub. Co., 1982). New interest in ichthyology led to important publications, like new edtions of the works of Buffon and Lacépède: Étienne de Lacépède, *Histoire naturelle des poissons*, 11 vols (Paris: Plassan, 1798), https://doi.org/10.5962/bhl.title.125512; Georges-Louis Leclerc Buffon and Étienne de Lacépède, *Histoire naturelle, générale et particulière, des poissons: ouvrage faisant suite à l'Histoire naturelle, générale et particulière, composée par Leclerc de Buffon, et mise dans un nouvel ordre par C.S. Sonnini, avec des notes et des additions*, ed. Charles Sigisbert Sonnini (Paris: De l'imprimerie de F. Dufart, 1802), https://doi.org/10.5962/bhl.title.12463.

[67] On the tensions arising from the confrontations of administrative and scholarly representations, see Isabelle Laboulais, 'Quand les agents des mines délimitent leur domaine de savoir. La mise en place des collections minéralogiques pendant la Révolution française', in *Patrimoine et communautés savantes*, ed. Soraya Boudia, Anne Rasmussen, and Sébastien Soubiran (Rennes: Presses universitaires de Rennes, 2009).

[68] *Catalogue des plantes cultivées au Jardin de Botanique de Toulouse à l'usage des élèves de l'École du Jardin*.

[69] Balbis, *Flore lyonnaise*.

[70] Jean-Marie Ecorchard, *Spécimen d'une flore, projet d'embellissement du Jardin des Plantes de Nantes* (Nantes: Mellinet, 1841).

the histories of both the Nantes and Lyon museums up to the end of the 1860s, mineralogy took a staggering place and mobilised the majority of credits allotted to the museums.[71]

In the Nantes catalogues, mineralogy prevailed in terms of the number of volumes, pages and thus listed objects with regards to other branches of natural history. But mineralogy was, however, hardly more than an umbrella designation for different types of mineralogies based on distinctions of place of collection. In the Dubuisson years, there were at least three sets of mineralogies clearly separated into different catalogues. A first set of registers was concerned with the mineralogy of the *département* of Loire-Inférieure. Then came catalogues of "General mineralogy", which included Dubuisson's personal collection as of 1822, and the Nantes collection from 1809 and 1827. A third group of minerals, for which dating is not certain, concerns a group of 561 minerals "from the Paris terrains".[72]

Uses of the collection may be suggested by the catalogues themselves. Listings of objects may appear most of the time as an impressive continuum of columns, but they also contained large blanks. Space was left to be filled in order to update the catalogue. This was only occasionally done, but the practice was attested to in writing, together with gluing slips of paper on top of an existing page to amend a section of the classification. This allowed reuse of the existing inventory to complete it after an annual survey conducted by Dubuisson. Thus, it generated a written device which was stable enough to avoid the difficult task of starting over for each catalogue update; that device was flexible enough to welcome additions caused by the significant engagement of the museum director in the field, collecting minerals. Inventories were instruments of scientific work and their content was evolving (Figure 61).

Conversely, the little-annotated catalogue of Parisian limestone rocks suggests that the collection was correspondingly little used (Figure 60). The very absence of annotations leads us to evaluate the collection as probably just transferred and deposited there. The two registers for this specific collection are both very neat and underwent no modifications or annotations - even though a column representing roughly a third of the right-hand side had been left blank. The hand of Dubuisson also did not write the inventory, though it is now kept in the archive of Dubuisson at the Muséum d'Histoire Naturelle de Nantes. The catalogue is maybe comparable with a "catalogue" of sent objects, and one hypothesis would be that doubles were obtained in some manner through the intermediation of Charles Bertrand-Geslin.

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[71] For further analysis about budgetary conditions, see Chapter 2, 3. The elaboration of a discourse of the territory, p. 160.

[72] *See MHNN - Dubuisson 4, Catalogue des substances calcaires du terrain de Paris*, undated and MHNN - Dubuisson 4, *Suite du terrain de Paris*, undated.

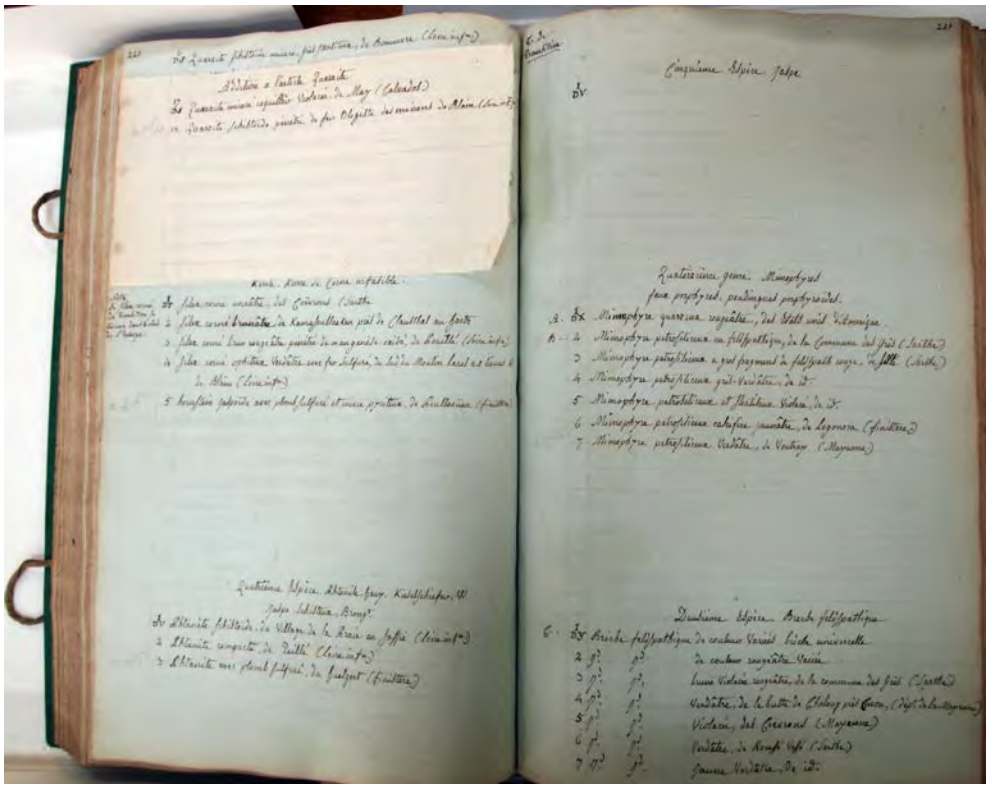

Figure 61 - Detail of the Dubuisson collection catalogue of 1822. MHNN

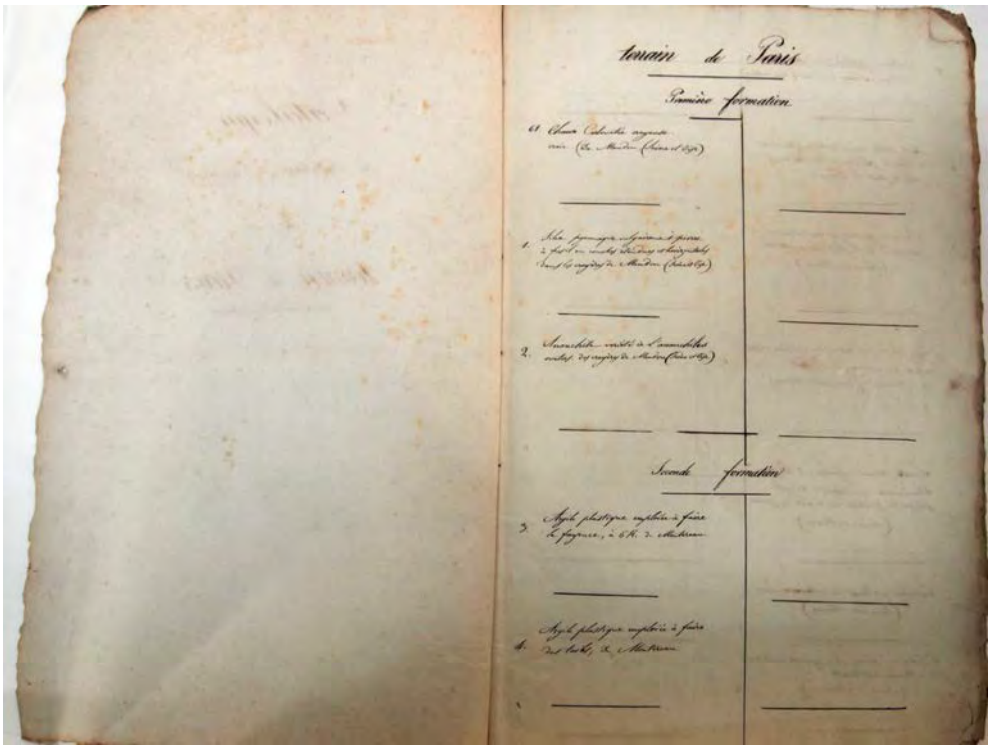

Figure 60 - Detail of Catalogue des terrains de Paris*, undated. MHNN*

Differentiated uses of different collections was also suggested by the way the very classification of the samples was set out. In the case of "General mineralogy", whether for Dubuisson's personal collection (purchased by the municipality in ca. 1825) or Nantes', Haüy's system was applied, as it was acknowledged as the most accurate. Cailliaud, then the assistant of Dubuisson, made it very clear that his ambition to put the collection "at the level of today's science" and that involved "adopt[ing] the placement and classifications in use at the Museum in Paris".[73] The catalogues were therefore updated by Dubuisson, identifiable by his peculiar handwriting. The mineralogy collection's catalogue was drafted right after 1809, following the publication of Haüy's *Tableau comparatif des résultats de la cristallographie et de l'analyse chimique*.[74] An update of the catalogue was conducted in 1827, after the publication of *Traité de cristallographie* in 1822.[75] It is to be noted that Dubuisson started updating his personal collection as soon as 1822, while the municipal collection was updated in 1827 - possibly resulting from the purchase and integration of his collection to the museum. By all means, the section on "general mineralogy", consisting of samples (or "species" as they would then be considered) was not related to one space in particular. It was a set of objects whose place of origin was carefully noted down but which were valued more for the slice of universal knowledge they would convey.

The local mineralogy of the *département* was not presented in catalogues following classes of elements defined by famous naturalists. They were presented as part of a bundle of rocks collected from a specific area, the *département*. Registers would follow the order of *arrondissements*, then of localities, in alphabetical order. The catalogue did not reference all municipalities systematically, and the fact that the places were those where the samples were collected is still a strong hypothesis. This administrative approach did not disqualify the validity of the ordering of the collection. Classification also consisted of describing and naming and labelling the samples. The organisation was set out purposefully according to place, but place in the universal system of minerals was yet given. The naming of the samples followed the masters', and some amendments were brought, according to later findings, hence the addition of annotations in the margin of the catalogue.[76]

[73] MHNN - Dubuisson 6, *Commission de surveillance du cabinet d'histoire naturelle de Nantes*, entry n° 12, Cailliaud to the President of the Supervising Committee, 28 October 1832.
[74] René-Just Haüy, *Tableau comparatif des résultats de la cristallographie et de l'analyse chimique : relativement à la classification des minéraux*, 1809, https://gallica.bnf.fr/ark:/12148/bpt6k38975.
[75] René-Just Haüy, *Traité de cristallographie suivi d'une application des principes de cette science à la détermination des espèces minérales*, 3 vols (Paris: Bachelier & Huzard, 1822), https://gallica.bnf.fr/ark:/12148/bpt6k1520361n.
[76] MHNN - Dubuisson 1, *Catalogue de la collection minéralogique, géognostque et minéralurgique du Département de la Loire-Inférieure. Suite du 4e arrondissement et du cinquième*, vol. 3/3.

Museum collections also resulted from a tradition of sampling minerals and keeping them as a visitable encyclopaedia of resources.[77] One would expect the ordering and shelving of the samples to then follow the order of the catalogue: furniture was, in this respect, a condition to appropriate sorting and display.[78]

It is not certain it was the case, and practical issues of placing large and cumbersome pieces remained a challenge. The catalogue and collection, still, did provide an up-to-date catalogue of resources, which made the resources easily located and retrievable. Objects and inscriptions around mineralogy formed a databank essential for the development of the economy, and there lay the interest of the local authorities in developing them.

d. "Le guide des entrepreneurs!": industry and classification

In a municipal context, the museum collection was often openly related to economic development. In 1818, Dubuisson requested permission from the prefect to drill down for metallic ore in a deposit found located in the quarry of Miséry in Nantes a couple of decades earlier.[79] This, he said, could develop into further exploitation. Although he did not clearly express it, Dubuisson was hoping to use the economic argument to have new finding opportunities, as drilling was not trivial, and permission needed to be granted. There was indeed an economy of mineralogy which served both the scientific and political authorities.[80] In 1866 Cailliaud was asked to respond with a report to the question of the "objectives" and the "utility" of the museum, and about the "services" it rendered. His first element of response was that the "museum collection had often served as a guide to entrepreneurs", citing for instance the limestone deposit of Campbon, which thanks to surveys was under new exploitation and had seen the construction of three lime kilns.[81]

The mineralogical collections attest for the economic function of the museum, just as well as the way they were organised in the galleries. The paragraphs above have shown the importance of a place-based classification for local mineralogy. Cailliaud recalled how the displayed classification by *arrondissement*, then *canton*, then *commune* was tailored to let the landowners find out about the underground riches of their property.

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[77] Laboulais, *La Maison des mines: la genèse révolutionnaire d'un corps d'ingénieurs civils (1794-1814)*.
[78] AMN - 2R565, the Supervising Committee to the Mayor of Nantes, 20 July 1832.
[79] AMN - 2R569 - it. 13, Dubuisson to the Mayor of Nantes, 24 October 1818. The letter contains a copy of an undated message to the Prefect of Loire-Inférieure which must have been sent a few weeks before.
[80] About the relation between natural history and *la statistique* (territorial surveys), see Claude Blanckaert, '1800 – Le moment « naturaliste » des sciences de l'homme', *Revue d'Histoire des Sciences Humaines* 3, no. 2 (2000): 117-60.
[81] Original text: "Les nombreux dépôts calcaires que nous avons découverts ont surtout fixé l'attention (…). Le calcaire de Campbon avant nous abandonné, possède aujourd'hui trois fours à chaux des plus productifs, un nouveau four est en grande activité à Bas Bergon. Nos échantillons de musée enfin sont les guides des entrepreneurs, combien de fois ne les ont-ils pas guidés !": AMN - 2R565, Cailliaud to the Mayor of Nantes, 25 July 1866.

They should be thereby led to recognise the uses they could make of their uncovered resources.[82] In Lyon, a similar approach was endorsed by Jourdan for the collection of mineralogy. A "special classification", "adapted to the specific needs of [the] city" and in which "minerals are classified in view of the industry" was developed by the museum director. For this purpose, metallic substances were gathered as a separate group, as well as stones, soil samples or alkali.[83] These two types of display, whether based on location or type of product, were pedagogically designed to fulfil the museum's utilitarian role and to be legible to non-scientists, namely, entrepreneurs.

The role of the museum in the development of industry did not, however, become more blatant as industrialisation soared after the 1850s, nor did it only concern mineralogy. The project of gathering collections for the purposes of developing industry was very clear in the project of the "Conservatoire des Arts" in Lyon around 1800. A bourgeois group of merchants were in fact directly involved in the project. The Conservatoire was hosted in the Palais Saint-Pierre and was composed of funding and training authorities useful to the textile industry, like the Chamber of Commerce or the school of arts, or collections of looms which were integrated into the museum display.[84]

The role of the natural history collections in this context was immediately connected to local expectations in terms of economic development. The discipline of natural history was only one brick in a compound institution dedicated to the development of the textile industry. Botany was especially strategic. It was taught to students of the Arts classes, in order to be trained in flower design.[85] This, in turn, was to be used as a valuable competence in the sector of design, serving to produce templates for the weaving or printing of fabric.

Even well after the project of the Conservatoire had been renounced, the Lyon natural history collections were associated with industrial development. More than the classification and ordering of collections, it was manifest in the involvement of Jourdan in other instances of Lyon, and especially in the Societé d'Agriculture, Histoire Naturelle et Arts Utiles. The museum, however, did keep a central place in being the

[82] Original text: "[...] Les collections [...] du Département, [...] sont classées par Arrondissements, Canton et Communes, permettant ainsi aux propriétaire de reconnaître la nature de leur terrain pour leurs divers emplois dans les arts. (…)"
AMN - 2R565, Cailliaud to the Mayor of Nantes, 25 July 1866.

[83] Original text: "Nous avons fait pour la Minéralogie une classification toute spéciale, appropriée aux besoins de notre ville. Les minéraux sont classés en vue de l'industrie. Nous avons pris les caractères des Bases (sic.) pour point de départ. Tous les métaux se trouvent ainsi réunis ensemble. Il en est même des Pierres, des Terres et des Alcalis." DP-J, "Journal de Jourdan", p. 16, Jourdan to the Prefect of Rhône, 23 January 1853.

[84] AML - 465WP001, p. 1 *Etat estimatif des ouvrages à faire pour la restauration générale du Palais du Commerce et des Arts*, by the municipal Architect, 31 August 1807. The looms were "accidentally" sold in 1816, owing to muddled administrative procedure. See ADR - 4T61, 1816.

[85] CCEC - CO-P, *Prêt d'objets*.

designated locale for the keeping, conversation and study of a collection of silk samples.

The very naming of the society shows that in Lyon, natural history emphasised "usefulness" and was associated institutionally with being utilitarian, although this may have also been an opportunistic association made to gain public acknowledgement and funding. Intellectual relations developed with the Society of Agriculture made the latter a place of discussion and publicisation of research, while the museum operated as a place for experimentation, also made possible by the presence of collections and the very function of the museum being collection keeping. This way, the society of agriculture had deposited and displayed a collection of models of farming machines for which a project of a dedicated room was even elaborated in 1826.[86] Jourdan was an active member of the society and was trusted with studies of certain species associated with silk farming. In 1858, he reported to the society on his attempts to raise silkworms.[87] In 1863, he promised a memoir on his experiments in silk farming with new "exotic" species of silkworms, which is said to have been welcomed with much enthusiasm by the audience.[88]

Jourdan's contribution to the knowledge of silk did not only date from the later years of his directorship. The entry to the museum of silk cocoons was recorded in January 1853.[89] A group of samples of raw silk was gathered from several dealers - that is, it was no pre-existing collection purchased from a collector. The Chamber of Commerce kept the ownership while the museum was designated as the custodian of what evolved into a collection of silk samples from China, Siam and Bengal, but also from Sardinia, Tuscany and Persia.[90] A catalogue was thereby established to officialise the existence of the collection, which also included the samples brought from London by Jourdan. No traces of this trip to London were kept in the museum archives, as it was most likely to have been funded on a separate section of the budget and partly regarded as unrelated to museum business. But trying to bridge over truncations operated by administrative categorisation, it did make sense that Jourdan, as the eminent naturalist of the city, was invited to join a delegation sent to visit the London Great Exhibition in 1851 to gather objects and data valuable to the silk industry and

[86] AML - 465WP004, "1826".
[87] 'Séance du 7 mai. Présidence de M. Lecoq', *Extraits des procès-verbaux des séances pour l'année 1858. Annales des sciences physiques et naturelles, d'agriculture et d'industrie*, 1858, xxxv.
[88] 'Séance du 17 avril. Présidence de M. Glénard', *Extraits des procès-verbaux des séances pour l'année 1863. Annales des sciences physiques et naturelles, d'agriculture et d'industrie*, 1863, xxxiiv. See also CCEC - DP-J, "Journal de Jourdan", p. 21-23, Jourdan to n/d, "Lettre indiquant les envois successifs des cocons sauvages du Chêne par MMr les Missionaires en Chine", 5 May 1855.
[89] CCEC - JE, "Journal d'entrées", p. 4, "Facture d'acquisition de soie grège. Montant à 730 f.", 28 January 1853.
[90] Ibid.

to be stored at the museum.[91] Whether or not the collection was open to the public is not documented, and there would be reasons to have developed some secrecy about this sensitive industrial matter.

C. The local and the rest

What use was the exploration of Ethiopia when there was so much to discover at close hand in Loire-Inférieure?[92] The focus on mineralogy clearly induced a collecting bias in stressing the local dimension of the field of collecting.[93] Expensive transportation costs for heavy loads was one reason to have the museums do it themselves. But another strong incentive was the interest in terms of the territorial construction of local authorities and funding bodies.

The subsequent bias on mineralogy should not obstruct the material presence, within the collections of objects and specimens, of other branches of natural history. The examples of Lyon and Nantes around 1815 described above exemplify how collections also contained material related to botany or zoology, or even material not systematically classified. Stacks of fascicles from publications on botany or specimens preserved between sheets of paper, plants or birds, were stored in some of the cupboards of the Lyon 1814 museum. This example also shows that beyond certain sections of mineralogy and botany whose organisation was quite systematic, most of the zoology was kept fairly haphazardly, and this situation was also due to the specialisation in botany (Gilibert) and ornithology (Monton-Fontenille) of the men who had been in charge of the museum in the first quarter of the nineteenth century.

The tables of acquisition presented in the following pages help to grasp the choices which were made in terms of acquisitions and which branches were more or less favoured. The point is to provide an estimate of the weight of non-mineralogical collections in municipal collections after 1830. In both Lyon and Nantes, the 1830s brought about more stability in the directorship of their respective museums, with the appointment of Jourdan in 1832 and Cailliaud in 1836. The first was trained as a physician; the latter was a traveller and specialist of Egypt. In spite of very different

[91] It is unlikely that Jourdan travelled on his own. The Bibliothèque Municipale de Lyon holds a *Guide to the Great Exhibition* which belonged to Matthieu Bonafous. A fellow member of the Society of Agriculture, and a renowned expert in silk farming, Matthieu Bonafous' collection of books was donated in 1859 to the municipal library after his death in 1852. *A Guide to the Great Exhibition Containing a Description of Every Principal Object of Interest with a Plan Examining the Contents of the Crystal Palace* (London: Routledge, 1851), https://numelyo.bm-lyon.fr/f_view/BML:BML_00GOO01001370011003430 40.

[92] Frédéric Cailliaud, 'Catalogue des radiaires, des annélides, des cirrhipèdes et des mollusques marins, terrestres et fluviatiles recueillis dans le Département de la Loire-Inférieure', *Annales de la Société Académique de Nantes et de la Loire-Inférieure* 36 (1865): 4–340.

[93] AMN - 2R566, Rapport sur le Musée d'Histoire Naturelle de la Ville de Nantes, par Derostaing-Derivas, [1841]

trajectories and preferences, what comes below shows that in both cities a similar pattern appeared in terms of the ratio between local mineralogical collections and "the rest".

The series of tables seek to compare data between Lyon and Nantes and also two different moments. The very long directorships of Jourdan and Cailliaud were sampled in two periods. The first period ran from 1845 to 1849. In both cities, it marked a moment when both directors had been stable in their positions for over ten years. In Lyon, especially, the period preceded the absorption of the municipality by the prefectoral authority in 1852. The second period ran from 1859 to 1861 for Lyon and 1865 for Nantes. For the period 1859 to 1861 in Lyon, some very clear patterns appeared immediately, and it was unnecessary to extend the period of study, owing to the large amount of data provided by the records. In Nantes, by comparison, the scant information left about the objects and collections acquired in those years made it more relevant to extend the period to 1865.

The series of tables helps visualise and make tangible what until then existed only at the level of intuition. The tables illuminate, for a start, the outstanding difference in the resources at the disposition of the Nantes and the Lyon museums. Between 1845 and 1849, Nantes registered 5 purchases. Lyon made 32 over the same period. At least once per year, the Lyon museum would purchase one sizeable groups of objects, whether through a sizeable order from a merchant like Krantz (see Table 1, id_lyon1_15) or a collection like Sauvaneau's (see Table 1, id_lyon1_21) for 895 francs and 400 francs respectively. In comparison, the cost of certain Lyon transactions would well exceed the annual budget for purchases in Nantes: the budget for surveys was fixed at around 300 francs, and the remainder of this sum could sometimes be employed for some acquisitions.

The second lesson from see Table 1 and Table 3 is the unmistakable predominance of mineralogy and palaeontology in both museums. In both cases, the data presented does not take account of costs afferent to the mineralogical surveys, except for Table 4, which provides comparative material to evaluate the weight of local mineralogy in the collections. In Nantes, the overall 800 francs budget covered firewood, accessories (brooms, chemicals, items of ironwork and so on) and acts of maintenance (cleaning the courtyard or trimming the bushes) and books for the library. These cost items would usually represent one third or more of the expenses. Zoological preparations, research trips and the transportation of bulks of minerals

used up the remainder[94]. The importance of mineralogy in the economy of acquisition was unrivalled.

Similarly, and in spite of much wider financial elbowroom, Jourdan's policy of acquisition very clearly specialised in mineralogy and palaeontology, too. In the first sample period (Table 1), 2167.40 francs of the overall 5074.5 francs were spent on objects which were not mineralogical. In the second sample period (Table 2), the overall amount of expenses increased to 6170.05 francs for just three years, but the amount dedicated to other branches of natural history dropped staggeringly to 526.85 francs. The average amount spent on non-mineralogical objects shows the same evolution, with a notable decrease from 154.81 francs to 52.69 francs for each transaction.

The mode of acquisition was transformed, too. In the first period, Jourdan negotiated important transactions for groups of animals, especially for marine zoology and ornithology, like in 1845 (see see Table 1, id_lyon1_1 and id_lyon1_5) or 1847 from Mulsant (see see Table 1, id_lyon1_16). Information on the suppliers shows that increasingly, Jourdan opted for the opportunistic development of the collection. Acquisition of mammals or sizeable specimens, too, was very much subject to circumstances: Mr. Bonardel turned out to have an ostrich for sale, an uncommon piece (id_lyon1_30). Or even more fortunate were cases of animals from itinerant menageries dying while stationed in Lyon, like those giant boa constrictors or that skinned leopard (See see Table 1, id_lyon1_17; id_lyon1_28) which offered excellent study opportunities. In the second period, incoming objects depended on intermediaries' findings rather than planned acquisition. Mr. Vibrate, possibly a fisherman on the Saône, or Mr Ricci, were for instance regular suppliers of fish (see Table 2, id_lyon2_8, id_lyon2_43; id_lyon2_18, id_lyon2_29), depending on the contingencies of what came out of the water. Degréaux, the owner of a naturalist shop in Nice, was encountered on the occasion of Jourdan's trip there, resulting in specific orders for Mediterranean ichthyology (See Table 2, id_lyon2_37).[95]

[94] Estimates elaborated from AMN - 2R565, *État sommaire des dépenses du Musée d'historie naturelle de Nantes durant l'année 1859*. This account was provided for 1859, but it is representative for the 1850s and 1860s.
[95] See Appendix H: Overview of Jourdan's scientific trips, p. 445.

ID	DATE REGISTRATION OR RECEIPT	CONTENTS		PROVENANCE *ITALICS: INTERPRETATION*	COST		SUPPLIER
		NUMBER OF PIECES	ABRIDGED DESCRIPTION		IN FF.	OTHER VALUE	
ID_LYON1_1	6 FEBRUARY 1845	828	Zoology: *"[prato] organismes animaux; Molusques; Sub-articules; Articules; vertébrés; Fossiles; Poissons; Ophydiens, Batraciens; Sauriens."*		920		Mr. Portier, *Voyageur naturaliste* in Egypt
ID_LYON1_2	10 FEBRUARY 1845		Fossils		9		Mr. Lafond, Naturalist dealer
ID_LYON1_3	21 FEBRUARY 1845	2	Ornithology: raven, peacock		14		Sergent Major
ID_LYON1_4	1 MARCH 1845	10	Minerals; entomology		111		Mr. Vizonneau, Naturalist dealer
ID_LYON1_5	18 APRIL 1845	81	Birds [of which 56 hummingbirds]		220.4		Mr. Hubsch
ID_LYON1_6	28 APRIL 1845	3	Zoology: young beech martens		9		Mr. Bonardel, Naturalist dealer
ID_LYON1_7	1 JULY 1845	59	Zoology, ichtyology		250		Mr. Laforgue, Naturalist dealer in Marseille
ID_LYON1_8	1 MAY 1846		Plaster casts				Krantz, Berlin
ID_LYON1_9	17 JUNE 1846	1	Zoology: ibis		19		Mr. Maniquet
ID_LYON1_10	18 JULY 1846	6	Zoology: [?] and mummified crocodiles		300		Mr. Rochet D'Héricourt
ID_LYON1_11	29 JULY 1846	1	Zoology: young lion		30		Mr. Crémieux, Naturalist dealer in Marseille
ID_LYON1_12	2 AUGUST 1846	1	Zoology: young badger			1 eagle	Mr. Bonardel, Naturalist dealer
ID_LYON1_13	6 AUGUST 1846	1	Zoology: young lion		30		Mr. Bonardel, Naturalist dealer
ID_LYON1_14	21 AUGUST 1846	2	Fossil ox horns		25		Mr. Roland
ID_LYON1_15	1847	965	Mineralogy, geology		895		Krantz, in Berlin, via Mr. Alexandre
ID_LYON1_16	1847	1	Ornithology: trogons		100		Mr. Mulsant
ID_LYON1_17	12 JANUARY 1847	1	Zoology: Leopard's skeleton, skinned.		15		Mr. Poisson, Menagerie owner
ID_LYON1_18	19 JANUARY 1847	/	Fossils	*Rhone Valley*: Saint-Géraud, Cusser, Roanne, St Symphorien, Thusy, Chessy	203.85		Mr. Alexandre Jambon
ID_LYON1_19	5 APRIL 1847	31	Ornithology; Tooth of spermwhale; shells.	Iles de la Société (Tahiti)	47.50		Mr. Villeret
ID_LYON1_20	15 APRIL 1847	1	Zoology: Alpine ibex (with head and skin)	*Alps*	200		Mr. Donamagnin
ID_LYON1_21	15 JANUARY 1848		Geological collection of Mr. Sauvaneau		400		Mr. Chausson
ID_LYON1_22	10 FEBRUARY 1848		Fossils; minerals		479		Mineralogical shop in Heidelberg, via Mr. Gachet
ID_LYON1_23	17 FEBRUARY 1848	1	Zoology: seal		30		Mr. Landel
ID_LYON1_24	21 FEBRUARY 1848		Zoology			1 eagle	Mr. Bitéry
ID_LYON1_25	28 MARCH 1848	5	Zoology: panther; monkey; blue-and-gold macaw ara; boa constrictors		100		Mr. Brochus, Brotteaux
ID_LYON1_26	19 MAY 1848	49	Shells	Marquesas Islands and Society Islands	49	equivalent in shells	Mr. Tervert
ID_LYON1_27	30 JUNE 1848	1	Fossils	*Lyon*, Fourvière	12		Mr. Jornin
ID_LYON1_28	17 JULY 1848	2	Zoology: boa constrictors		40		Mr. Gonsole, Menagerie owner
ID_LYON1_29	24 AUGUST 1848	2	Mineralogy: slates	Angers	5		Mr. Lafond, Mr. Bonardel, Naturalist dealer
ID_LYON1_30	AUGUST 1848	1	Zoology: young ostrich		25		Mr. Bonardel, Naturalist dealer
ID_LYON1_31	DECEMBER 1848	107	Mineralogy	Germany, Sweden, Russia	453.75		Mr. Krantz, via Mr. Lortet
ID_LYON1_32	FEBRUARY 1849	8	Mineralogy	Ural, Silesia, North America	82		Mr. Lortet
					5074.5		

Table 1 - Acquisitions in Lyon —1845-1849 sample

ID	Date registration or receipt	Contents: Number of pieces	Contents: Abridged description	Provenance *Italics: interpretation*	Cost: in ff.	Cost: Other value	Supplier
ID_LYON2_1	6 April 1859	30	Mineralogy		98		Mr. Berthelot
ID_LYON2_2	4 May 1859		Fossils	Pyrenees	50		Mr. Philippe, Mr. Bonardel, Naturalist dealer, in Bagnères-de-Bigorre
ID_LYON2_3	4 May 1859		Fossils	Pyrenees	82		Mr. Philippe, Mr. Bonardel, Naturalist dealer, in Bagnères-de-Bigorre
ID_LYON2_4	13 May 1859		Fossils		35		Mr. Bertrand de Lom, Le Puy
ID_LYON2_5	14 May 1859		Fossils		85		Mme Bravard, Issoire
ID_LYON2_6	21 May 1859		Fossils	Paris	60		Mr. Lepoivre, Montmartre
ID_LYON2_7	21 May 1859		Fossils		21		Eloffe & Cie
ID_LYON2_8	23 May 1859	13	Ichtyology		5.40		Mr. Vibrate
ID_LYON2_9	24 May 1859		Fossils		65		Mr. Bertrand de Lom, Le Puy
ID_LYON2_10	14 June 1859		Fossils	Saint Géraux, Langy	60.75		Mr. Neury, maître-carrier
ID_LYON2_11	8 July 1859		Collection of Mr. Feignoux		2000		Feignoux heiresses, Ravannier
ID_LYON2_12	22 September 1859		Fossils		74		Mr. Perret
ID_LYON2_13	27 September 1859		Fossils		310		Mr. Chappon, in Vialette
ID_LYON2_14	29 September 1859		Fossils		350		Mlle Croizet, in Neschers
ID_LYON2_15	10 October 1859		Shells	Touraine	450		Mr. de Brimont via Mr. Perret
ID_LYON2_16	20 October 1859		Fossils		60		Mr. Garbit
ID_LYON2_17	16 January 1860		Fossils		80		Mr. Delamollière, in Lyon
ID_LYON2_18	22 January 1860	1	Female seal		40		Mr. Ricci, Italian fisherman
ID_LYON2_19	24 January 1860	2	Zoology: skeleton heads		200		Messrs. Verreaux
ID_LYON2_20	25 January 1860		Fossils		24		various
ID_LYON2_21	28 February 1860		Fossils		55		Mr. Burdin
ID_LYON2_22	29 March 1860		Fossils		53		various
ID_LYON2_23	14 April 1860		Fossils; minerals		25.5		Eloffe & Cie
ID_LYON2_24	14 April 1860		Fossils; minerals		350		Mr. Saemann, à Paris
ID_LYON2_25	2 May 1860		Fossils		30		Mr. Bevalet
ID_LYON2_26	11 June 1860		Shells		9.45		Mr. Barret
ID_LYON2_27	11 June 1860		Zoology: young goat		4		Mr. Bazin
ID_LYON2_28	27 July 1860		Entomology	Russia	30		Mr. Coinde
ID_LYON2_29	14 December 1860		Zoology: seal ; male cuckoo		50		Mr. Ricci, Italian fisherman
ID_LYON2_30	25 December 1860		Fossils		28.50		Mr. François, in La Guillotière ; Mr. Chappas, in Condrieu
ID_LYON2_31	11 January 1861		Fossils	*Alps*	45		Mr. Raymond, in Barème
ID_LYON2_32	8 February 1861		Fossils		554		Mr. Vasseur, in Paris
ID_LYON2_33	20 February 1861		Shells	*Alps*	40		Mr. Castellan, in Castellane
ID_LYON2_34	5 March 1861		Ichtyology		2.95		Mr. Vibrate
ID_LYON2_35	5 March 1861		Mineralogy		15		Mr. Vaganay, in Lyon
ID_LYON2_36	6 March 1861		Fossils		40		Mr. Potalier, in Lyon
ID_LYON2_37	29 March 1861		Ichtyology	Mediterranean Sea	200		Mr. Degréaux, in Nice
ID_LYON2_38	20 April 1861		Fossils		6		Mr. Tuyage
ID_LYON2_39	20 April 1861		Human head	Lyon	3		Mr. Vernion, in Lyon
ID_LYON2_40	22 April 1861		Fossils		35		Mr. Chappon, in Vialette
ID_LYON2_41	22 April 1861		Fossils	Gannat, Allier - *Rhone Valley*	45		Mr. Meunier
ID_LYON2_42	22 April 1861		Fossils	Cirin, Ain - *Rhone Valley*	120		Mr. Lapierre
ID_LYON2_43	24 May 1861		Zoology: goat's head		1.50		Mr. Vibrate
ID_LYON2_44	27 June 1861		Fossils	Cirin, Ain - *Rhone Valley*	250		Mr. Lapierre
ID_LYON2_45	27 June 1861		Fossils		7		Mr. Vaganay, in Lyon
ID_LYON2_46	27 June 1861		Fishes				Mr. Degréaux, in Nice
ID_LYON2_47	31 December 1861		Zoology: caiman, skin, skeleton, heart, lungs, bowels		20		Mr. Advinent
					6170.05		

Table 2 - Acquisitions in Lyon —1859-1861 sample

ID	DATE REGISTRATION OR RECEIPT	CONTENTS NUMBER OF PIECES	CONTENTS ABRIDGED DESCRIPTION	CONTENTS PROVENANCE *ITALICS: INTERPRETATION*	COST IN FF.	COST OTHER VALUE	SUPPLIER
ID_NANTES_1_1	29 OCTOBER 1845	120	Shells; fossils; minerals	Italy, Cyclopean Isles, Sicily, Belgium	100		National Natural History Museum, in Paris
ID_NANTES_1_2	27 NOVEMBER 1845	5	Entomology		30.35		Mr. Danet
ID_NANTES_1_3	19 SEPTEMBER 1846	20	Invertebrates		292.60		Mr. Denis
ID_NANTES_1_4	18 DECEMBER 1848	10	*Polypiers*	Indian Ocean, Seas of the Americas	65		Mr. Cailliaud - objects from his own trips
ID_NANTES_1_5	15 JULY 1849	/	*Crustacés*	Guadeloupe	50.90		Capt. Maugras, *Capitaine de vaisseau*

Table 3 - Acquisitions in Nantes —1845-1849 sample

YEAR	MINERALOGICAL SURVEY OF THE DÉPARTEMENT	ACQUISITION FOR THE COLLECTION OF OBJECTS	BOOKS AND OBJECTS OF COLLECTIONS	ZOOLOGICAL PREPARATIONS	OVERALL BUDGET
1858	341		155	98.5	800
1859	375			74	800
1860	605	6			800
1861	210.63	25.35		37.75	800
1862	240		100	60	800
1863	246.35	130.71			800
1864	144	50		800	800
1865	100		240	60	800

Table 4 - Overall expenses in Nantes —1858-1865 sample[96]

Museum collections and space were usually organised according to the branches and divisions of natural history. But the constraints and difficulties of supply, especially costs, shaped municipal museums specialised in area-based natural history, with a trend towards local mineralogy. Walking through the museum could border on the experience of walking through an open encyclopaedia, it is often said. Considering the locational bias, wandering around the collections and galleries of a municipal museum could also verge on stepping onto a map and rambling over the spaces it opened under the visitor's feet.

Museums could be considered as open books on the world. The eye-catching colours of tropical birds like the trogons purchased in 1846 (id_lyon1_16) or Linneaus' blue-and-gold macaw (id_lyon1_25) were an invitation to dream and travel, as much as they were for study. The exact geography of the world encapsulated in the objects displayed in both museums is difficult to apprehend, because the visual aspect of the

[96] Notes on the table: Values are expressed in francs. No receipt or declaration of expenses was retrieved for the years after 1858. The table above offers a perspective on the overall expenses. While most categories of expenses would vary, the category of mineralogical survey of the département was stable throughout. The data provided for the years 1862 and 1865 are provisional figures. The detailed record of actual expenses was lost.

collections in the museum at a given moment has disappeared under layers of re-working the display, of replacing specimens, purchasing others.

The mineralogical collection was not too "locally collected". There were different types of mineralogies, with corresponding classifications, as shown earlier in this chapter. The sampled purchases for Lyon exclude research trips or visits to construction sites. The sample does not render, for instance, the packing and posting of samples, nor retributions to workers. The mineralogical samples represented in the tables are those which were not collected on the field by Jourdan. They therefore translated, where information is available, to minerals ranging from all sorts of places, but mainly Europe.

The provenance of zoological specimens is more difficult to trace and provides an opportunistic map which reveals patterns and means of circulations around the globe.[97] Some islands of the Pacific appear (Marquesas Islands, Society Islands) and point to the extending map of the political control of the French in that area of the globe. Sources also hint at the island of Guadeloupe, because Captain Maugras, a *Capitaine de Vaisseau* native of Nantes called there, conducted a series of transactions and eventually sold a group of crustaceans to the Nantes museum upon return (Table 3, id_nantes_1_5). This was not the only time Maugras contributed to the collection: in 1851, and according to Cailliaud's report to the museum committee, he had brought a mangrove tree branch covered with windowpane shells, oysters and mussels, a small fish, three snakes, two blue glaucuses and a group of eggs laid by a violet sea snail.[98] Those did not appear in the municipal archive, for perhaps they were supplied in exchange for mere gratitude? By all means, the shortlist of donations contained in the report shows the inconsistent nature of supplying from overseas: non-European specimens depended on a marine officer's goodwill, came in anecdotal quantities, and in a condition of preservation after long-haul voyages which were hardly ever mentioned.[99] Presented in a publication read by the intellectual elite of the city, naming places of provenance was useful to emphasise the boldness of the travellers, more than anything else.

The map of the non-European world presented through the filter of the natural specimens on display in the museum was very erratic: it was essentially a series of dots

[97] The Nantes supervising committee criticised the exclusive presence of "foreign" zoology and even pleaded in favour of "French" zoology and the study of animal life from the "neighbouring bay". AMN - 2R566, *Rapport sur le Musée d'Histoire Naturelle de la Ville de Nantes*, par Derostaing-Derivas, [1841].

[98] Frédéric Cailliaud, 'Rapport fait à la Commission du Musée sur les objets d'histoire naturelle récoltés par M. F. Cailliaud', *Annales de la Société Académique de Nantes et de la Loire-Inférieure* 23, no. 3 (1852): 177–78.
The 1851 report was the only such document both presented to the committee and published in the annals of the Société Académique during Dubuisson and Cailliaud's directorships.

[99] Dubuisson, before Cailliaud, was a regular recipient of gifts from Nantes sea captains. See for instance: AMN - 2R565, "Emploi des 354 f. 80 c. restant de 500 f. alloués par Monsieur le Maire pour l'entretient (*sic*) du Muséum d'histoire naturelle", 29 November 1827. This source of supply was however sporadic.

pinned on a surface which became gradually more erratic the more distant from Europe and from overseas places under French control. A closer study of the Jardin des Plantes in Nantes would probably reveal a map of supplies which it would be interesting to compare with the museum's but also those of other botanical gardens, like Bordeaux, La Rochelle or Paris. Documentation hints at networks of supply better organised for botany and a longer tradition and hence improved methods of long-distance transportation.[100] For the period until the end of the 1860s, most overseas products would reach the botanical gardens but their presence in the museum would instead serve a symbolic discourse on overseas expansion, on the virtues of the travellers and the pleasures of a look upon the curious and the non-European.[101]

Systematic collecting at the Nantes and Lyon museums was indexed on distance, because that was an essential economic and organisational factor. Jourdan was able to develop relations with intermediaries and suppliers who could provide him with non-Rhodanian samples because of the greater economic capacity enabled by the municipal and departmental authorities (the latter from 1852 onwards). Economies of collecting, in turn, played an important role in classification and explain the greater or lesser quality of classification. In ways similar to cartography, unsystematic displays, missing branches, and incomplete labels pointed to blank areas on the map.

A fairly clear line between two areas of these area-based classifications appeared: the local, and the rest, perhaps the exotic. Unlike the map designed at one scale only, and closer to modern GIS, the municipal museum zoomed into the local, a place delineated by convenience of transportation, relevance to the administration, opportunity and a scientific programme hinged on it.[102] A man with a history of travelling, Cailliaud himself came to the conclusion, aged 78 and after many years of scrutinising the Loire-Inférieure, that in spite of having been researched so much in past, his home land still held so many riches - and one needed not to travel to Ethiopia to make such valuable discoveries.[103]

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[100] See for instance the list of boxes of botanical specimens delivered to the botanical garden of Nantes from the island of La Réunion in 1848: AMN- 1O16142, "Jardin des Plantes". See also Marianne Klemun, 'Live Plants on the Way: Ship, Island, Botanical Garden, Paradise and Container as Systemic Flexible Connected Spaces in Between', *Journal of History of Science and Technology* 5, no. spring (2012): 30–48; E. Charles Nelson, 'From Tubs to Flying Boats: Episodes in Transporting Living Plants', in *Naturalists in the Field. Collecting, Recording and Preserving the Natural World from the Fifteenth to the Twenty-First Century*, ed. Arthur MacGregor (Leiden; Boston: Brill, 2018), 578–606, https://doi.org/10.1163/9789004323841_001.

[101] On the structures of the emotional response to scientific observation in the early-modern era, see Lorraine Daston, 'Curiosity in Early Modern Science', *Word & Image* 11, no. 4 (1995): 391–404, https://doi.org/10.1080/02666286.1995.10435928.

[102] On publication programmes, see below, B. Museum in print: publishing practices, p. 397.

[103] Cailliaud, 'Catalogue des radiaires, des annélides, des cirrhipèdes et des mollusques marins, terrestres et fluviatiles recueillis dans le Département de la Loire-Inférieure', 5–6.

D. The challenge of placing ethnography

Until the end of the 1870s at least, ethnographic collections posed an important challenge to the men in charge of the museums.[104] The presence of ethnographic objects in the Lyon collections in 1814 appeared under the name of "Indian objects".[105] The very title of this section of the inventory betrays some bewilderment. The hazy description of the objects corroborated it. Finally, the fact that the dozen pieces were bundled up and locked in a coffer, away from eyesight, conveys some sense of helplessness regarding them. Sometimes presented for their peculiarity, their taste of the otherness, they were also collected for the material they were made of and presented not as artefacts but as part of the mineralogical collection, of which the Lapeyrouse catalogue is an example.[106] Just as Mérimée was puzzled by the sperm whale, ethnographic objects posed a genuine challenge to the effort carried out towards the systematic order of the museum collections.

Was the museum a public repository for all sorts of things even though they were unrelated to minerals or animals? The Nantes museum's director and committee clearly expressed their wish for order and a specialised classification to avoid the museum gaining the appearance of a mere curiosity shop. An 1847 note on the state of the museum complained about the chaotic state in which the museum was left. This was said to result from the presence of tombs, examples of pathology, jarred seeds. The author lamented about how those should go to the archaeological museum, the school of medicine, and the Jardin des Plantes respectively. As for the mummies, Egyptian and Peruvian amulets, items of weaponry and so on, Cailliaud himself, said the report, was very supportive of the project of keeping the "products of the industry of those faraway tribes" but only if deposited in a room specially designed for them, rather than being scattered, and thus being useful to the study of geography or ethnography.[107]

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[104] Bertrand Daugeron has published a study on the difficulty of placing the Parisian ethnographic collections: Bertrand Daugeron, 'La paradoxale disparition des objets de type ethnographique rapportés par les Français du Pacifique (1766–1842)', *The Journal of Pacific History* 46, no. 1 (2011): 59–74, https://doi.org/10.1080/00223344.2011.573635. On the history of ethnographic displays in France: Alice L. Conklin, *In the Museum of Man: Race, Anthropology, and Empire in France, 1850-1950* (Ithaca: Cornell University Press, 2013); Claude Blanckaert, ed., *Le Musée de l'Homme: histoire d'un musée laboratoire* (Paris: Muséum national d'histoire naturelle ; Editions Artlys, 2015).

[105] AML - 78WP017, Inventaire général du musé (sic.) d'histoire naturelle de Lyon fait double. En 1814.

[106] MHNT - A_06_6_14, Catalogue de la collection de minéraux de M. Picot de Lapeyrouse classés d'après la méthode de Werner, undated.

[107] "Comme tous ces produits de l'industrie des peuplades lointaines peuvent aider le naturaliste dans ses études géographiques et ethnographique, nous les trouvons parfaitement placés au Muséum; seulement au lieu d'être épars comme en ce moment, nous demandons, lorsque le local le permettra, qu'une salle spéciale leur soit consacrée.": Derostaing Derivas, 'Notice sur le musée d'histoire naturelle de la Ville de Nantes', 142. About the history of relatedness between ethnography and natural history see Blanckaert, '1800 – Le moment « naturaliste » des sciences de l'homme'.

Cailliaud had publicly defended this opinion on 20 August 1837 in *Le Breton*, a local newspaper issued 3 to 5 times a week.[108] Even though the issue could not be retrieved and its actual content remains unverified, the date sends us back to the year of the acquisition of an "*Esquimo*" and his boat.[109] The set-up of the "eskimo" was recorded in the list of expenses: a head was moulded, an iron structure was constructed for the display, and then accessorised. The exact reason for Cailliaud's choice to keep and cast light on the "Eskimo" set-up cannot be known for certain. However, it was undoubtedly representative of a certain ambivalence between correctness in the classificatory organisation of the museum and the appeal of tokens of worlds unknown. By all means, this ambivalence was also the consequence of the practical situation: because it had been in all likelihood, a gift, Cailliaud could not refuse the piece.

The donation of a large collection of ethnographic objects, or even isolated items, may have looked like an opportune moment to highlight the acknowledgement of the municipal scientific institution. This was at least what the deeply grateful tone of thank-you notes tried to get across.[110] But it was also a cumbersome gift, which the municipality had been forced to promise to take care of. This is described exactly in the equivocal welcome which was given to the Rocquemaurel collection in 1841 and again in 1854.[111] This case further complicated the matter of how the ethnographical collections were or were not part of a proper natural history collection. The Rocquemaurel collection is known by the catalogue elaborated in 1858 by the donor himself and Prévost, the director of the Toulouse museum. It highlights the importance of the donation in quantitative terms, but also through the great care which was brought to the collection.[112] The collection was then installed at the *Musée* of Toulouse in a gallery named after the donor.[113] Ultimately, the donation of the Rocquemaurel collection may well have been, probably more than Lapeyrouse's, an important trigger in launching the project of a natural history museum. A tendency for museum specialisation was also palpable, since the museum of arts did not want its scope to be confused - and also its spaces unduly occupied. The necessity of housing the valuable gift of an ethnographic collection led the way, after a couple of decades, to the opening of the museum the Toulouse naturalists had dreamed of since the beginning of the century. More than blurring lines between natural history and ethnography, this move also reveals the development of closer relations between

[108] Derostaing Derivas, 'Notice sur le musée d'histoire naturelle de la Ville de Nantes', 142.
[109] AMN - 2R565, Cailliaud to the municipality [declaration of expenses], [1837].
[110] AMT - 2R25, Mayor of Toulouse to Rocquemaurel, 8 April 1854.
[111] AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 31 March 1854; ibid., the Mayor of Toulouse to the Head Architect, 7 April 1854.
[112] AMT - 2R25, Rocquemaurel to the Mayor of Toulouse, 30 June 1854. *Notice des objets dont se compose la galerie ethnographique*.
[113] AMT - 2R25, *Déliberations du Conseil municipal* [minutes], 7 July 1854

perspectives of study: observing nature was not to be separated from the human environment.[114] Increasingly too, the savants were mobilised to explain not just the origin of man, but to demonstrate or invalidate hierarchies of race. The Toulouse museum in fact never evolved into an ethnographic collection: most of those objects are now in storage, and the late nineteenth-century catalogue shows more evidence of attention to the classical branches of the natural sciences. However, branches of natural history overlapped one another and laying brick-and-mortar boundaries between them was a gamble.

Figure 62 - "Mammouth de Choulans" as it was exhibited at the Lyon museum in Palais Saint-Pierre after 1872, CCEC

[114] Romain Duda, 'Dumoutier et la collecte de moulages anthropologiques. Une empreinte de l'altérité au XIXe siècle', in *Le spécimen et le collecteur: savoirs naturalistes, pouvoirs et altérités (XVIIIe-XXe siècles)*, ed. Dominique Juhé-Beaulaton and Vincent Leblan (Paris: Publications scientifiques du Muséum National d'Histoire Naturelle : CTHS, 2019), 315–47.

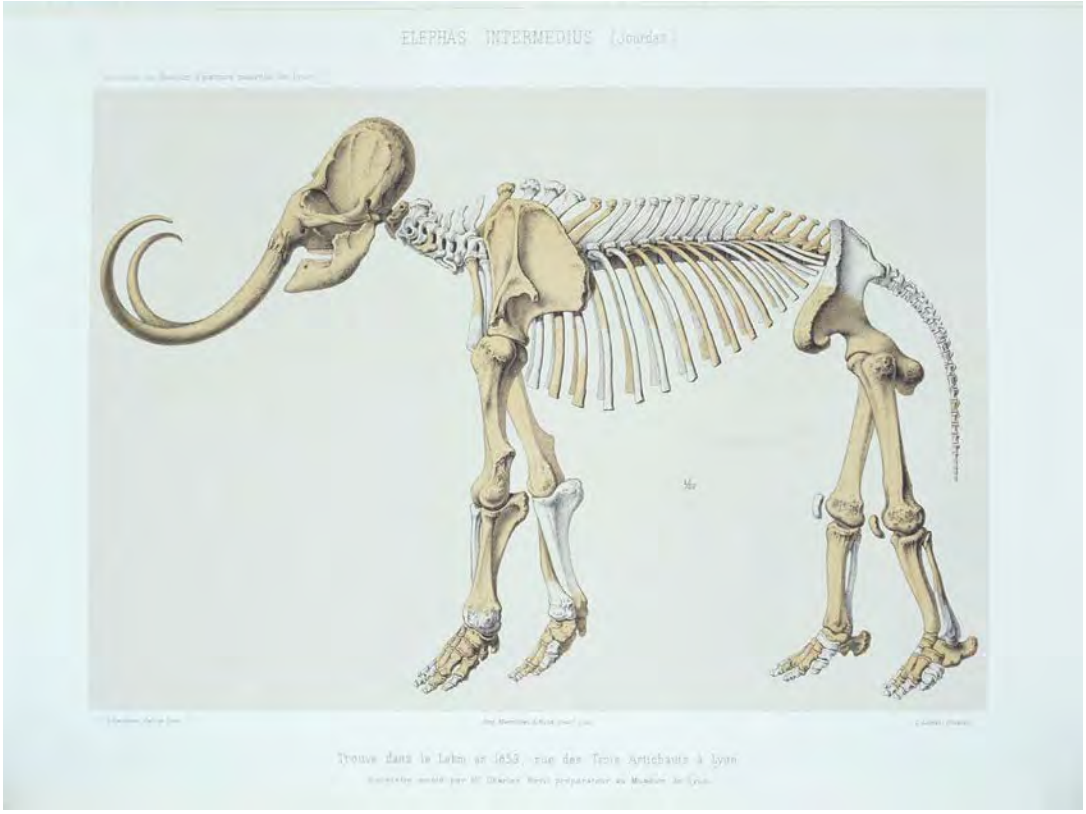

Figure 63 - "Mammouth de Choulans" discovered by Jourdan (1858) and mounted by Lortet (1873), CCEC

The collection is generally thought of in terms of a group, but in the process of construction of the body of objects, the specimen would not entirely lose its individuality.[115] Attention and awe were paid to individual specimens for their particular morphology, beauty or size, like a large vulture bearing exquisite feathers.[116] Jourdan's mammoth, found in Choulans, epitomised the local riches which it represented in the sole mass of its exhibited skeleton, well individualised at the centre of the display (Figure 63 and Figure 62).[117]

[115] Alberti, *The Afterlives of Animals*.
[116] AMN - 2R569, it. 22, Dubuisson to the Mayor of Nantes, 10 November 1824.
[117] The mammoth was discovered by Jourdan in the autumn of 1858 on site of the drilling of a tunnel, in Rue-des-Trois-Artichauts in Lyon, on the slopes of Fourvière. Jourdan apparently met some difficulties in mounting it and it was put on display shortly after his resignation, in 1872, under the directorship of Lortet. See Joseph Camaret et al., 'Expertise sur l'état de fossilisation et de conservation du mammouth de Choulans (*Mammuthus intermedius*)', *Publications du musée des Confluences* 2, no. 1 (2011): 5–21.

3. A SKELETON IN THE CUPBOARD: MAKING AND PLACING THE SPECIMENS

One of the attributes of the natural history museum was to be a container, and to open its doors to offer good conditions for the keeping of natural objects. In doing so, it established boundaries around objects to give them meaning as a collection in a given time and context.[118] Like the foundation of classes of science to be run 'in perpetuity', the influx of objects and specimens was perceived as a movement of constant accumulation, with a start - entry to the museum - but no end. An accessed object was meant to be kept and preserved beyond any time limit. The practical reality of this was that a growing number of objects needed to be gradually accommodated and the spatial density of collection objects kept substantially increasing. This required (re-)adaptations of the containers of the objects within walls which could only be extended with difficulty, and mostly meant the rearrangement of museum display furniture. Another aspect of the practical reality of incoming object management was the challenge which preservation represented, and that in spite of the goal of keeping and safeguarding every other piece that came in, degradation and loss of material was a parallel trend. Museum collections were made not only of steady accumulation, but also of losses and replacements, and this led to the development of a series of technical gestures, aimed at controlling the degradation of specimens of organic composition.[119] These gestures were not only aimed at preparing the specimens for being preserved and stored at the museum, but also tried to control the environment of the museum and neutralise it.

A. "*Les faire respirer après leur mort*": the afterlife of animals

Preparation was the operation in which a dead plant or animal, or a mineral, was turned into a specimen. This process of stabilisation of museum objects was meant to give them the illusion of life and cause them to appear life-like: the death of the animal was also the birth of the specimen, which was metonymic for the entire species.[120] Crafted by the person in charge of its preparation, and therefore paradoxically a unique piece, the prepared specimen also carried with it its trajectory

[118] Secord, 'Containers and Collections', 302–3.
[119] The quoted text in the title was issued from Hénon and Mouton-Fontenille de La Clotte, *L'art d'empailler les oiseaux*, 21.
"The museum is a palimpsest", say Emma Spary and Nicholas Jardin in 'Worlds of History. Introduction', 12.
[120] Alberti, *Nature and Culture*, 123–31; 'Introduction: The Dead Ark', in *The Afterlives of Animals: A Museum Menagerie*, ed. Samuel J. M. M. Alberti (Charlottesville: University of Virginia Press, 2011), 6–8.

through space and time, despite efforts to make these invisible on the specimen itself, while conversely sometimes recorded though the labels. The museum specimen thereby bore an ontological tension between the collected live being or sample and the prepared object of collection. The passage from one state to the other, its difficulties and the technical work used to complete it is at the centre of the following.

Preparation entailed a series of technical gestures, pursued with instruments and sometimes in specific locations. The examples below draw from the anthropology of the scientific gesture, the history of labour and of techniques and instruments. It benefits from a growing recognition of the importance of considering the instrument and the technical gesture as integral parts of the production of knowledge, in association with intellectual work.[121] Anne Secord, in her study of herbaria and botanical books, also insists that these gestures did not emanate from one person only, but can also be the manifestation of knowledge envisaged as a circuit, involving several individuals, at different places in the world and/or in society.[122] Additionally, this attention has contributed to shedding light on invisible labour, like that of the technicians whose operations were often unrecorded.[123]

> "Birds were wrongly prepared, wrongly mounted. Their feathers were coated with varnish which removed the colours and they are rough as parchment to the touch. The species are not sorted: their arrangement, which is not at all similar to the one used at the museum in Paris, is coarse to the eye: each bird cannot be cleaned separately and their conservation would require them to be brushed at least twice a year."[124]

This excerpt of a note sent in 1832 to the Mayor of Nantes by Dubuisson summarises many of the issues entailed in the preparation of birds for a collection of ornithology. The steps of preparing the bird with the use of chemicals, then mounting it and giving it a life-like and stable posture were essential for the subsequent use of the specimen to extract knowledge about it. Preparation should have allowed physical engagement with the specimen, through eyesight, but also through touch. A well-prepared animal was then one which had hardly been altered, neither in its aspect nor texture, so that classification would not be impaired.

In the Lyon and Nantes museums, the directors of museums developed such specificities themselves, especially in the first generation of the museum directors.

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[121] Bourguet and Licoppe, 'Voyages, mesures et instruments'; Paula Findlen and Anna Toledano, 'Materials of Natural History', in *Worlds of Natural History*, ed. Helen A. Curry et al. (Cambridge; New York: University of Cambridge, 2018), 151–69. See also Jacob, *Lieux de savoir. Les mains de l'intellect*.

[122] Secord, '"Pressed into service: specimens, space, and seeing in botanical practice"'.

[123] Alberti, *Nature and Culture*, 124.

[124] "Les oiseaux ont été mal préparés, mal montés. Les plumes ont été passées au vernis qui a enlevé les couleurs et au toucher, elles présentent la résistance du parchemin. Les espèces ne sont pas classées : l'arrangement, qui ne ressemble en rien à celui du muséum de Paris, est disgracieux à l'œil : il ne permet pas de nétoyer (sic) séparement (sic) les oiseaux et leur conservation exigerait qu'ils fussent brossés au moins deux fois l'an.": AMN - 2R565, Dubuisson to the Mayor of Nantes, 20 July 1832.

Their technical competence was sometimes even an argument they put forward to lobby for their own employment. In the cases of Dubuisson in Nantes or Mouton-Fontenille in Lyon, in spite of the latter having been less successful in his negotiations with the municipality, it was both their owning of a collection and their related skill in preparing animals which designated them as relevant profiles for the job of keeping a collection or museum.

Mouton-Fontenille was a renowned naturalist, specialised in ornithology before he worked for the Lyon museum.[125] Mouton-Fontenille had been a Professor of Natural History at the Lycée of Lyon and a member of the Societé d'Agriculture, Histoire Naturelle et Arts Utiles. A very experienced taxidermist, specialised in ornithological preparation, Mouton-Fontenille published his *Art d'empailler les oiseaux* in 1802 with Hénon. This work illuminates an excellent command of preparation skills.[126] In the introduction, the naturalist liked to boastingly recall how theory and practice were to be associated, but especially, how his experience of preparing "over three thousand birds" followed "all the methods".[127] The fashioning of his authority resided too in the fact that he had personally observed them while botanising or hunting (one of his favourite activities) and above all, in all types of conditions, "from the summits of the Alps to the seaside, in the woods, in the thickets, in the bushes, in the fields, in the meadows, in the marshes, in a word, in the theatre of Nature".[128] The rest of the over three-hundred-page and very meticulous description of techniques, together with precise recommendations and warnings, was all based on practical knowledge.

[125] Ornithology was particularly popular. See Farber, *The Emergence of Ornithology as a Scientific Discipline: 1760-1850*.

[126] Hénon and Mouton-Fontenille de La Clotte, *L'art d'empailler les oiseaux*. The second edition of *L'Art d'empailler les oiseaux* was published as a section of Marie Jacques Philippe Mouton-Fontenille de la Clotte, *Traité élémentaire d'ornithologie*, Yverneau et Cabin (Lyon, 1811).

[127] In 1816, shortly after his appointment, Mouton-Fontenille requested a firearm permit because he was, he explained, too dependent on the market and on the findings he could hypothetically make there.
AML - 78WP021, Mouton-Fontenille to the Mayor of Lyon, 4 December 1806.

[128] Original text: "C'est après avoir préparé plus de trois mille oiseaux selon toutes les méthodes, et les avoir observés à diverses époques et selon différents temps, soit dans nos courses botaniques, soit à la chasse, l'un de nos exercice favoris, depuis les sommets des Alpes jusqu'aux bords de mer, dans les forêts, les taillis, les buissons, les prés, les champs, les marais, en un mot, sur le théâtre de la Nature", Hénon and Mouton-Fontenille de La Clotte, *L'art d'empailler les oiseaux*, iv.

Figure 64 - Taxidermied birds "en vol", by Mouton-Fontenille, Musée départemental de Gap / François Dusoulier.

Notably, he had developed a peculiar technique to create bird herbaria showing the birds "*au vol*" ("flying") or "*en Saint-Esprit*" (Figure 64).[129] Most of this peculiar collection kept in Lyon and recorded in the 1814 inventory has been lost. However, another sale was made to the prefect of the Hautes-Alpes, possibly destined to the departmental collection in Gap.[130] The technique based on the drying of the bird's skin in a specific position, with spread wings covered with alum powder was thought to respond to scientific and practical exigencies. Anatomical traits observable from the beak, the legs, the colour or shade of the feathers from the wing or tail were exploitable and therefore did not impair study. But the procedure also appeared very economical, especially in terms of space: even a medium-sized cupboard could contain considerable quantities of specimens.[131] By collecting the tongues of the specimens and arranging them separately, the two authors also attempted to elaborate an interesting, compact approach to classification which responded to the significant constraint of preparing for an exhaustive collection.[132] The excellent condition in which the specimens of the bird herbarium were preserved confirms how knowledgeable Mouton-Fontenille had been, but also how collecting, because it was associated with the elaboration of techniques of preservation, was intrinsically related to experimenting and the elaboration of knowledge.[133]

Back in Nantes, and during a similar time period, the specific skills of the museum director took shape in the actual architecture of the museum and reveal the importance of preparation in the director's work. Dubuisson was a skilled and mostly self-taught ichthyologist and had proudly elaborated his own method of classification for fish.[134] He had been placed as an apprentice at an apothecary's shop at the age of thirteen, and was a knowledgeable user of chemicals.[135] Interestingly, Dubuisson used his collection and his skill as a learned collection keeper to barter a lifelong position, to protect him and his wife.[136] He often highlighted, often to support a demand in official correspondence, how he could prepare fish on his own, and how he had

[129] A very useful research paper was published by François Dusoulier on the bird herbarium, François Dusoulier, 'L'herbier d'oiseaux du Musée départemental des Hautes-Alpes (Gap): une collection patrimoniale singulière et méconnue.', *Bulletin de la Société d'Études des Hautes-Alpes*, no. 2011–2012 (2012): 83–108. The bird herbarium was also noticed by Amandine Péquignot in her study of theuse of herbaria for taxidermy, Amandine Péquignot, 'Une peau entre deux feuilles, l'usage de l'« herbier » en taxidermie aux XVIIIe et XIXe siècles en France', *Revue d'histoire des sciences* 59, no. 1 (2006): 127–36, https://doi.org/10.3917/rhs.591.0127.
[130] ADHA - 4T134, Mouton-Fontenille to the Prefect of Hautes Alpes, 10 March 1809. The shelf number and photograph of the letter were kindly given by M. François Dusoulier, Head Curator at the Muséum National d'Histoire Naturelle, Paris.
[131] Hénon and Mouton-Fontenille de La Clotte, *L'art d'empailler les oiseaux*, 150–51.
[132] Ibid., 150.
[133] On how collecting is experimental work and how taxidermy is one practical example of it, see Strasser, 'Collecting Nature', 320.
[134] See above,2, B, b. The example of Nantes: classifying nature locally, p. 352.
[135] Derostaing Derivas, 'Notice sur le musée d'histoire naturelle de la Ville de Nantes', 135.
[136] AMN - 2R565, [Report on a personal request of Dubuisson], 26 April 1815.

successfully prepared a fish in spite of its extremely thin skin.[137] He would also make use of his taxidermist's skill to prepare animals for third parties.[138]

Preparation shaped the activities of Dubuisson as well as it shaped his place of work. The planned rearrangement of the museum in 1810 shows that a steam chamber was to be constructed right next to the office. There was no mention of a preparing room or laboratory in the 1810 blueprints, but the on-site activity of preparation is attested by the chamber, which was probably used to neutralise the pests which could proliferate and irreversibly damage the piece. Whether Dubuisson himself used it or members of staff did, the steam room was still in use under the directorship of Cailliaud, after 1836.[139]

Jourdan and Cailliaud, who formed a second generation of directors, did few preparations. They would probably engage with some specimens, but in view of dissecting and observing the insides, as their respective publications seem to indicate.[140] Cailliaud's study of Silurian fauna in the *département* contains plates suggesting the manipulation and dissection of individual specimens (Figure 65).[141] This leaves us with hardly any information about where the study of specimens would be have taken place, however. Cailliaud would certainly not have pursued his malacological studies on the very desk on which he wrote letters, for matters of cleanliness and order. Very little is known either about the preparation of fossils and mineral specimens by Jourdan. In this case as well, it seems unlikely that Jourdan prepared the objects directly on his desk - his papers did not show any marked contact with sand or stone dust, and he did not document in direct manner his ways around specimen preparation: would he refine the cutting, chop bits off, coat them in certain chemicals to highlight some traits, and so on?[142]

In summary, the museum director was also an expert at manipulating natural objects, from the stage of the dead animal to the end of the transformation process into a specimen. Otherwise, they could turn to other technicians for assistance in the myriad of practical tasks that good keeping of the museum required.

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[137] AMN - 2R569 it. 22, Dubuisson to the Mayor of Nantes, 10 November 1824.

[138] Dubuisson mentioned a seal he had prepared in spite of a bad condition of conservation owing to ill transportation: AMN - 2R569, ibid.

[139] AMN - 2T565, the supervising committee to the Mayor of Nantes, 1842.

[140] Frédéric Cailliaud, 'Sur l'existence d'une troisième faune silurienne dans le département de la Loire-Inférieure', *Annales de la Société Académique de Nantes et de la Loire-Inférieure* 32 (1861): 253–62.

[141] MHNN - Cailliaud 8, *Sur l'existence d'une troisième faune silurienne* (...) [ms], n.d.; Ibid., 258. Frédéric Cailliaud, 'Procédé employé par les pholades dans leur perforation - supplément du 20 août 1855', *Annales de la Société Académique de Nantes et de la Loire-Inférieure*, 1855, 342–52.

[142] Mark R. Graham, 'Professional Fossil Preparators at the British Museum (Natural History), 1843–1990', *Archives of Natural History* 46, no. 2 (2019): 253–64, https://doi.org/10.3366/anh.2019.0589.

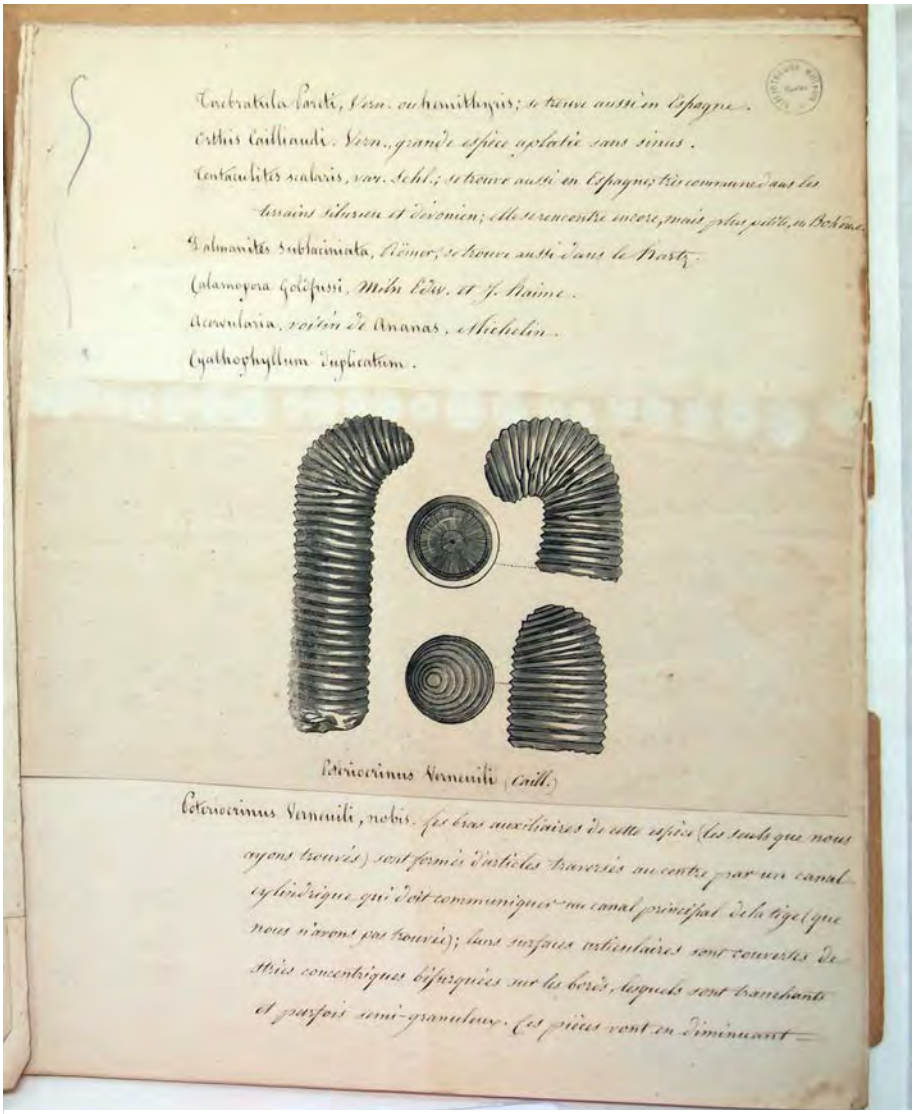

Figure 65 - Proof of plate for Cailliaud's research on pholadidae*, ca.1855. MHNN*

B. Myriads of operators

The list of objects purchased for the account of the museum also indicate the diversity of the operations which could be carried out inside its walls. The museum was a place swarming with different types of activities. An 1834 statement of expenses indeed read:

"- A bottle of ink
- 2,000 white cards
- Nitric acid
- 2 small locks for the cupboards
- Iron thread, needles, thread
- Towels
- Barrels of sawdust
- Brush for cleaning the shells
- Firewood
- A cleaning brush
- Horsehair, feather, vegetal brooms and brushes
- Positioning wax and gum arabic" [143]

The importance of work around the preparation of the specimens stands out, and above all, how this work implied manipulation of not only the animals or minerals, but of containers of liquid or solid chemical substances, the dexterous holding of thread and needles. Above all, the cleaning of the collection and the premises appears essential. Indeed, preservation of the specimens was guaranteed through the performance of importance tasks of cleaning up. While in 1834 the preparing tasks were for certain the main activity of director Dubuisson, cleaning, a lengthy and tedious activity, could have been shared with a janitor.

In spite of their omnipresence in the documentation, and the fact that directors were indeed often on their own in terms of scientific responsibility, the museum was not a solitary working environment. It would be misleading to establish a distinctive typology of working men, since the situations were quite different in Nantes and Lyon. However, one recurring figure was that of the janitor. This function was a relatively continuous feature in both museums, throughout the period. Another common feature was that more than keep the door, janitors would engage in many different types of chores, with the most important one being to keep the place of the museum neat. The janitor would mend the clock and the wood burner, construct a wooden frame to hang the mineralogical map, maintain the alley leading to the museum and trim the laurels in the courtyard. He would also purchase all the material needed to proceed with these tasks (soap, brushes) together with any other item necessary for

[143] AMN - 2R565, "Emploi d'une partie des 250 francs alloués par Monsieur le Maire pour l'entretien du Museum d'Histoire Naturelle pendant le courant de 1834", 18 November 1834.

preparation, for instance.[144] While the upkeeping tasks were exclusively declared by the janitor, expenses for supplies could also be paid upfront by the museum director, as in the example of the expenses of Dubuisson presented above. It was quite common in Lyon too that the janitor would pay upfront for most acquisitions of supplies and accessories for the museum and then submit a claim for reimbursement several times a year.[145]

The distribution of tasks between museum director and janitor was not that clearly distinct indeed. Cleaning, for instance, required one to manipulate the specimens, and therefore for the operator to be experienced. In Nantes, a conflict which broke out about having a extra day of closure, precisely to conduct the cleaning operations, shows that it was crucial enough to keep the director and the janitor busy for a whole day's work per week, especially since, Cailliaud insisted, the environment of the museum was so humid and ruinous for the collections.[146]

Janitors have rarely been at the centre of attention.[147] The Lyon archives provides, nonetheless, some documentation on who the janitors were, since a collection of application letters were kept for a series of open positions at the Palais Saint-Pierre. They were most of the time men, and one significant profile was military veterans at the point of re-starting a career.[148] Another profile was the person already in the service of the municipality who sought to either enter a permanent and secured position, or to improve their income.[149] The example of Vanoyes, a former soldier then at the service of M. Le Baron de La Polinière, shows that there were connections with the world of domesticity.[150]

The museum was however not a place for working men exclusively. The janitors and, in the case of Lyon, the *Garçons de salles*, were granted with a lodging inside the Palais Saint-Pierre: wives and children were also present. Women occasionally contributed, on top of that, to the activity of their husbands, when they were overwhelmed with work, for which they would receive no salary.[151] Occasionally, female presence and contribution was acknowledged: for an unknown reason (perhaps cohabitation), Nantes' museum janitor was assisted by a widow, Veuve Mitoua, who

[144] AMN - 2R565, Guérin to the municipality [declaration of expenses], 31 July 1839.
[145] The museum of Lyon provides many examples: CCEC - JE, "Journal d'entrées".
[146] AMN - 2R565, Cailliaud to the Mayor of Nantes, 24 September 1841.
[147] Exception made of Geoffrey N. Swinney and Robert Y. McGowan, 'The Janitor and His Museum: John Wilson (1775–1832) and the Teaching of "Practical Zoology" in Early Nineteenth-Century Edinburgh', *Museum History Journal* 11, no. 2 (2018): 133–52, https://doi.org/10.1080/19369816.2018.1527515.
[148] Casimir Juge, a former *gendarme*, provided two pages of recommendations to support his application in 1864: ADR - 4T61, 5 February 1864. See also the application of Chavane, a retired batallion commander (*chef de bataillon*): ADR - 4T62, 30 June 1855.
[149] ADR - 4T62, Biolay to the Prefect of Rhône, 8 December 1855.
[150] Vanoyes, former army volunteer ("*engagé volontaire*") and then a servant: ADR - 4T62, 2 December 1852.
[151] CCEC - DP-J, "Journal de Jourdan", p. 123, Rapport sur les recherches géologiques et paléontologiques durant l'année 1867 par M. le Professeur Jourdan (...), 20 August 1868.

was paid one fifth of the janitor's remuneration of 500 francs.[152] Using the workforce provided by their offspring was not uncommon either: in 1807, the daughter of one of the Conservatoire des Arts' professors triggered a feud between her father, a professor of Chemistry, and the Head of the Conservatoire Artaud, because she had been chased away from the courtyard of the Palais, where she had been caught drying silk as she was helping her father testing new dyes.[153]

The cleaning and arranging of a naturalist collection, a technical gesture, could lead to hiring specific staff sporadically. It was quite common that an external naturalist was entrusted with the taxidermy of certain specimens, especially the mammals, or large pieces which required important work and possibly an equipment and working space more adapted to it.[154] Supplementary workforce was also used on special moments of the life of the museum collection: after years of repeated research trips and mineralogical surveys, and altogether a substantial increase of the collection, Jourdan was keen, in the last couple of years of his directorship, to finalise his work by sorting and displaying the renewed collections. His successor Lortet often liked to criticise his work, perhaps to underline his own merit. Insistence on works necessary to catch up with the failures of his predecessor was a convenient lever with which to unlock financial support, principally for hiring specialised workers to second him.[155] From 1867 onwards, Jourdan paid three qualified *préparateurs*, Michaud, Vasse and Fanet, to clean fossils, to wash the cupboards, mount a series of birds, or just provided unspecified work for three months in a row.[156] Each of them were assigned with different types of duties: Fanet was hired several times for periods of three months for unspecified work; Vasse seems to have been particularly helpful with the more sporadic zoological preparations.[157]

The frequent works conducted within the museum galleries also brought non-specialists of natural history to be in a situation of working to set up or preserve a collection. Among other professionals like librarians and chemists who supplied the

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[152] AMN - 2R565 , État sommaire des dépenses du Musée d'Histoire Naturelle de Nantes durant l'année 1858, 6 June 1859.

[153] AML - 77WP001, Raymond to the Mayor of Lyon, 16 November 1807.

[154] See the receipts for the preparation of a gazelle by Yvelin and of a heron and a monstruous lamb: AMN - 2R565, 7 March; ibid., 5 April 1836.

[155] Lortet's deprecating comments can be read in AML - 78WP18, Report of Lortet to the Mayor of Lyon, 9 December 1900. This vision was shared by Francisque Fontannes, the museum's first hagiographer: *Le Muséum d'histoire naturelle de Lyon: notice historique*, 24–27. For the request of maintenance work upon Lortet appointment, see AML - 78WP017, *Demande de travaux urgents au Museum d'histoire naturelle, Dr. L. Lortet*, 19 January 1870.

[156] AML - 78WP017, "Doit Mr le Sénateur, Préfet du Rhône à Mr. Michaud, Préparateur, à Ste-Foy-lès-Lyon, la somme de 110 francs, pour travaux effectués au Muséum d'Histoire Naturelle de Lyon", 6 April 1867 or CCEC - JE, "Journal d'entrées", p. 216, entry n° 342, 6 April 1867; CCEC - JE, "Journal d'entrées", p. 226, entry n° 355, 4 July 1867 [Vasse]; ibid. p. 222, entry n° 350, 1 June 1867 [Vasse]; ibid., p. 238, entry n° 374 [Fanet], ibid., 31 March 1868 [Fanet].

[157] See for instance CCEC - JE, "Journal d'entrées", p. 244, entry n° 384, 13 July 1868 or ibid. p. 247, entry n° 390, 13 October 1868.

museum, it was not uncommon to find a line referring to a glassmaker.[158] That happened more in the beginning for the period, here in 1813, when the separation between the maintenance of the building and infrastructure and the acquisition of objects was not clearly delineated. At a later period, administrative specialisation would separate the acquisition of museum objects and the maintenance of the building into different registers and files. Still, workers of natural history and otherwise would stumble across one another and the naturalist collections as they worked in the galleries. They covered a vast array of roles: they were masons, carpenters, cabinetmakers, locksmiths and so on.[159] Called to operate on a specific site, they were asked to translate their generic knowledge into what was necessary for the preservation of the collections.

Because it was a public, municipal institution, important works were handed over to expert artisans. While the text of the official command could be quite specific about the works to be executed, authorities were also aware that some flexibility for adaptations was a necessity.[160] In Lyon, in 1823, the order made to the public architect of the city in order to renovate a section of the Palais to host the Cabinet of Natural History insisted on the importance of collaborating with the professor, but also of adapting "to the localities" and of course to the specific needs of the gallery.[161] The setting up of the room and cabinets for the natural history collections entailed occasions of dialogue between holders of expert knowledge, one in architecture, one in naturalist collection management. Also a testimony of the circulation of knowledge, not only between specialists of different fields, was the mention in the marginalia of the plan for the future cabinets of the museum of Nantes which advised referring to the École Primaire Supérieure for "similar cabinets".[162] Seemingly at odds with the idea of specificity, the note interestingly points to how know-how and experience in cabinet design could be re-used and adapted to the specific needs of the museum.

In the development and scientific publicisation of the natural history collection, too, many other artisans were involved. The Nantes museum paid for a large amount of plaster casts which were elaborated in Paris, then sent to be coloured by a colour specialist in Nantes before the objects had made it into the collection.[163] In the late 1860s, Jourdan also worked with external artisans. For instance, naturalist Révil was

[158] AML - 78WP021, "De ce qui est du au Professeur Gilibert relativement au Cabinet d'Histoire Naturelle", [23 July 1813].
[159] AMN - 4M18, État estimatif des Ouvrages en maçonnerie, Platrerie, Charpenterie, Couverture, Menuiserie, Serrurerie, Plomberie, Peinture et Vitrerie, qu'il convient de faire dans l'ancienne École de chirurgie, qui doit recevoir le Cabinet d'Histoire Naturelle, 3 April 1806.
[160] Ibid.
[161] AML - 465WP003, Order of the Mayor to the Head Architect, 23 August 1823.
[162] AMN - 4M18, 1Fi1647, [report and associated plan of a cabinet], 16 December 1835.
[163] AMN - 2R565, *Mémoire des travaux faits par Genon pour la Muséum d'histoire naturelle de Nantes. 1835*, by Genon, 15 May 1836, AMN - 2R565: Cailliaud to the Mayor of Nantes, 18 May 1832.

given a lump sum of 140 francs for a total number of 40 working days in which he proceeded to the cleaning of the fossil fish of Cirin (18 days), the arrangement of intestinal worms (9 days), and the arrangement of a collection of crustaceans (13 days).[164] Engravers Leveil and Gauthier were hired for the maps of Rome and Lyon, the mould maker Gustini for fossil plaster casts, alongside numerous other artisans.[165] The extent to which those men were actually external to the museum is not entirely clear: Révil, for instance, was the owner of an independent business, and delivered pieces that he had prepared for the museum, but in his shop of Quai Saint Pierre de Scize, not far from the Palais Saint-Pierre, up to 1869. Surprisingly, he had also been appointed as the new *Chef des travaux et préparateur de Zoologie*, and was officially named in the position in 1867.[166] Like Drian or Lépagnez, Révil bridged the inside and the outside of the museum with an unresolved status, standing between independent work and being at the service of the museum. By all means, having been in commercial and scientific contact with Jourdan considerably helped him to get the position, since Jourdan in person supported his nomination.[167] Working at the museum represented a secure and positive horizon for many of those workers. Not only for the imagined sake of science, but because it offered either stability or opportunity.[168]

The difference between amateurs and professionals of natural history in the nineteenth century has been fruitfully re-discussed by recent scholarship and the so-called "rift" smoothed out.[169] It has posed, however, a debate along the lines of who is a professional, in other words, who earned a living from natural history, and who did not. Although often fragmentary, the information on the workers of or associated with the museum points to a complexification of our understanding of who the professionals of natural history were. Naturalists formed a very wide array throughout the society and could not be limited to those men trained and working in laboratories.[170] Adding to that, workers of nature were in fact far from being all trained in natural history. The level of expertise and skill could vary according to the nature of the task, but the natural history museum remained a central meeting point for

[164] CCEC - JE, "Journal d'entrées", p. 216, entry n° 341, 6 April 1867.
[165] The "Journal d'entrées" provides many examples, especially in the years 1865-1869: CCEC - JE, "Journal d'entrées".
[166] CCEC - DP-J, "Journal de Jourdan", p. 119, Jourdan to the Prefect of Rhône, 28 June 1867. Révil took his position 20 July 1867.
[167] Ibid.
[168] High hopes for a stable place of preparator could lead to some disillusionment. Such was the case of Decreuse, who achieved many preparations for free for the account of the Lyon museum as Mouton-Fontenille had promised a position in exchange for the work. The promise made was deceitful and Decreuse was never hiered: AML - 78WP021, Decreuse to the Mayor of Lyon, 23 October 1826.
[169] Samuel J. M. M. Alberti, 'Amateurs and Professionals in One County: Biology and Natural History in Late Victorian Yorkshire', *Journal of the History of Biology* 34, no. 1 (2001): 115–47.
[170] Nyhart, *Modern Nature*, 15–20, 35–78.

workers of nature of all sorts. Because there was an interest in the sciences of nature, but also because the museum offered good opportunities for work.

C. Conclusion: trying the universal with the local

A natural history collection needed a certain investment to keep the collection in good condition, with operations of preparation of the specimens, operations of cleaning, operations of renovation or replacement. The collection was a living body of objects, because it ironically needed to look life-like, but also because it was subject to the environment, hands, and general conditions of the museum and its workers.

Museum workers in Nantes and Lyon did entertain an ambivalent relationship to collection objects. On the one hand, a collection object was considered the token of science, a specimen representing a neutral example of natural knowledge, a synecdoche representing all other specimens in nature, that is with a sense of universality. On the other, the collection, its classification, and the very objects themselves would be subjected to an important turnover. The pieces were often repaired or replaced. The list of expenditures provided by Dubuisson contain odd formulations such as "for repairing a pelican" or "a seal" or else.[171] The use of the common name to designate the object more than the species generated a sense that it was a living animal which was being fixed. They were however dead animals turned into displayable *things* that may talk to the curious and to the savant and blurred the outline of their nature.[172] Animals could be replaced too: a horned grebe, an avocet, a whimbrel, a golden plover, a brent goose were all "[purchased] in replacement of one bad".[173]

In more practical terms, the success of specimen preparation and classification depended on the negotiation between the intellectual project and the actual realisation of the operation. Regardless of material constraints, classification was at stake in the interplay between the components forming the nebula of actors intervening in the environment of the museum.

[171] AMN - 2R565, Emploi des 300 francs alloués par Monsieur le Maire, pour l'entretien du Muséum d'Histoire Naturelle pendant le cours de 1820.
[172] Daston, *Things that talk*, 21.
[173] Original text: "[acheté] en remplacement d'un mauvais": AMN - 2R565, Emploi des 500 francs alloués par Monsieur le Maire, pour l'entretien du Muséum d'Histoire Naturelle pendent (sic.) le cours de 1823".

4. THE MUSEUM AS A DATABASE: TEACHING AND PUBLISHING

The physical, intellectual and economic effort injected in the sorting, shelving and displaying of collection objects resulted in the fashioning of a collection of a certain stability. This chapter has so far shown that stabilising a specimen and ordering nature in classifications was a given and essentially a frame of reference for conducting work towards the imagined collection. The museum collection entailed a series of operations which embedded it in a complex interplay of workers, in scientific debates, as well as in the practical reality of the object. All of these inpractical and intellectual operation interfered with the status of the objects in the collections, which was constantly evolving.

Collections were aimed at becoming a metonymy of nature. However, they were not universal: the material presented above shows that by no means could the collections presented in the museums be essentialised as representative of the entirety of nature, nor could they be condemned for not being perfect. They bore the blanks and holes resulting from the serendipity of collecting and the acceptability of ignorance, related to local expectations. The museum served as an important database, which took the material form of chopped minerals, bird skins or jarred mollusca structured and put in relation to each other by a contingent material set-up.

The database offered by the museum was abundantly used. The section below proposes to explore the different uses of the collection, with an emphasis on teaching and publishing. At the same time, by also taking account of the high level of contingency in the state of the collection, its ordering and level of "finishedness", it raises interesting questions as to what sort of natural knowledge was in fact produced.

A. Teaching

a. Teaching with a collection: inherited practices

One the reasons for the existence of local natural history collections was teaching and popular education, as delineated during the French Revolution. Each *département* was to be equipped with an *école centrale* and should provide a course of natural history to be supported by a collection. Although there had been a growing interest in and demand for classes of natural history in the late eighteenth century, the Daunou Bill triggered a "brutal" institutionalisation of the teaching of natural history

as a formally designated discipline with a homogenous corps of professors.[174] The practical realisation of the project was of course much more heterogeneous. The transplantation of the project into the provinces also explains the contrasting success in safeguarding the collections once the *écoles centrales* were dismantled.

An *école centrale* and a course of natural history during the Revolution in Lyon, Nantes and Toulouse were put in the hands of figures of science, respectively Gilibert, Leimeignen and Picot de Lapeyrouse. Other than their skill in collecting and their theoretical knowledge, the professors would also, due to the circumstances, bring their own collections for teaching purpose. The rift between the plan of teaching natural history with collections and their practical unavailability did create some tension. In Nantes, for which the cartography of private collections at the turn of the century was entirely re-examined by Pierre-Yves Lacour, the availability of a teaching collection appeared less obvious. The course was opened with no teaching device and relied primarily on Leimeignen's private collection for pedagogical purposes. Students were only suspected to have manipulated its objects in the context of their course, which was noted as an inadequate situation.[175] The finalisation of the acquisition of the Buron collection was achieved just as the *écoles* were closed in 1802.[176] Left with the ownership of a collection intended for a course that no longer existed, the departmental authorities (forcefully) handed over the collection to the municipality. From then on, the course was reinstated sporadically until 1869. In Toulouse, the authorities had relied abundantly on Lapeyrouse's resources, his energy and his collection, to the point of making him extremely bitter about the lack of recognition for his contribution, his son's, and thereby his family's, which he had hoped would manifest in his son Isidore receiving payment for his work.[177] While it was announced that students could manipulate the objects of a collection in the framework of their secondary education, the institutionalisation of teaching natural history in public secondary education in fact relied essentially on private contributions as far as cabinets, as teaching devices, were concerned.

[174] Rusque, 'Le Dialogue des objets. Fabrique et circulation des savoirs naturalistes : le cas des collections de Jean Hermann (1738-1800)', 452–79. For an embracing perspective elaborated by means of a careful study of the professors of the *écoles centrales* see Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 423–45. See also Duris, 'L'enseignement de l'histoire naturelle dans les écoles centrales (1795-1802)'.

[175] Lacour, *La République naturaliste: collections d'histoire naturelle et Révolution française (1789-1804)*, 411.

[176] Ibid., 412.

[177] MNHN - Ms BLA 9, Correspondance de Blainville, it. 43, Philippe Picot de Lapeyrouse to Blainville, 28 November 1814. Lapeyrouse hoped Blainville could approach Cuvier in order to bring to a term the « persecutions » the father and son Lapeyrouse considered themselves to be victims of. As a matter of fact, Lapeyrouse was striving to have his son's position as an assistant professor recognised, or at least to receive some financial reward for his teaching services.

If museum collections were, in later years, used for teaching and one of their purposes was stressed as being pedagogical when necessary, the articulation between museum collection and course teaching was nonetheless fairly discontinuous. The first break occurred with the closure of the schools and the way public authorities were left with natural history collections which needed to be re-purposed. The reconfiguration of the use of the collections after 1802 took different forms according to the local context. In Nantes, the collection of the museum opened partially with the input of the Buron collection, curated by Dubuisson. He was unconcerned with teaching and courses in botany and horticulture, which were primarily held at the botanical garden, administratively independent and geographically distant from the museum.[178] Lyon and Toulouse, by contrast, succeeding in maintaining an open course. In Toulouse, Lapeyrouse used his position as mayor and the discontinuation of the *école centrale* programme to apply for and support an École Spéciale, which the city obtained. He notably used the argument of the pre-existing infrastructure, especially the collections (his, in reality) to fruitfully develop an ambitious teaching programme.[179] In Lyon, a more traditional course of natural history, associated with medicinal science and under the guidance of Gilibert, a physician and botanist, was inserted in the grand scheme of the Conservatoire des Arts. Located in the Palais Saint-Pierre, the Conservatoire was a compound site which hosted art schools, art, science and instrument collections, and commercial services dedicated entirely to the development of the knowledge and industry of textiles. Plants, and especially flowers, and animal specimens were essentially targeted at trainee illustrators and the development of natural designs on textile.[180]

The availability of a collection did not necessarily call for the development of a course and vice versa. Again, the three cities show very different situations. In Nantes, the organisation of courses was occasionally introduced, but the directors seem to have been so absorbed in travelling, collecting, writing, sorting and battling against humidity that little time was still available in an establishment where despite collaborations, most of the work fell on the shoulders of the director, the custodian and occasional helpers: workforce was scarce. To attend university courses, the nearest university to Nantes was Rennes. The museum collection was not related to a university course until the middle of the nineteenth century. The 1860s project of hosting the museum in the same building as the École des Sciences was hinged on the

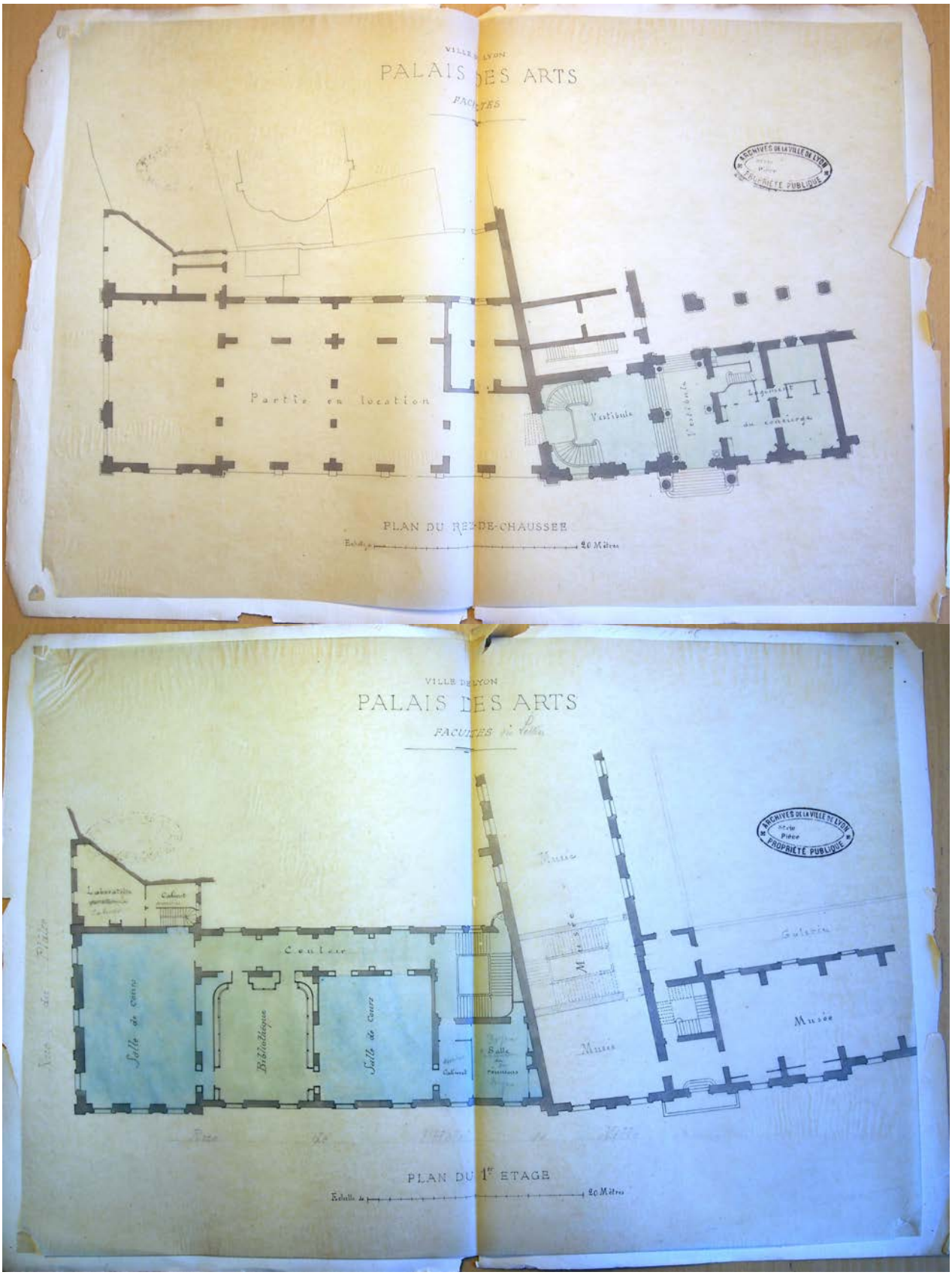
[178] On the organisation of the classes of botany at the école centrale in Nantes, see AMN - 1O16150, "Jardin botanique".
[179] MNHN - Ms1992 it. 537, De l'établissement des écoles spéciales dans le Midy et en particulier dans le département de la Haute-Garonne, par Philippe Picot Inspecteur des Mines de la République, [1800]
[180] AML - 77WP001, Administrative Committee of the Conservatoire des Arts, "Procès-verbal de la séance du 30 messidor an XI [19 July 1803]".

idea of fruitfully placing next to one another a teaching institution and a scientific collection: "School is the precept. Museum is the example".[181] In the planning of the new building, however, limited communication between the two institutions housed in one locale ensured that each institution in fact remained independent.[182]

The Toulouse case was antithetical to that of Nantes: the municipality of Nantes purchased the mineralogical collection of Lapeyrouse for the use of the members of the Faculty of Science, not only for its symbolic authority, but also to actually be used in the context of teaching. As Thuillier, the *Recteur* of the *Académie de Toulouse* lamented in 1838, the collection was however not kept updated.[183] One could hardly decipher the labels or understand the classification in the late 1830s and the collection was only rarely used, mostly being simply stored there. This case helps raise attention to an important fact: the sole presence of a collection was not enough for teaching and this further supports the idea that collections were not stabilised groups of objects. On the contrary, they required constant care, like the objects they contained, and were not life-like but actually alive. Protests against the state of things and the regular petitions for a museum also illuminate how a scientific faculty was not an ideal substitute for a museum.

Until roughly 1820, collections were a common denominator among the numerous scientific institutions of Lyon, which did generate significant tension. It became difficult, indeed, to distinguish the publicly-owned collections from sections of collections owned privately by the people in charge of the museum. Gilibert was accused of keeping books from the cabinet's library at his home in the countryside for instance. Mouton-Fontenille, on the contrary, played on the ambiguous status of the collection to create a situation in which he could only sell his collection to the municipality and be appointed to curate the museum. Also a teacher of natural history at the Société d'Agriculture, Histoire Naturelle et Arts Utiles, his collection stretched over the Lyon cabinet, his own residence and the society's locale placed at Palais Saint-Pierre. In years of disorganisation of the cabinet and uncertainty about where to locate it after the death of Gilibert in 1814, Mouton-Fontenille, who then occupied the chair of natural history at the Académie and the *Lycée*, used it as a pretext to request the transfer of the collection to the academy.[184]

[181] MHNN - Cailliaud 11, Observations au sujet de la construction du Musée d'Histoire Naturelle de Nantes et proposition d'un projet, by Frédéric Cailliaud, p. 3-5, n.d. [1860s].
[182] See Chapter 3, 3. In the future of the city: the imagined museum, p. 213 and Appendix G: Projects for the new building of the Museum of Natural History of Nantes, p. 441.
[183] AN – F^{17}1948, folder "Toulouse-1838": the *Recteur* of the University of Toulouse to the Minister of Public Instruction, 20 July 1838.
[184] AMT - 78WP021, Mouton-Fontenille to the Prefect of Rhône, 28 November 1810.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Bibliothèque
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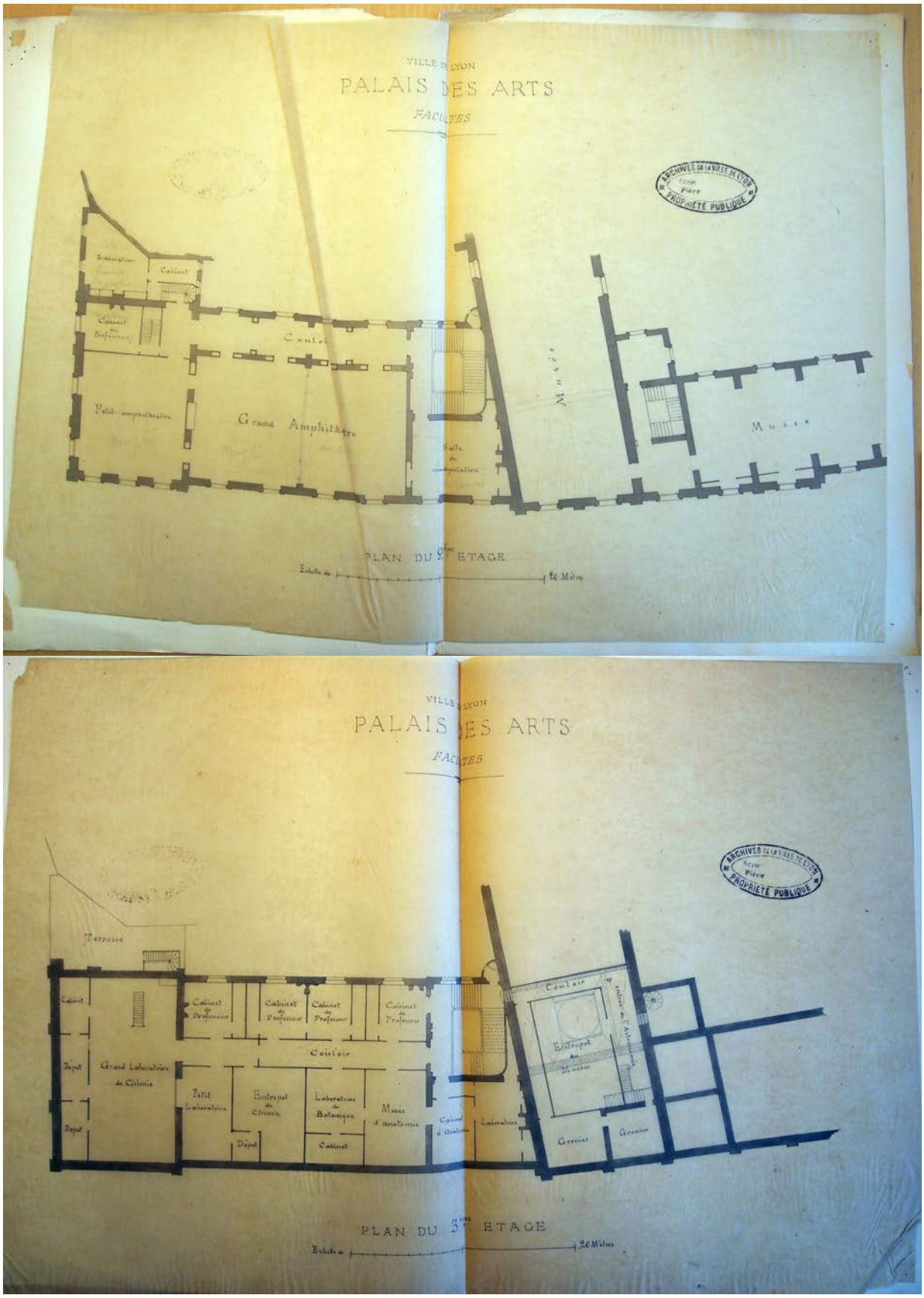

Figure 66 - Architectural plan of projected southern extension of Palais Saint-Pierre to host the Faculty of Science, 1864. AML

The appointment of Jourdan in 1832 corresponded with the reorganisation of the museum of natural history, heavy works at the Palais Saint-Pierre and a few years later, in 1835, with the inauguration of the Faculty of Science of Lyon. The Faculty was never far from the museum: it was hosted next to the museum at the Palais Saint-Pierre in 1835. Before it was relocated to a renovated building across Rue de l'Impératrice in 1864, it was temporarily installed in the premises of the Lycée located further down towards the Rhone, on Quai de Retz.[185] The grand opening of a renewed gallery of Zoology in 1837 was no coincidence. In 1854, Jourdan, the holder of the chair of zoology, was reported to be the only member of the faculty who taught at the Palais des Arts. The only other class delivered outside the faculty's building were Seringe's classes of botany at the botanical garden, then located in the area of present-day Place Sathonay.[186] The collections mentioned in the same report were the Faculty's very own. Brongniart underlined that the "necessary material" for teaching was a distinct trait of natural history classes, and that in many cases, including that of Lyon, university courses relied on the collections of "municipal museums".[187] The inspector also noted that in many other cities, the municipal collections were inaccessible to faculty teaching unless part of classes taking place at the museum itself, like in Lyon.[188] The relationship between the museum collections and the university courses reached a paramount level with the extension of the Palais Saint-Pierre to accommodate the university faculties. The western aisle was prolonged along Rue de l'Impératrice and a new complex was erected, which allowed direct spatial communication between the Faculties and the afferent collections. The Faculty of Science occupied the last two floors, at the very same level as the natural history galleries, in the western aisle. The architectural marriage did not last long, however: with the creation of the new university building across the Rhone (present day Quai Claude-Bernard), all faculties had moved out by the middle of the 1880s.

In the time of Jourdan, the most patent link between the museum and the faculty was not the collection, but the position of the director of the natural history collection, who was also a professor. This was a contingency, yet it reveals how the connecting link between the two institutions had changed from collection-owning to occupying a site of shared experience and common interest in the sciences.

185 MNHN - Ms2358a, "Facultés des Sciences des départements 1. Inspection de 1854 à Besançon, Dijon, Grenoble, Lyon".
186 Appendix B: Location of main sites of Lyon, p. 425.
187 MNHN - Ms2358a, ibid., fo. 5.
188 Ibid., fo. 6.

b. Handling the breakable: the management of municipal collections for teaching

The municipal museum collections were designed for study, but not exclusively for teaching. It was an important point of distinction from the *écoles centrales*. Next to keeping records, travelling, negotiating, surveying, sorting, cleaning, writing reports and papers, teaching was simply one more component of museum work. The case of Nantes, with its sporadic natural history classes, illuminates well the tension between a study collection and a teaching collection. The municipal authorities did not, it seems, plan to open a course with the inauguration of the museum. Dubuisson suggested opening one, insisting that he had been kindly requested to do so. His personal collection, he continued, was much more adapted for the course because the museum collections of mineralogy were not sufficient.[189] Yet, he considered that it would be more appropriate to open the course at the museum rather than at his own house and suggested a three-year course which would deal with respectively Mineralogy, Geology and Zoology each year. This course depended, he added, on his health, which he seemed to know was fragile. In 1819, Dubuisson published his notes in a textbook aimed at his students.[190] For the following decades, information about class organisation was less specific. In 1849, though, the museum regulations introduced, for the first time, the obligation for the "Directeur-Conservateur" to teach a class of "one of branches of the science his establishment is concerned with".[191] The course should be held from the early days of November to April, twice a week.

Teaching was generally in the hands of the director. The Nantes regulations stipulated that the material was at the disposition of members of the committee for their own courses or to professors foreign to the museum upon authorisation of the Mayor and recommendation from the committee, on the condition that all classes be public.[192] The collection objects used for demonstrations should be put at the teacher's disposition, but should not be taken outside of the museum.[193] In Lyon, for reasons never explained by Jourdan, some classes of Zoology were conducted by Perret, the *préparateur* who did not occasionnally cover for Jourdan, the owner the chair of Zoology at the Faculty of Science, but was entrusted with a series of three months' class preparation and teaching, in addition to his activities of specimen preparation and

[189] AMN - 2R569, Dubuisson to the Mayor of Nantes, 29 April 1816.
[190] François René André Dubuisson, *Essai d'une méthode géologique, ou Traité abrégé des roches* (Nantes: Mellinet-Malassis, 1819), https://gallica.bnf.fr/ark:/12148/bpt6k96034292.
[191] AMN - 2R566, Museum d'Histoire Naturelle et Jardin des Plantes. Règlement [ms], Art. n° 27, 13 January 1849.
[192] Ibid., Art. n° 28; Ibid., Art. n° 30.
[193] Ibid., Art. n° 29.

scientific trips.[194] A trusted collaborator of Jourdan until his death in 1865, Perret's competence was either used to double the offer of classes of Zoology or to lighten Jourdan's burden. Use of the museum collections for teaching was more or less left at the discretion of the museum authorities, who generally held firm control over who could make use of the public collection, when that was possible at all.

The municipal collection was designed for study, but that was not necessarily pursued under the supervision of a teacher. This was one of the main differences with other sciences noted by Hermann, owner of a beautiful collection and professor of natural history in Strasbourg. In the later decades of the eighteenth century, the savant had reflected quite deeply about collection-based teaching for learning and understanding nature.[195] His discourse, elaborated on a sensualist approach, emphasised that only the sensory, primarily visual, experience of the objects of nature could train the eye to understand nature. A cabinet, Hermann wrote, was more important than the teacher himself for learning, because the teacher could be replaced by books.[196] An important difference from Hermann's cabinet was that the municipal collection was public, and this was where the sometimes tenuous differentiation between private and public collections appeared most clearly: the ambition for a municipal collection to be open for study by the public. In Nantes for instance, there were days of opening to anyone, on Sundays, Tuesdays and Fridays, or for students and scholars granted with access, on special opening days on Wednesdays, Fridays and Saturdays.[197]

Observation of the collection was the primary means of study, and the possibility of capturing both the detail of each specimen as well as the entirety of the collection was essential. The furniture was designed for this purpose. It was unsuitable for study purposes to increase the height of the cabinets nor to multiply specimens in drawers, when the numbers of pieces was overflowing the existing furniture.[198] Behind the glass cases, relevance of classification mattered, but also the possibility to contrast and compare many different specimens of the same species. Conflict about the classification and protests about the lack of legibility of bulked minerals on shelves could still occur, in as much as they could be embedded in personal tensions and political plotting, as the example of the Nantes museum committee and Dubuisson

[194] In the 1860s, Perret received 200 francs every three months for teaching. See AML - 78WP31, stubs of museum expenses, both supplies and collection acquisitions. Many occurrences in CCEC - JE, "Journal d'entrées".
[195] See the very detailed account of his reflection and practice in Rusque, 'Le Dialogue des objets. Fabrique et circulation des savoirs naturalistes : le cas des collections de Jean Hermann (1738-1800)', 451–91.
[196] Ibid., 480.
[197] AMN - 2R566, *Règlement* [ms], op. cit., Art. n° 31-32.
[198] AMN - 2R566, the Museum Committee to the Mayor of Nantes, *Rapport sur le Musée d'Histoire Naturelle de Nantes*, 1841.

showed.[199] Also an aesthetic experience, the displayed specimens should be pleasant to the eye, and a collection of birds which was hideous and ill-presented due to faulty care would certainly not provide for good learning.[200] The museum collection was not inherently good for study. Rather, it was the series of actions carried out around the specimens which generated its consistency and its heuristic relevance.

The practical use of parts of the collections for students also meant that some of the specimens were to be extracted from the protected environment of the cabinets and put in the hands of the learners. Part of the organisation of courses involved developing a collection designed specifically for the purpose. Jourdan, for his class of zoology, had a series of doubles of parrots ordered.[201] It was a common practice in Nantes and Lyon to generate a separate set of doubles for the purposes of teaching students, not to be displayed to the public. The museum directors usually had to justify the decision to remove specimens of a "lesser state of conservation" from the public view.[202] They would alternatively purchase a group of objects of lesser quality precisely to be "abandoned to the students", who were considered to be sloppy.[203]

If teaching was a segment of the museum activities, it was clear that the collection, a municipal property, should be useful. Was it rhetorical or was it actually deplorable to Dubuisson in 1816, as he pointed to those many empty cupboards which were useless ("*ne servent à rien*")? Why not use them and store a teaching collection instead?

> "This is the rightful means, Monsieur le Maire, to make the museum rightfully useful to the *Département*; not only by displaying this collection to the sterile curiosity of the public, but also by giving them the taste of science, by teaching them how to make advantageous use of the riches assembled before their eyes, this means would be all the more advantageous as today the natural sciences begin to be taught in public education."[204]

Usefulness according to Dubuisson played out at different levels. He invoked the context of the development of public education and, also because it was useful to him as he was trying to sell his teaching scheme using his own collection, he suggested the municipal authority eventually position itself in this field. The grand objective of the

[199] AMN - 2R566, Dubuisson to the Mayor of Nantes, 30 December 1833.
[200] AMN - 2R565, the supervising committee to the Mayor of Nantes, 20 July 1832.
[201] CCEC - DP-J, "Journal de Jourdan", p. 108, Emile Parzudaki to Jourdan, 4 Decembre 1865.
[202] AML - 78WP017, Jourdan to the Mayor of Lyon, 12 March 1851.
[203] MHNN - Dubuisson 6, [Museum administration. Minutes], entry n° 13, 28 October 1832.
[204] Original text: "C'est le veritable moyen, Monsieur le Maire, de rendre le muséum veritablement utile au Département; non seulement en exposant cette collection à la stérile curiosité du public, mais encore en lui donnant le goût de la science, et en lui apprenant à tirer un parti avantageux des richesses qui ont été rassemblées sous ses yeux, ce moyen serait d'autant plus avantageux, que l'on fait entrer aujourd'hui l'étude des sciences naturelles dans l'enseignement public.(sic.)" : AMN - 2R569, Dubuisson to the Mayor of Nantes, 29 April 1816.

2e Année du Cours.

Cours d'Anatomie de l'homme et des Animaux domestiques appliqué aux Beaux-Arts,

Professé à l'École de Lyon par M. le Dr Jourdan les mercredi et jeudi de chaque semaine. - Année scolaire 1868-1869

Le Cours d'Anatomie Physiologique et comparée est destiné comme le porte son titre aux personnes qui font des Beaux Arts une étude particulière et principalement aux élèves de notre école de Lyon. Il est également utile aux personnes qui veulent avoir, pour complément de leur instruction, une connaissance sommaire et pratique de l'organisation humaine et de celle de nos animaux les plus ordinaires. Pour que l'indication rétrée de ce cours fut à la fois plus facile et plus complète, on y a réuni l'étude des squelettes, des préparations anatomiques fraîches, des Modèles vivants et des principaux chefs d'œuvre des Beaux-Arts. - Les leçons du semestre d'hiver sont les mêmes chaque année, il n'en est pas ainsi des leçons du semestre d'Eté: elles ne se répètent pas pour la plupart, que tous les trois ans, le cours complet a donc trois années de durée. Les matières d'enseignement divisées en trois parties, sont une pour chaque année, sont:

Pour l'Espèce humaine: les conditions anatomiques particulières: 1re année, âges; 2me, sexes; 3me, tempéraments et constitutions fonctionnelles.

Les conditions d'existences individuelles: 1re année, demeure, vêtements, alimentation; 2me professions diverses; 3me position sociale, mœurs, éducation et instruction.

Les conditions d'existences générales: 1re année, topographie et géologie des lieux; 2me climats géographiques; 3me, état social et religieux.

Les Races humaines: 1re année, race blanche ou caucasique; 2me, race jaune ou mongole; 3me, race noire ou éthiopienne et deux races mixtes: la race cuivrée ou américaine, et la race brune ou néptunienne.

Pour les animaux domestiques: l'étude des races, 1re année, bœufs, chevaux; 2me, bœufs, moutons, chèvres; 3me, les autres mammifères domestiques ou quelques uns des oiseaux que nous élevons.

Pour les Beaux-Arts: leur étude au point de vue de la reproduction plus ou moins fidèle de la forme de l'homme et des animaux domestiques; 1re année, dans l'antiquité depuis les temps les plus reculés jusqu'au commencement de notre ère chrétienne; 2me au moyen-âge et à la Renaissance; 3me, dans les temps modernes depuis la Renaissance jusqu'à notre époque actuelle.

Semestre d'Hiver, consacré aux études similaires des Préparations anatomiques et des Modèles vivants.

1re Partie. Ostéologie et des Articulations chez l'Homme. (Seule simultanément les préparations anatomiques fraîches et les squelettes et leurs articulations.)

Tête osseuse: Du Crâne et de la Face: leurs conditions, leurs destinations spéciales, leurs appareils de développement.

1re Leçon - Considérations générales sur le squelette, ses divisions nouvelles de la tête, du crâne, de ses os: coronal, ethmoïde, occipital, sphénoïde, pariétaux et temporaux. - Généralités sur le crâne.

2e Leçon - De la Face: de sa configuration et de ses cavités sensorielles, ses os: maxillaires supérieurs, os du nez, unguis, cornets, nasales, palatins, vomer, maxillaire inférieur, angle facial.

Du Tronc: Les divisions nouvelles: la colonne vertébrale, la poitrine et l'abdomen, l'épaule et le bassin, leurs rapports de grandeur.

3e Leçon - Considérations générales sur le Tronc. De la colonne vertébrale, partie fondamentale du Tronc, ses os, leurs différences suivant les régions des diverses vertèbres. Généralités.

4e Leçon - De la cage osseuse thoracique abdominale; ses fonctions principales. Du Sternum. Des côtes et de leurs cartilages, des articulations et des mouvements de la poitrine. Des côtes à divers âges.

5e Leçon - De l'épaule et du Bassin: leurs mêmes éléments osseux, leurs différences de formes dues à leurs différences fonctionnelles. Leur grandeur relative. Leurs articulations.

Des Membres, leurs mêmes éléments anatomiques, leurs fonctions respectives différentielles.

6e Leçon - Comparaison des membres supérieurs et inférieurs: Membres supérieurs: humérus, cubitus et radius. Carpe et métacarpe: Phalanges. Articulations, grande mobilité.

7e Leçon - Membres inférieurs: fémur, tibia et péroné, tarse et métatarse, Phalanges. Articulations, solidité réunie à la mobilité: principaux mouvements.

2e Partie. Ostéologie et des Articulations chez les animaux domestiques.

Tête osseuse des animaux domestiques comparée avec celle de l'homme.

8e Leçon - Tête des Singes, des carnassiers, des pachydermes, des cétacées et des ruminants. Rapports du crâne et de la face, subordonnés à la nature de l'alimentation. Jaunes comparées de l'angle facial.

9e Leçon - Tête des rongeurs, des édentés et têtes des oiseaux domestiques. Des Reptiles et des Poissons, faces de plus en plus prédominantes sur le crâne, par suite de ses fonctions digestives.

Du Tronc: Changements dans la nature et l'habitation et la nature des organes.

10e Leçon - Du Tronc chez quelques uns des principaux mammifères mésolobiés, les ovipares animaux domestiques. Des changements suivant la nature du mouvement de progression.

11e Leçon - Du Tronc chez les mammifères submésolobiés, chez les oiseaux les plus ordinaires, les reptiles et les poissons. - Changements suivant le milieu d'habitation, le sol, l'air et l'eau.

Des Membres, leurs modifications suivant leurs usages.

12e Leçon - Membres puissamment modifiés suivant qu'ils sont des instruments de préhension, de marche, de vol, de reptation ou de natation. Leur étude chez les vertébrés les plus communs.

3e Partie. De la Myologie et des mouvements chez l'Homme. (Seule simultanément les préparations anatomiques des muscles et de leurs formes sur le modèle vivant, suivant leurs divers usages de contraction.)

Muscles de la Tête: mouvements expressifs, sensoriels, respiratoires et digestifs, usages de la face.

13e Leçon - Considérations générales sur la nature, la forme et les fonctions des muscles. Leur groupement en grandes divisions analogues à celles du squelette. Muscles de la tête, crâne ou de la partie supérieure de la face.

14e Leçon - Muscles des parties inférieures et profondes de la face. Régions inter-maxillaire, maxillaire inférieure, périgénienne, temporo-maxillaire, linguale, palatine et pharyngienne: expressions, mastication, déglutition.

Muscles du Tronc: Leur mouvements considérés comme les mouvements généraux de prehension et de répulsion des corps, de station et de progression variées. Actions musculaires du tronc rattachées aux grandes fonctions de la vie végétative: respiration et digestion.

15e Leçon - Considérations sur les muscles du Tronc. Muscles des parties antérieures et latérales du cou. Régions cervicale superficielle, hyoïdienne supérieure et inférieure, cervicales latérale et profonde.

16e Leçon - Muscles du dos et de la partie postérieure du cou. Régions lombo-dorsale, transversale, cervico-occipitale superficielle et profonde, vertébrale. Station verticale de la tête et du tronc.

17e Leçon - Muscles de la poitrine. Régions thoraciques antérieure, latérale et intercostale. Région diaphragmatique. Mouvements divers de la respiration, mouvements généraux des bras.

18e Leçon - Muscles de l'épidomen. Régions abdominale, lombaire et anale. Mouvements d'expiration et de dynamique générale du Tronc, dont le siège est dans les régions abdominales.

19e Leçon - Muscles de l'épaule et du bassin. Scapule: région scapulaire externe, postérieure et antérieure. Bassin: régions fessières et pelvi-trochantérienne. Mouvements généraux du bras et de la cuisse.

Muscles des Membres: Mouvements généraux de prehension et de répulsion des corps, de station et de progression.

20e Leçon - Considérations sur les muscles des membres. Muscles du bras et de la partie antérieure de l'avant-bras. Régions brachiales: antérieure et postérieure. Aub-brachiales, antérieure superficielle et profonde.

21e Leçon - Muscles des parties postérieure et latérale de l'avant-bras et muscles de la main. Régions aub-brachiales, postérieure et radiale; palmaires et inter-osseuse. Extension de la main et des doigts.

22e Leçon - Muscles de la cuisse. Régions crurales antérieure, postérieure, interne et externe. Mouvements de station, de flexion et de progression variée. Adduction de la cuisse. Extension de la jambe.

23e Leçon - Muscles de la jambe et du pied. Régions jambières, antérieure, postérieure et péronière. Régions du pied, dorsale plantaires et inter-osseuse. Flexion et extension des pieds et des orteils.

4e Partie. De la Myologie et des mouvements chez les animaux domestiques.

Muscles de la Tête.

24e Leçon - Muscles de la Tête. Mouvements sensoriels, respiratoires et digestifs chez les animaux vertébrés les plus communs. Mouvements d'expression.

Muscles du Tronc: marche, saut, vol, reptation, natation.

25e Leçon - Muscles du Tronc chez les mammifères domestiques, plusieurs des mésolobiés. Mouvements de progression et des fonctions de nutrition.

26e Leçon - Muscles du Tronc chez les mammifères submésolobiés, les oiseaux, les reptiles et les poissons les plus ordinaires. - Mouvements divers de respiration.

Muscles des Membres.

27e Leçon - Muscles des membres quelques mouvements de prehension des corps. Mouvements très variés de progression, suivant qu'elle a lieu sur le sol, dans l'air ou dans l'eau.

5e Partie. Des principales fonctions de l'Animal.

Respiration.

28e Leçon - Considérations sur la respiration. Nature de l'air respirable, ses modifications par la respiration. Principaux organes de respiration. Nature du sang avant et après la respiration.

Digestion.

29e Leçon - Considérations sur la digestion: les aliments et des boissons, des transformations successives subies par les aliments. - Des organes de la digestion. Nature du chyle.

Circulation et Depuration.

30e Leçon - Considérations sur les absorptions et sur la circulation. Des différentes espèces de circulation; nature des fluides circulants. De la chaleur animale. Diverses voies de depuration. Veine urinaire.

6e Partie. Des formes extérieures et des proportions de l'homme et des animaux. Étude sur les modèles vivants.

Des Formes extérieures et des Proportions chez l'homme. Application des études anatomiques précédentes.

31e Leçon - Considérations générales sur les formes et les proportions des formes extérieures de la tête: crâne, menton, front, tempes et oreilles, yeux, nez, pommettes, joues, bouche, angles mâchoires, menton.

32e Leçon - Des formes extérieures du tronc, de cou, de la poitrine, des épaules: du dos; de l'abdomen et des hanches: Cette détermination des différentes régions.

33e Leçon - Des formes extérieures des membres: membres supérieurs: bras, avant-bras, poignets, mains; membres inférieurs: cuisses, jambes, coudes, pieds, pieds.

34e Leçon - Des proportions des différentes parties du Corps humain. De la tête, prise pour unité de mesure dans l'appréciation des proportions chez un homme convenablement constitué. Subdivision de la tête.

Des Formes et des Proportions chez les animaux domestiques.

35e Leçon - Des formes extérieures chez les principaux animaux domestiques: tête, cou, encolure, garrot, dos, poitrine, flancs, jambes de devant, jambes de derrière.

36e Leçon - Des proportions chez les principaux animaux domestiques.

Semestre d'Eté, consacré plus spécialement à des Études physiologiques et artistiques.

1re Partie. Des sentiments moraux, des passions et des facultés intellectuelles de l'homme et des fonctions cérébrales d'animation.

Des sentiments moraux, des passions et des facultés intellectuelles de l'homme et de ses fonctions cérébrales d'animation.

37e Leçon - Sentiments moraux de l'homme: religion, conscience, dignité humaine. Passions de l'homme, passions concentriques ou égoïstes, passions expansives ou affectueuses, passions mixtes.

38e Leçon - Facultés intellectuelles de l'homme: abstraction, déduction, généralisation. Fonctions cérébrales d'animation chez l'homme, ses initiations organiques, ses instincts, ses intuitions, ses aperceptions.

Des fonctions cérébrales d'animation chez les animaux.

39e Leçon - Fonctions cérébrales d'animation chez les animaux; leurs affections, leurs instincts, leurs intuitions; leurs initiations organiques; leurs sensations externes.

De l'Encéphale de l'homme et des mammifères domestiques. Autres systèmes nerveux. Plexus, etc.

40e Leçon - Encéphale de l'homme: cerveau, mésocéphale, cervelet, moelle allongée ou céphalique. Moelle épinière ou cordon nerveux. Ganglions et filets nerveux ganglionnaires.

41e Leçon - Encéphale des animaux: cerveau et cervelle de moins en moins développés. Moelle céphalique ou médullaire ou cordon nerveux. Lobes optiques, relativement. De plus en plus considérables.

Des Sens ou de leurs organes chez l'homme et les animaux domestiques.

42e Leçon - Considérations générales sur les sens de l'homme, organes du sens du toucher, du goût et de l'odorat. Des qualités physiques des corps, des saveurs et des odeurs.

43e Leçon - Du sens de l'ouïe chez l'homme; ses qualités des sons; oreille externe, moyenne et interne. De la vision; de la lumière; ses organes de protection, de modification et de perception.

44e Leçon - Des organes des sens chez les animaux domestiques, et les plus communs parmi les oiseaux, les reptiles et les poissons. Immobilité des verres et les plus spéciaux des sens.

2e Partie. Des manifestations extérieures et des fonctions sensitives et motrices. Des sentiments moraux, des passions et des facultés intellectuelles de l'homme. Manifestations, de ses fonctions cérébrales d'animation et de celles des animaux domestiques. Ces sens, ou les facultés et les fonctions.

De la Parole et des Expressions chez l'homme.

45e Leçon - De la parole. Considérations sur les langues; prononciation des lettres; articulation des mots.

46e Leçon - Des expressions. Expressions concentriques, expansives de commandement.

De la Voix et des Expressions chez les animaux.

47e Leçon - De la voix considérée comme un moyen de communication entre les animaux. De leurs expressions variées: souffrance, bien-être, joie, douleurs, colère, terreur.

Conditions anatomiques particulières cette année: Sexes.

48e Leçon - Influence des sexes sur les formes extérieures durant l'enfance, l'adolescence, l'âge adulte, l'âge mûr et la vieillesse, comparaison des deux sexes à ces différentes époques de la vie.

Conditions individuelles cette année: Professions diverses.

49e Leçon - Influences des Professions sur l'économie humaine. Professions sédentaires et n'exigeant qu'un emploi partiel et spécial de nos forces. Professions non sédentaires et exigeant l'emploi de l'ensemble de nos forces.

Conditions d'existences générales cette année: climats géographiques.

50e Leçon - Influences des climats géographiques. Zones tempérées, zones torride et zones glaciales. Les climats géographiques changent de nature par suite des altitudes. Climat glacial sous la zone torride.

Races humaines cette année: étude de la race Mongole ou race jaune.

51e Leçon - Considérations sur les races humaines. Unité d'espèce, trois races principales et deux races mixtes. Race Mongole.

52e Leçon - Suite de la race Mongole, ses trois principaux rameaux: le rameau Tongouse, le Kalmouck, l'Indo-Sinique.

Races d'animaux domestiques cette année: Bœuf, mouton, Chèvres.

53e Leçon - Des différentes races de Bœufs, leur origine. Profonde modification de leurs formes par les climats. Bœufs d'Europe; Bœufs des principales contrées de l'Asie.

54e Leçon - Des Moutons et des Chèvres, origine et caractères de leurs principales races.

3e Partie. Étude des principaux monuments des Beaux-Arts, au point de vue de la reproduction plus ou moins fidèle des formes de l'homme et des animaux domestiques.

Des Beaux-Arts étudiés durant les trois grandes périodes de leur histoire; 1re l'antiquité, 2e le moyen-âge et la Renaissance, 3e les temps modernes. Cette année étude des Beaux-Arts depuis l'antiquité jusqu'à la Renaissance inclusivement.

55e Leçon - Époque du Bas-Empire ou époque Byzantine, du 4e siècle au 12e. La sculpture et la peinture surtout abandonnent l'étude des belles formes de la nature et finissent par ne représenter que des formes conventionnelles et de tradition. L'architecture subit moins d'abaissement.

56e Leçon - De l'Art de Barbarie et du Moyen-âge: l'art de Barbarie depuis la chute de l'empire Romain d'Occident, au 5e siècle jusqu'à Charles-Martel au 8e. Le Moyen-âge depuis l'empire de Charlemagne jusqu'à François premier. Étude de l'architecture du Moyen-âge.

57e Leçon - De la Renaissance: 1re Période, 15e siècle, Nicolas de Pise, Andrea Taffi, Cimabue, Gaddi, Gaddo, 14e siècle, Giotto, Gaddi-Taddeo, Orcagna, Dyck ou Jean de Bruges.

Étude spéciale en plus de nos enseignements ordinaires, des principales statues et des bronzes trouvés dans les fouilles d'Herculanum et de Pompéi.

58e Leçon - Suite de la Renaissance: 2e Période 15e siècle, Brunellechi, Donatello, Ghiberti, Fra angelico, Masaccio, de Bramante, le Perugino, Léonard de Vinci, 16e siècle, Michel-Ange, Raphaël, le Titien, le Corrège, Marc-antoine, Cellini, Olivin, Jean Cousin, Jean Goujon, Philibert Delorme.

59e Leçon - Études des principales statues et des bronzes trouvés dans les fouilles d'Herculanum et de Pompéi.

60e Leçon - Étude d'arabesques et d'ornements de plusieurs maisons de Pompéi.

61e Leçon - Étude de plusieurs mosaïques de Pompéi et surtout de la grande mosaïque représentant la bataille d'Alexandre et de Darius.

62e Leçon - Étude des Chambres de Raphaël au Vatican, grandeur des compositions, vérité des expressions, pureté du Dessin.

Lyon, le

Impr. Ch. Lépagnez, Lyon.

Figure 67 - Content of the course of applied anatomy to the students of the School of Arts, 1868-1869. CCEC

course would have been, unsurprisingly, the moral development of the public by developing some sense of science and bringing them out of "sterility". Eventually, the study and observation of the collection, envisaged as a resource ("riches"), would even be rewarding. In the 1819 textbook Dubuisson wrote, the presentation of geognosy he developed did not conceal the objective of developing a course which, although based on authoritative theory, was essentially an "experience" and was targeted to "all the classes of society" rather than just to the "solitary savant".[205] In doing so, Dubuisson elaborated a collective programme, in which he dreamt of being the maestro despite perfunctory modesty. The public, students, but also civil engineers, agronomists, geologists were to gather for the sake of "public prosperity" around the body of knowledge materialised in the museum collection, under the guidance of the museum director.[206]

In Lyon, too, discourse about the utility of the collection served to fashion the crucial role of the director. The natural history collections, after 1802, were integrated into the Conservatoire des Arts as one component of a programme aimed at prompting the growth of the textile industry. The link between the arts school and the natural history museum went beyond the sole engagement of the museum director in a course, since the students could borrow specimens for study.[207] About fifty years later, in 1854, Jourdan was still confirming how the collections were elaborated for public education at both the Faculty of Science and the School of Arts.[208] The course description for the year 1868 presented a class of anatomy applied to arts studies (Figure 67). The winter term was dedicated to the simultaneous study of "man and animal" using "anatomical preparations and live models". The various steps of the course included lessons on the skeleton and the muscles together with respiratory, digestive and purgative functions. The spring term focused on physiological studies and the expression of feelings by examining the deformation of the body and the nervous system.[209] The classes of natural history were meant to be useful. Utility had been a foundational principle to the development of *écoles centrales*, and all public courses developed in municipal establishments, whether museum or garden, aimed at

[205] Dubuisson, *Essai d'une méthode géologique*, 5.
[206] Ibid., 6.
[207] CCEC - CO-P, *Prêt d'objets, 1838-1893*. This book registered the loans from the natural history museum of Lyon. They were usually individual pieces. Loans were initially permitted for students of the Art School of Lyon. Every year, two dozen pieces would be borrowed by students and later by professional painters. They would borrow birds, mineral pieces, shells. From 1859-1860, loans were opened to painters, artists, mould makers, savants (e.g.: the son Milne-Edwards fils, Dumortier). From this moment, there is a break in the level of precision of entries. No students seem to appear in the lists anymore. The book was also turned around to start a new section for loans to the Faculty of Medicine in the 1870s.
[208] CCEC - DP-J, "Journal de Jourdan", p. 15-16, Jourdan to the Prefect of Rhône, 23 January 1854.
[209] CCEC - DP-J, "Anatomie de l'homme et de l'animal", 1868. [no shelf number. The piece was insterted with the *Journal de Jourdan*.]

favouring the applicability of learning. The content of courses at the museum is not very well known. It seems that the scope was fairly generalist: Dubuisson's printed geology or Jourdan's course description of applied anatomy seem to offer overarching perspectives on the taught matter. Those materials are generic though. What was not, was the actual proceedings of the class directed by an individual who had certain experiences and used material which was locally crafted. If some level of universality was the target of teaching, it was achieved through situated pedagogical means and knowledge.

B. Museum in print: publishing practices

The museum collections and, individually, the objects composing them were publicised and through their social lives inside and outside the museum galleries, they could take different form. One of them was paper.[210]

a. The publishing record of museum directors

The importance of the museum collection in the publications of the museum directors became more significant throughout the period: increasingly, directors would write about what they had collected.

The several generations of Lyon directors illustrated the evolution of attention centring towards the museum collections as primary writing material. Directors from the earlier decades, represented by Gilibert, a physician and botanist, used to write treaties which were more universally targeted because they aimed at treating the body.[211] Mouton-Fontenille wrote about his specialty, birds, but also from analysing his own personal collection.[212] Also representatives of an intellectual elite, Mouton-Fontenille offered some comments about the Napoleonic years while Clerjon, the promising young yet evanescent director of a couple of years had undertaken the writing of a history of Lyon.[213]

In Nantes, Dubuisson and then Cailliaud led joining paths in their effort to publicise their work. Cailliaud had his moment of celebrity after he had returned from Egypt and his first work was *Voyage à Méroé*, which gained public attention in the

[210] About "paper museums" see Martin J. S. Rudwick, 'Georges Cuvier's Paper Museum of Fossil Bones', *Archives of Natural History* 27, no. 1 (2000): 51–68, https://doi.org/10.3366/anh.2000.27.1.51.. On how paper is the primary material of the construction of cultural insitutions across the eighteenth and nineteenth century see Van Damme, *Métropoles de papier*; Elise Lehoux, *Mythologie de papier: donner à voir l'Antiquité entre France et Allemagne (XVIIe-milieu du XIXe siècle)* (Dijon: Éditions universitaires de Dijon, 2018).
About illustration in the nineteenth century and matters of objectivity, see Boris Jardine, 'Made Real', *Science Museum Group Journal* 2, no. 02 (2014), https://doi.org/10.15180/140208.
[211] Jean-Emmanuel Gilibert, *Le médecin naturaliste* (Paris: Croullebois, 1800).
[212] Mouton-Fontenille de la Clotte, *Traité élémentaire d'ornithologie*.
[213] Clerjon, *Histoire de Lyon, depuis sa fondation jusqu'à nos jours*.

Parisian circles.[214] His move back to his native city and his appointment as assistant and then director of the museum of Nantes changed the scope of Cailliaud's publications entirely, to writing about his work at the museum. Dubuisson, his mentor when he was an assistant, hardly communicated on topics unrelated to the museum: the catalogue of the collection and a method of geology elaborated from his own classification experience were monographs based on working with collections specifically. At the Société Académique, he presented his research on certain specimens, which could also be a way to highlight some donations and honour the donor through making the note public. Cailliaud, after the passing of Dubuisson and when he was standing in the position of authority as the museum director, wrote substantially about conchology and malacology. The memoirs were usually presented at the Société Académique, too. They contain accounts of experiments, of research trips, of interrogations which are not clearly inscribed within the museum's collection. In addition, Cailliaud did have his own natural history collections, which can be thought to have been enriched by his collecting activities. Cailliaud had arranged for the bequest of his collection after his death and these objects were in fact merged with the municipal collections. But regardless of this, Cailliaud exemplified, still in the mid 1860s, the tension which could exist between municipal service and the development of one's own research. By all means, as the museum director and as a symbol for its authority, Cailliaud contributed to the elaboration of local area-based knowledge, based on the meticulous study of the locally collected and identified specimens, for which the museum ended up being the centre of resources.

b. Jourdan's *sonderweg* or the failed publication

The trajectory of the Lyon director Jourdan, from 1832 onwards, marked a turning point in the history of publishing from the position of museum director, and took him through several changes. Trained as a physician and a passionate investigator of anatomical studies, Jourdan saw his main interest in natural history shift from zoology to palaeontology, at least when it came to the publicising operations he conducted as the museum director. As a matter of fact, while he continued being a point of reference as the Faculty of Science Professor of Zoology, and a Professor of Anatomy at the Ecole des Beaux-Arts, his growing specialisation in geology and palaeontology prompted a shift in his publications and communications from the study of "living" species to "fossil" species, or in other words, fossilised extinct ancient species.

[214] Cailliaud, *Voyage à Méroé, au Fleuve Blanc au-delà de Fazoql, dans le midi du royaume de Sennâr, à Syouah, et dans cinq autres oasis: fait dans les années 1819, 1820, 1821 et 1822.*

To his contemporaries especially, the publishing record of Jourdan was a bewildering case: his publication list remained nearly empty. Often described as an untiring worker, as an utmost contributor to the growth of the Lyon collection in the nineteenth century, Jourdan kept a low profile in terms of publication of monographs.[215] He was either said to be too preoccupied with his teaching and administrative duties, or simply reduced to poor organisation with a dash of impetuosity.[216] Such moral judgement on unfinished work, considered the result of ill organisation, added to the negative evaluation of the state of the collections made by his successor Lortet in 1870 and has led to limited enthusiasm regarding his directorship.[217]

Jourdan's publications indeed generated their share of hopeful suspense. In 1846, Paul Gervais announced a future publication on "fossil pachyderms" which were in the hands of Jourdan in Lyon and decided not to share his own views on those specimens, for which he could not claim authorship in the meantime.[218] Similarly, Charles-Lucien Bonaparte, who was a protector of Jourdan, noted in a 1856 report to the Académie des Sciences that the "Eloquent Professor Jourdan in Lyon had already collected debris" from the area of Le-Puy-en-Velay "from which he had transported to his rich museum of Saint-Pierre some eggs and feathers in the state of fossils" and that his publication about "those interesting objects" was much anticipated.[219] And yet in 1871, the words of Paul Gervais offered a synthetic view of the situation:

> "M. Jourdan dedicated to the representation of the osteological characters of those Reptiles nine skilfully made plates of which proofs are kept at the cabinet of Geology of the Faculty of Sciences at the Sorbonne; but he did not publish his descriptions, and the plates I am speaking of were not even released publicly. The Reptiles discovered in Cirin are only known through the enumerative list of figures executed under the eyes of Jourdan, a list which was given by M. Hébert in the *Revue des Sociétés Savantes*, and through the description of two of those species (*Sapheosaurus Thiollieri* and *Atoposaurus Jourdani*) previously published by M. H. De Meyer in the second memoir of M. De Thiollière about the *Poissons de Cirin*.
>
> Plaster casts of several of those fossils were executed under the guidance of M. Jourdan and were recently offered to various Museums. I have received several of them which will

[215] Lacour, 'Claude Jourdan'.
[216] Ibid.
[217] AML - 78WP18, Report of Lortet to the Mayor of Lyon, op. cit. Fontannes, *Le Muséum d'histoire naturelle de Lyon: notice historique*, 24–27.
[218] Paul Gervais, 'Mémoire sur quelques Mammifères fossiles du département de Vaucluse (extrait)', *Comptes rendus hebdomadaires des séances de l'Académie des sciences*, January 1846, 845–46.
[219] Original text: "L'éloquent professeur Jourdan, de Lyon, avait déjà recueilli les débris de ce *Harle* dans les marnes calcaires de Ronzon au Puy-en-Velay, d'où il avait aussi transporté à son riche musée de Saint-Pierre des œufs et des plumes à l'état fossile. Nous attendons de lui la publication de ces intéressants objets, ainsi que de tant d'autres, et de découvertes plus intéressantes encore, accumulées depuis si longtemps par sa puissante organisation." S.A. Monseigneur Le Prince Ch. Bonaparte, 'Ornithologie fossile servant de tableau comparatif des Ineptes et Autruches', *Comptes rendus hebdomadaires des séances de l'Académie des sciences* 43 (July 1856): 775–83.

> be placed in the gallery dedicated to the fossil bones, where they shall be comparable with the German species which I obtained in 1869."[220]

Gervais' note is revealing about the disappointment generated among the community of geologists waiting for new material. It is also telling about scholarly deontology. Jourdan was off to a new career in politics and the casts and plates were accessible to the public: Gervais then had the necessary leeway to mention the specimens without the risk of stepping on the authority of the former director.[221] And beyond this, it reveals that the publicisation programme of Jourdan was perhaps oriented beyond traditional publishing.

The publicisation of Jourdan's work was inscribed in other strategies and an interesting token of his work is the series of drawings, plates and casts which were circulated during and after his directorship. Because they were less susceptible to being heavily damaged by transport, moulding the specimens was a common technique used to replicate them and enlarge the range of their communicability. The casting activity at the museum of Lyon was particularly intense in the 1850s and the early 1860s, before the catalogue of exchanged casts is suddenly interrupted in 1866. The list of correspondents with whom Lyon traded casts made in Lyon for other specimens, casts or originals, illuminates the types and hierarchies of exchanges. The dozen pages show exchanges with other museum institutions or collections, which always name a person as intermediary: they can be a *Conseiller Général*, a professor, a museum keeper and so on, but all stood as warrants for the exchange.[222] The drawing and casting of fossils required financial support and time, especially for the preparator to create the ordered casts. A preparator specialised in plaster casts was hired on a continuous basis in the 1850s and 1860s and a thorough catalogue of plaster casts and where they were sent to was kept.[223] Sometimes the loan period became irritatingly long for the lending institution and led to soaring tensions between institutions and egos.[224] In the conflict

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[220] Original text: "M. Jourdan a consacré à la représentation des caractères ostéologiques de ces Reptiles neuf planches très-bien faites dont il existe des épreuves dans le cabinet de Géologie de la Faculté des Sciences, à la Sorbonne; mais il n'a pas publié ses descriptions, et les planches dont je parle sont même restées inédites. On ne connaît encore les Reptiles découverts à Cirin que par la liste énumérative des figures exécutées sous les yeux de M. Jourdan, liste qui a été donnée, par M. Hébert, dans la Revue des Sociétés savantes, et par la description de deux de ces espèces (le *Sapheosaurus Thiollieri* et *Atoposaurus Jourdani*) publiée antérieurement par M. H. de Meyer dans le second Mémoire de M. Thiollière, sur les Poissons de Cirin.
Des modèles en plâtre de plusieurs de ces fossiles ont été exécutés par les soins de M. Jourdan, et offerts récemment à différents Musées. J'en ai reçu plusieurs qui vont être placés dans la galerie consacrée aux ossements fossiles, où l'on pourra les comparer à ceux des espèces allemandes que je m'étais procurés en 1869.": Gervais, 'Remarques au sujet des Reptiles provenant des calcaires lithographiques de Cirin'.

[221] I am grateful to Cédric Audibert for his very useful insights about the note of Paul Gervais.

[222] CCEC - CO-M, *Moulages*.

[223] Ibid.

[224] Jourdan was accused in 1858 by Nodot, director of the Natural History Museum in Dijon, of stealing fossil specimens from his museum because Jourdan had held the fossils on loan for over two years. See CCEC - DP-J, "Journal de Jourdan", Jourdan to Nodot, Director of the Natural History Museum of Dijon [copy to the Prefect of Rhône], 18 May 1858.

with M. Nodot in Dijon, Jourdan replied to the accusation of having stolen the loaned fossils by adding into the returning box a set of objects that, Jourdan reckoned, would be useful to their museum because they "had nothing similar in Dijon": a piqued Jourdan did not miss an occasion to boastingly emphasise the superiority of the Lyon collection. Beyond the anecdotal nature of the feud between the two men, this episode also sheds light on the verticality of exchanges, and how casts served as a way to go up the influential ladder. Exchanges were not always equivalent in value, and bartering with Escher von Lindt in Zurich or with Frère Indes in Rome required considerably more effort from Jourdan's museum than negotiating with Dijon.[225] Eventually, the exchange and circulation, between institutions, of fossils for casting or casted fossils led to the commodification of fossils, used for bartering in an economy of accumulation of objects but also of symbolic power for the museum institutions.

The plate allowed the transfer of the object onto paper, which in turn allowed its transfer beyond the museum's walls without moving from their shelves. The technique of lithographic reproduction, a method Jourdan particularly trusted, was heavily used in the preparation rooms of the Lyon museum. From 1861 onwards, Jourdan had even unlocked an extra 2,400 francs on top of the 1,200 francs already allocated for the geological study of the Rhone. In just a few years, engravers worked on the figuration of hundreds of specimens kept in the geological collection of the Lyon museum. In spite of the loss of the volume, weight, smell, texture, the result represented the very object from the shelves, with its characteristics and the specificities of its place and date of collection. The detail of the engraving also suggested the asperities and details relevant to the study of palaeontologists. This made the plate a convenient way of making the object portable over more or less long distances and storable without resorting to major refurbishment.[226]

[225] Those two intermediaries received the largest group of plaster casts. CCEC – JE, "Journal d'entrées" [note inserted between p. 205 and 206] *Note des objets vendus à M. le Docteur Jourdan, Directeur du Museum de Lyon*, by Frère Indes, 10 December 1866; DP-J, "Journal de Jourdan", p. 125-126, "À M. le Frère Indes à Rome. Annonce de l'envoi d'une caisse de fossiles et de moulages en échange"; ETHZ - Hs 4:715, Claude Jourdan to Arnold Escher von Der Linth, 2 January 1859. https://doi.org/10.7891/e-manuscripta-7230.
[226] Rudwick, 'Georges Cuvier's Paper Museum of Fossil Bones'.

Figure 68 - Proof of plate annotated by Jourdan. CCEC

Figure 69 - Proof of plate identical to fig. 68 and sent to the prefect, undated. ADR

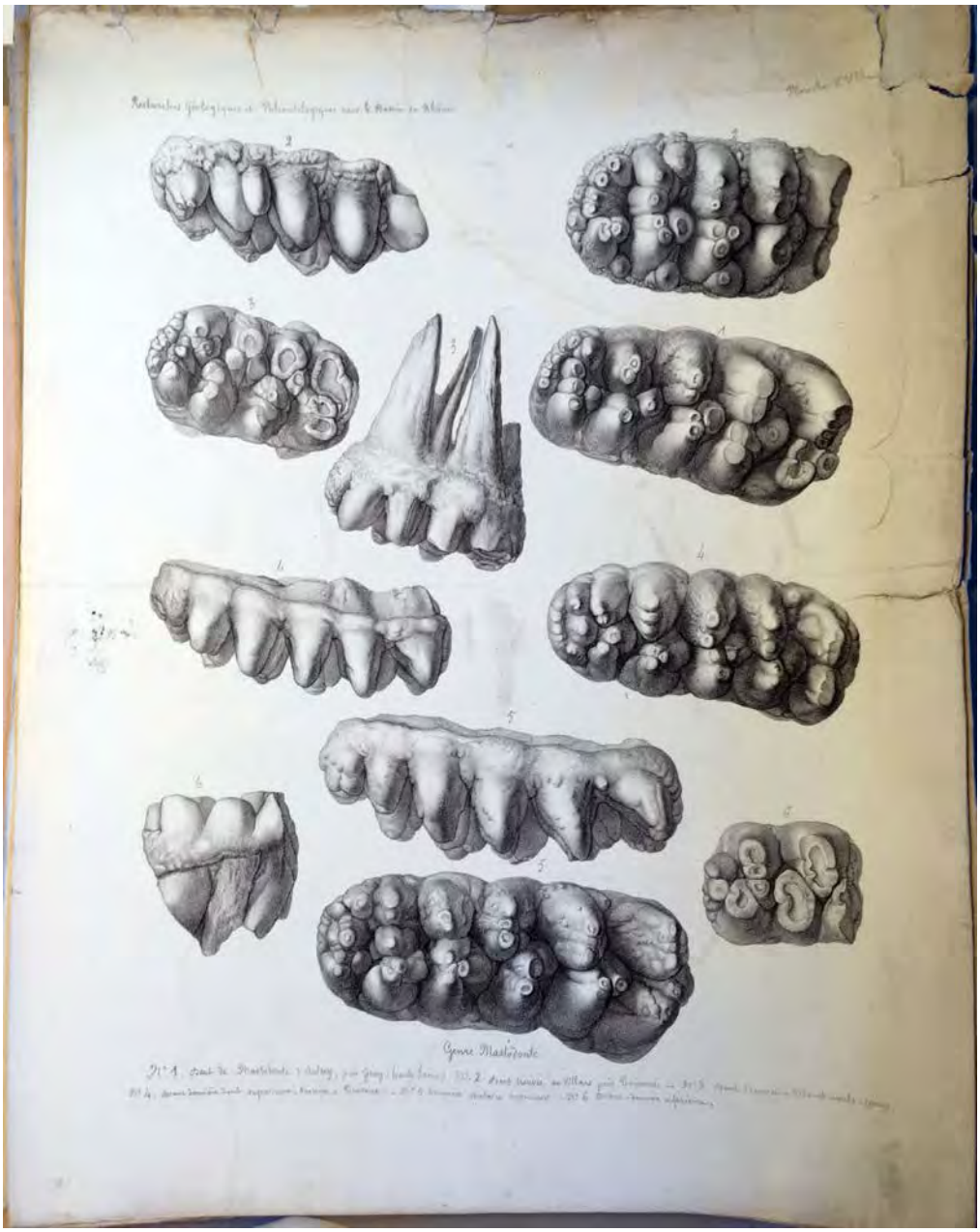

Figure 70 - Proof of plate sent to the prefect, undated. ADR

The result of these figurations and their circulations was attested in different instances. Jourdan complemented the textual form of his reports to the prefect with prints of the plates, possibly even draft prints (Figure 68). Not that the prefect of Rhône was a specialist of the matter, but it was an interesting manner to communicate efficiently on the effective use of the public funds allocated for the research (Figure 69 and Figure 70).

In the scholarly world, the plates were precisely used to circulate a sample of the museum collections associated with a given study. An offprint of Jourdan's paper presented at the Société d'Agriculture illustrates how the plate was used to support the scientific discourse and provided evidence for the argumentation of the director. In comparison, Cailliaud used similar methods for his malacological studies presented at the Société Académique (Figure 65).[227] The circulation of the plates outside of Lyon was more discreet, and from Paul Gervais's note cited above, we understand that it was limited to a more select circle of people, like the professors of the Faculty of Sciences at the Sorbonne. Those plates were hypothetically joined by an important set of casts that were given to the Faculty in 1861.[228]

Was Jourdan a failing savant because he failed to be an author, to finalise his findings in monographs, and prevented them from going public? Making such a statement is problematic because Jourdan never clarified his intentions. Manifestly, he did not come to terms with publishing projects. Other than monographs, and for reasons left unexplained, his expensive and important programme of cartography of the geology of the Rhone, of a geological map of Lyon and another of Rome never went to press.[229] Dozens lithographic stones engraved with tiles of the map and commissionned by the museum director have been lost ever since. The plates produced by Jourdan, and the description of specimens which he had discovered were eventually published and described later by Lortet. His effort in the elaboration of a

[227] Cailliaud, 'Procédé employé par les pholades dans leur perforation - supplément du 20 août 1855', 342–52.
[228] A list of 30 pieces is attested for 1861: CCEC - CO-M, "Moulages", Catalogue des moulages des restes fossiles de Proboscidiens du Bassin du Rhône, offerts à Son Excellence le Ministre de l'Instruction publique par le Muséum de la Ville de Lyon, pour la Faculté des Sciences de Paris, 21 November 1861.
[229] The years of Jourdan's directorship saw many orders for the engraving of numerous sections of both maps: CCEC - JE, "Journal d'entrées". Two departmental maps of the Rhône were published in 1849 and 1865. Jourdan was not directly involved. Arnould Locard and Albert Falsan, *Carte géologique du Mont-d'Or lyonnais et de ses dépendances*, 1:20000 (Lyon: Lithographie G. Marmoral, 1865), Bibliothèque patrimoniale numérique de l'École nationale supérieure des mines de Paris (Mines ParisTech), https://patrimoine.mines-paristech.fr/document/G%C3%A9ol_Rh%C3%B4ne_1865_Mont-d-Or_carte; Albert Falsan and Théodore Ebray, *Carte géologique du département du Rhône*, 1849, 1/40000, SGF. See also Pierre Savaton, 'Les cartes avant les cartes. Les cartes géologiques départementales: la première cartographie détaillée de la France', *Travaux du Comité d'histoire de la géologie* 3, no. XVII (2003), http://annales.org/archives/cofrhigeo/cartes-detaillees.html. Falsan assuredly used the material present at the museum to support his own work: Albert Falsan, *L'histoire géologique des environs de Lyon étudiée dans les galeries du Museum d'histoire naturelle du palais Saint-Pierre à Lyon* (Lyon: Pitrat, 1874).

collection of objects of knowledge crossed the museum wall but also generations of naturalists.

Jourdan, nevertheless, never tried to make invisible his contribution to knowledge production. His strategy resided instead in the development of interpersonal relations, notably by exchanging insights about certain identification problems with Geoffroy Saint-Hilaire, and by frequently sending notes to the committee of the Académie des Sciences in Paris to be reported by the *commissaires*.[230] His name was frequently cited in the discussions at the Académie, whether for his notes, or because he had either been questioned about some matter, because someone used his communications at the Société d'Agriculture de Lyon or simply because they remembered a conversation on the occasion of some gathering. Jourdan's authoritative presence was essentially constructed around savant sociability.

Perhaps he did not fail, but his reputation as a savant failed.[231] His scientific career was hinged on his work at the museum and his authority lay in the specific knowledge of the geology and fossils of the valley of the Rhone and in fashioning a collection which encapsulated the operations he conducted, comprising all associated workers and suppliers, the elaboration of knowledge about a specific area, and his own scientific authority. Jourdan's authorship and authority, as savant and museum director, derived from elaborating a programme which articulated knowledge of the local with a collection. Perhaps it was the management of that collection which impaired his promotion. Jourdan, who had been a councillor on matters of public health, who had been a prime figure of the Committee for Silk (*Commission des Soies*), who quit his position to run for politics, was conceivably more interested in being a public figure than a savant.[232] His strategy as a collector, by all means, is extremely useful to question models of scientific figures and collectors.

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[230] MNHN - Ms3383/48, it. 1, Jourdan to Geoffroy Saint-Hilaire, [1835]; ibid., it. 2, Jourdan to Geoffroy Saint-Hilaire, s.d.; ibid., it. 3, Jourdan to Geoffroy Saint-Hilaire, [1838?]. On the system of notes sent to the Académie des Sciences, see Fages, *Savantes nébuleuses*, 74.

[231] Corsi, *Fossils and Reputations*.

[232] Lacour, 'Claude Jourdan', 349. Jourdan was a member of the Commission des Soies at least in 1869 and was involved with it before. He conducted trials with silk farming with the Société d'Agriculture: ADR - 7M42. See also F. E. Guérin-Méneville, 'Résumé des études séricicoles faites en 1851, avec le concours de M. Eugène Robert, à la Magnanerie expérimentale de Sainte-Tulle, travaux ayant principalement pour objet l'amélioration des races, le perfectionnement des méthodes d'éducation, l'étude des maladies et la recherche de procédés propres à préserver les vers à soie de l'invasion de ces maladies à l'état d'épidémies', *Comptes rendus hebdomadaires des séances de l'Académie des sciences* 34 (January 1852): 245; Joseph Decaisne, Eugène Péligot, and Armand de Quatrefages, 'Maladie des vers à soie. Rapport fait au nom de la Sous-Commission chargée par l'Académie d'étudier la maladie des vers à soie dans le midi de la France', *Comptes rendus hebdomadaires des séances de l'Académie des sciences* 48 (January 1859): 553; Louis Pasteur, 'Note sur la confection de la graine de vers à soie et sur le grainage indigène à l'occasion d'un Rapport de la Commission des soies de Lyon', *Comptes rendus hebdomadaires des séances de l'Académie des sciences* 69 (July 1869): 744–48.

c. Of colour pencils and legends: the museum in a map

In Nantes, a long-term publishing project, the mapping of the mineralogy of the *Département* of Loire-Inférieure, occupied at least two generations of museum directors, and took the form of two maps released respectively in 1832 by Dubuisson and 1861 by Cailliaud - the latter issue was complemented with a booklet attached to the map with a textual comment.[233]

Surveying the department for mineralogical resources was part of the missions of the successive museum directors and the annual subsidy allocated to the museum dedicated 300 francs for mineralogical research, which comprised the field trips and transportation of the minerals collected back to Nantes. This part of the work, operated on the field directly, can be interestingly documented from hints of on-field movement and interactions in the introductory texts of Dubuisson's catalogue, which was published:

> "A vast basin of limescale, at times earthy or at other times formed of debris of shattered and powdered shells extends over the whole of the southern part of the locality. It is found at La Morinière, a quarter mile south-east of the borough, this one is muddy and is covered with 8 to 10 feet of clay of various colours and of clay proper for pottery use, of sand and vegetal earth transformed into meadowland. At this point, the depth of the layer of limescale can vary between 6 inches and 4 feet […]."[234]

This short excerpt casts light on what was considered and observed on site. One can easily imagine Dubuisson's eyesight trying to grasp the general measure and morphology of the place as well as him digging into the ground to find out about the underground resources. The on-site work led to the production of a large series of paper slips and notes which were then combined in folders in view of the production of the map, as attested by Cailliaud's archive. They provide information about a day's organisation and the contacting of persons to hire for digging, exchanges with a man on vernacular knowledge about localities and production and so on. For both Dubuisson and Cailliaud, the production of the map required toing-and-froing from the museum to the field and back. Once at the museum, the directors were to organise

[233] François René André Dubuisson, *Carte géognostique du département de la Loire-Inférieure* (Nantes: Charpentier père et fils, 1832), http://gallica.bnf.fr/ark:/12148/btv1b8441786d; Frédéric Cailliaud, 'Carte géologique du département de la Loire-Inférieure', *Annales de la Société Académique de Nantes et de la Loire-Inférieure* 32 (1861): 263-76.

[234] Original text: "Un vaste bassin calcaire tantot terreux, tantot formé, comme le [falhun de Tours], de débris de coquilles brisées et pulverulente setend dans toute la partie méridionale de cette commune. on le trouve à la Morinière à un quart de lieue sud est du bourg, celui-ci est terreux et se couvre de huit à dix pieds d'argile de couleurs variées et d'argile propre à la poterie, de sable et de terre végétale convertie en prairie. dans cet endroit, la couche calcaire varie dans son épaisseur depuis six pouces jusqu'à quatre pieds. la même qualité de roche se trouve aux grandes chauderies situées à une demie lieue au sud ouest du bourg. (…)": MHNN - Dubuisson 1, *Catalogue de la collection minéralogique, géognostique et minéralurgique du département de la Loire-Inférieure appartenant à la mairie de Nantes recueillie et classée par F.R.A. Dubuisson, Professeur et Conservateur du Muséum d'histoire naturelle, vol. C, "Suite du 4e Arrondissement et cinquième arrondissement"* [ms], p. 121, entry n° 67, "Vieillevigne".

and sort the minerals in a proper classification, alongside organising the information of the map. Sitting at his desk in his office, Cailliaud would check bibliographical references, try out colourings for the map and key.

The two mineralogical maps bore the names of their respective conductors but entailed work from more than one person. The colouring of Dubuisson's map, for instance, benefitted from the intercession and contact lists of Charles Bertrand-Geslin in Paris, who supervised this part of the project. Cailliaud too paid tribute to the contribution of Dubuisson prior to him and whose texts and objects he also relied on.[235] The technical method used by Cailliaud to organise his future manuscript also translated an unbreakable relation between the field, the samples, and the future map: the minerals gathered on site were labelled directly there, before the transportation of the object and its preparation and storage in the museum. This label proof was thereafter inserted in the preparatory folder, which positioned the label and hence the object in a system of paper which was organised, like the description of the map, according to stratigraphic geology (Figure 71).[236]

The mineralogical map project resulted in the publication of two maps in a period of thirty years. The effort involved reflects both the insistence of authorities on having reliable information about the resources of the *département*, but also the embracing by the successive directors of a collection-based mapping project serving the interests of public utility.[237] The association of the map and the collection of objects should be placed in a tradition of statistical science, with the intention of generating a local place of reference on local knowledge based on the area of the *département*. The museum of Nantes was to be that centre, slowly crafted by Dubuisson and his pupil and successor, Cailliaud. Once printed on paper, the map could convey the contents of the collection in a summarised fashion. The museum remained the place of

[235] Cailliaud claimed several times for his legacy from Dubuisson: "C'est après quinze années consécutives d'excursions, pendant lesquelles nous avons suivi avec toute l'attention possible les diverses exploitations qui se sont succédées dans la Loire Inférieure, que nous avons dressé la carte géologique du Département; par nous conduite à fin cette année.[...] Notre prédécesseur, M. Dubuisson, à qui l'on est redevable de la création du Musée de Nantes, ainsi que des premières explorations minéralogiques du Département, avait déjà trouvé dans ces couches ardoisières de beaux fossiles des premiers êtres qui apparurent dans ce vieux monde.": MHNN, Cailliaud 8, *Carte géologique du Département de la Loire Inféireur par M. Cailliaud* [ms], [1861]. Cailliaud had also prepared a list of specimens from the Dubuisson collections to cite in his own work: MHNN - Cailliaud 8, "Recherches géologiques et conchyliologiques dans département de la Loire Inférieure. Notes et observations." [ms], n.d.

[236] Label of "Carcharodon megalodon" glued on notes: MHNN - cailliaud 8, "[Recherches géologiques et conchyliologiques dans le département de la Loire Inférieure]. Notes diverses et observation", unpaginated.

[237] The administrative incentive was not identified with certainty and would require further research: the Ministry of the Interior issued the authorisation but refused to fund the project; the municipality did, perhaps following financial support and authorisation from the prefecture. For a more general context of departmental mapping, see Laboulais, 'Aux origines de la carte géologique de France: retour sur les productions cartographiques du corps des Mines au cours du premier XIXe siècle'.

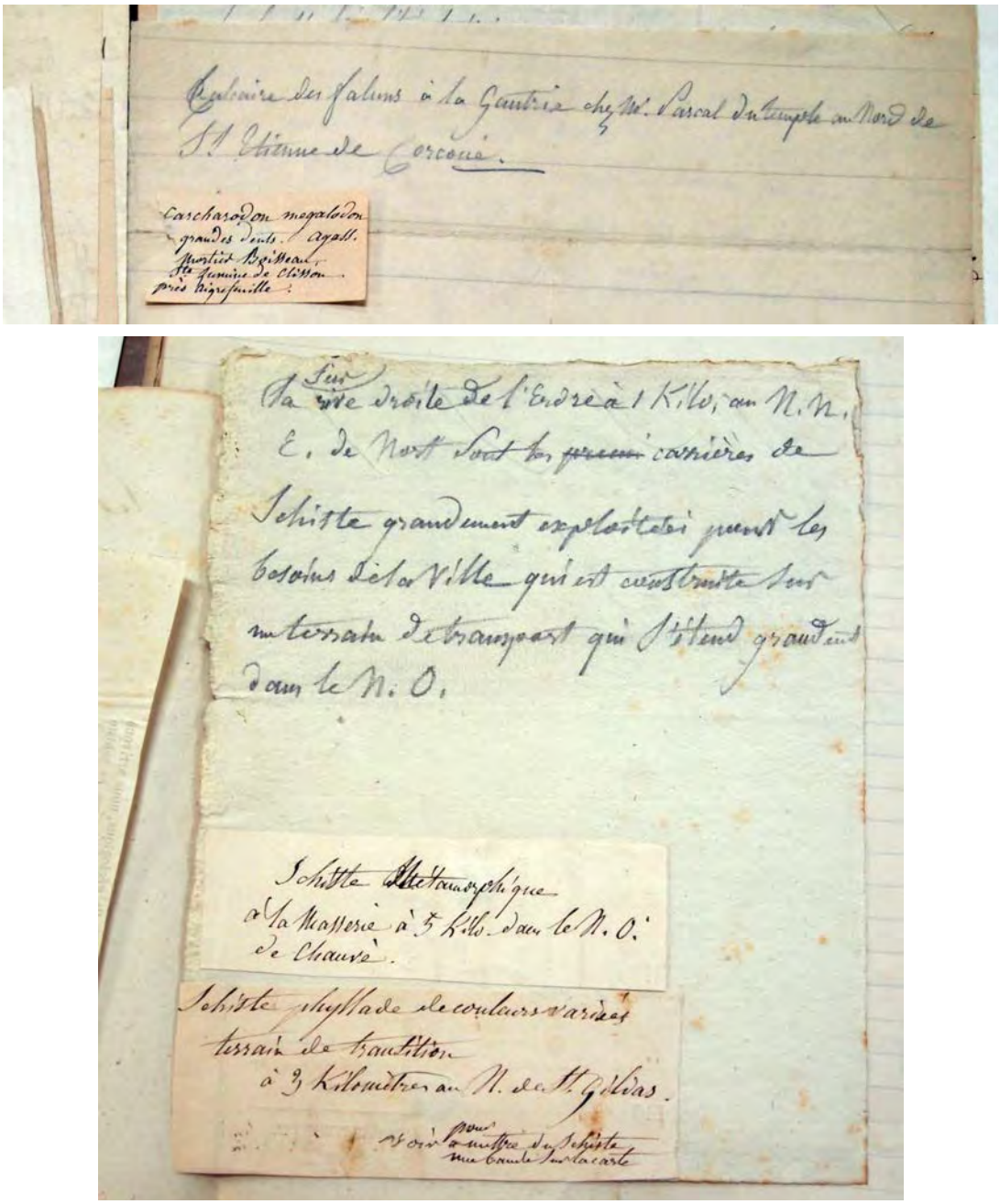

Figure 71 - Labels of specimens re-used in view of drawing the mineralogical map, [1862?]. MHNN

preservation of the raw data in the form of stones and minerals, which reasserted the authoritative role of the museum in the branch of a nature tailored specifically for the local museum.[238]

[238] MHNN - cailliaud 8, Carte géologique du Département de la Loire Inférieure par M. Cailliaud [ms], [1861], fo. 1.

Publishing was another way of working around the natural database contained in the museum and to work out the object-based authority of the museum. The polyvalent museum directors were also involved in publishing. The collections both served as material for publications and were one of the outcomes of pursued research, especially when it came to local collections. The museum collections were the material manifestation of the specialisation in local-area-based natural history, which was not only framed in the cabinets of the museum, but also across the pages of the publications and documentation produced and circulated.

CONCLUSIONS

Natural history could be practiced in many places. The museum was one of the centres of naturalist practice, with its particularity and worth being to store, sort and preserve collections and to serve as a walk-through and material database. The process of accessing the shelves of the museum collection never took the objects onto a smooth path and in a straight line. However tortuous the path, the objective was to locate the objects in the *right* place.

The effort of ordering and sorting entailed considerable work, which was operated by a myriad of actors involved in the manipulation of objects. The directors of museums stood in a presiding position over those operations and, in spite of the necessary collaborations and negotiations, gave their names to collections. The identification of collections under the umbrella name of the person who had directed the work brought an effect of continuity to bodies of material whose daily life was anything but perennial.

The analysis of the collection of specimens did not come as a second phase of publication and public discussion which would precede classification following a grid established in naturalist books. Rather, the gestures and discourses around natural specimens took place in parallel. Ordering natural objects required adapting the material into theoretical frames of taxonomy and possibly bending its contours to allow for classification. The situation of the museum, the particular shape of local social and scientific interest, and everyday happenings led to the formation of collections which were given universal scientific sense by means of their inscription in local grounds.

Conclusion
The imagined, the celebrated and the shabby

On 31 December 1869, Claude Jourdan recorded his last entry, a set of proofs moulded by Gustini. And so his time as director of the Museum of Natural History of Lyon came to an end. A large and imposing signature preceded two thick lines in black ink crossing the *Journal d'entrées*.[1] The next page was Louis Lortet's, his successor. A few months before, Frédéric Cailliaud had passed away at his Nantes home of Rue des Arts, ironically just a few years before the inauguration of the new museum building he had strived his entire, forty-three-year-long career to wrest from irresolute municipal instances. To the South, Édouard Filhol rounded out the Toulouse collections in their new locale in the former convent of Carmes-Déchaussés, decades after they were first planned to be installed there. Baba the Elephant, even, found a place, until today at least.[2] The late 1860s marked a closing time for the museums of Lyon, Nantes and Toulouse. 1870 would open to a changed political order and the nature contained in museums would change hands and scope.

This has not been the history of a proto-museum which eventually came into final form after 1870. Rather, this has been the history of a particular moment in the longer history of natural history museums which helps to envision their fluidity, unfinished status and peculiarities in contrast with narratives of model institutions and perfection. I have sought to illuminate the work of individuals, the bad days and the successes, expert or burdensome gestures, uncertainties and mind-blowing visions of natural wonders. In a few words: the mundane life of science. The museums of natural

[1] CCEC - JE, "Journal d'entrées", p. 275, entry n° 434bis, 31 December 1869.
[2] On the emotional relationship to museum specimens, see Alberti, *The Afterlives of Animals*.

history presented in these pages are no longer. Most of their collection objects have disappeared, their makers passed away a long time ago and what is left of the museums is stacked in archival boxes or in haphazard piles, in a safe in a special room at the second floor of a research centre hidden behind tall iron fences in the centre of a metropolis. What is left of them in addition is their memory, which this study has tried to deconstruct.

The actuality of the museums of Lyon, Nantes and Toulouse took many forms, and the history of the construction of their geographical and social spaces has contributed to show how room was gained and maintained in the space of the city to accommodate the collections. Beyond the material, the museum as socio-spatial entity also made room for itself, through gestures of collecting, work, discourses thereabout and, in sum, the very idea of a museum.

As institutions, museums have evolved, and the use of a similar terminology should not obscure the necessity to historicise the word "museum" and what it used to designate. The historical investigation of museums from the first seventy years of the nineteenth century betrays paradoxically mixed approaches. On the one hand, the present-day thriving museal form organised by international organisations, such as ICOM, tend to make museums a permanent element of the modern cultural and intellectual landscape, quite unduly. Critical studies of museums have stressed the normative power of museums and their socio-political uses as instruments of mass control. Unpicking the pervasive image of the neutrality of museum space has been extremely beneficial. Nevertheless, this social perspective has sometimes failed to interrogate the social role of museums, as if their content and meaning had remained evenly equal across time. From a history of science point of view, on the other hand, the perspective on museums of the nineteenth century is marked by distance rather than atemporality. If earlier collections and displays are loaded with emotional attachment and olfactory memories of freshly wax-polished wooden floors, they are often considered as outdated places of knowledge. Just like Thuillier in Toulouse had judged Lapeyrouse's collection a bulky lot of undecipherable and dusty minerals in 1838, a mere twenty years after the death of the naturalist, old specimens and instruments can be challenging pieces for museum keepers. The scientific function of those bodies of material was substituted with a patrimonial meaning. Looking at the scientific production of museums in retrospect may cast light on the distance from them. It is that distance which needed to be crossed in order to highlight how the bricolage of the infra-ordinary merged with ambitious plans towards universal knowledge. But where universality was achieved through a local frame of reference.

Cultural capital

The "appropriation" of the idea of the museum was relative, especially because their creations could not be digested into a top-down process of central sowing and local blooms. In this matter, the history of museums is sometimes difficult to disentangle from the history of institutions as planned by revolutionary authorities. National narratives have often erased the local conditions of museum making. Museums, cabinets, collections and visiting them had been a diffused type of scientific sociability which had developed throughout the eighteenth century.[3] State-elaborated plans of museum openings certainly permitted official support for the creation of city museums, but their continued existence once the inauguration passed essentially relied on two things. The first was the extant offer of naturalist people and collections as a basis for the museum. The second aspect was the tenacity of the individuals involved in the establishment of a museum. As a matter of fact, if the perspective of museum opening could result in opportunities for some skilled naturalists from modest social origin, like Dubuisson, the process of the construction of natural history collections into city museums required quite a lot of effort to accept, comply with and work out the multiplying regulations and rulings which were only emitted centrally.

The individuals involved in the making of the museum were limited in numbers, to be fair. The initial projects of local museums were supported by grandiloquent discourses, but in fact were quite modest in their dimensions. The idea was essentially to bring material support to utilitarian plans of public instruction. This was the reason for the involvement of public authorities initially. In Nantes and Toulouse, two middle-sized cities at the beginning of the nineteenth century, there were only handfuls of naturalists. The public collection was however one of those collections which in their majority existed in private cabinets and homes. In Lyon for instance, the presence in the city of natural history collections well exceeded the walls of the Collège de la Trinité, one of the major natural collections of the eighteenth-century city.[4] The Monconys-Pestalozzi collection, later acquired by the municipality for the use of the academy, was one of them too and provides an indication of the density of those collections outside an institutional framework.[5] Sociabilities around collections did however structure urban scientific production in the late eighteenth century. Collectors of nature continued to grow and the multiplication of proposals of collections available for sale or as donations in Toulouse was an illustration of the nineteenth-century extension of the fabric of collections well outside of museums. But

[3] Spary, *Utopia's Garden French Natural History from Old Regime to Revolution*; Delbourgo, *Collecting the World*; Stéphane Van Damme, *Paris, capitale philosophique: de la Fronde à la Révolution* (Paris: O. Jacob, 2005).
[4] Van Damme, 'Sociabilité et culture urbaines'.
[5] Audibert, 'Le musée des Confluences, une histoire'.

also, it showed that the museum as a public, municipal institution increasingly became acknowledged as a purveyor of opportunities: of making a sale, of finding a professional position in relation to the collection, and also of public recognition. Throughout the period, the natural history museum, extant as in Lyon and Nantes and projected in Toulouse, provided substantial material to think of the institution as an anchor point for natural knowledge in the city as well as the point of crystallisation of civic pride.

Political capital

The central command of the museum administration changed over time, and locally, the administrative uses around collections of natural history adapted. A public institution, the museum was inserted into the greater scheme of territorial organisation. The changed ways of authority were meant to be fitted within an even more centralised state with homogenised bureaucracy. The place of the museum in the institutional landscape was rendered more difficult by the process of authority-building around the two local figures of power, namely the prefect and the mayor. Initially in charge of the order and police of the city, the mayor also became a primary representative of the city, however tightly tied his hands could be. Among the extension of the prerogatives and fields of expertise of the municipality, the mayor also became responsible for the museum. This responsibility came with signing many documents, but less superficially it also required personal intervention together with the organisation of systems of knowledge production applied to decision-making.

Instruments of communication were therefore elaborated to facilitate administrative relations. Paper devices, correspondence, minutes, reports and so on served as shuttles between city hall and museum offices, which were often just across the street. The geographical proximity of the *Mairie* and the museum signalled the strong link between the two municipal services. However, the relationship was not horizontal, and the museum found itself in positions where it constantly needed to negotiate its means of subsistence. This involved playing with the line of demarcation between those administrative spaces. On the part of the directors of museums, it consisted of efforts to translate the museum's scientific activity. The case of Lyon and the negotiation of travel funding for explorations and collecting in the Rhone Valley was very telling of Jourdan's rhetorical strategies to overcome clashes of administrative and scientific categories: if the Rhone was a clearly delineated *département* for the authorities, the geological territory of the river basin exceeded the narrow departmental space. His descriptions of prehistoric geographies and landscapes, where Lyon was bordered by a sea which then retreated south, sought to make the reality of the deep past intelligible and to advocate for what he needed, that is funding to travel

further away than the departmental boundaries. Efforts of pedagogy were efficient until 1868, until funding was limited to the exploration of the *département*'s nature.

Jourdan's reports to the prefecture help to understand how discourses on nature contributed to the building of a deep and near-mythological past for the city. In doing so Jourdan played with the essentialisation of the position of the city in its location: Lyon had been there, perhaps just in spirit, in times of mastodonts. Another essentialised aspect was the role of capital of a given natural territory. Whether Lyon over the Rhone valley, or Toulouse with the Pyrenees and the "Midi", these were the capital cities who could claim to govern and administer those natural spaces over which, they claimed, they had a natural right. The interests of museum directors did not only result from fashion. They were also prompted by times in which interest for the underground encouraged the territorialisation of natural and geological enquiries. As a result, natural collections and natural knowledge were turned into political capital.

Threatened capital

For forty years at least, Dubuisson and Cailliaud battled against humidity and a decomposing building. The palatial facade of the present-day museum was inaugurated in 1875. Before that date, the museum of Nantes had been slotted into a space left vacant during the French Revolution, the former School of Surgeons. Working out a collection in a building which had not been forethought for becoming a place of exhibit was one lesser issue in comparison with the problems brought by the proximity of water from the river. If the museum was a place of administration of nature from beyond the city, it was also confronted with the management of the natural and physical environment inside of the city, which affected its building and collections and seriously questioned the function of protective container that the museum was imagined to be.

The deepness of urban space the museum was to be fitted in was also social. It appears very clearly in the way the project of a new museum was in fact negotiated on the terrain of sociabilities rather than on the terrain of science. Whether the collection of birds and insects needed to be replaced entirely had little impact on the municipal capacity to validate the transfer to a new locale. That the building posed actual problems of security hardly more. But once the museum, towards the 1850s, had become associated with a bourgeois neighbourhood and inserted in urban society, then the response of the municipality evolved, and a new building was planned. It took nearly another twenty years for the project to come to reality.

Field capital

The trajectories of the three museums were very much conditioned by their inscription in the local. The analysis of the interplay between the museum, the local authorities and the urban social landscape illuminate the way urban space was produced. Conversely, museum-led activities such as field work also contributed to place making and added new scales and patterns to the map of the city, towards the outside. Turning our attention to collecting work took us on the travelling footsteps of museum directors. Sometimes intrepid heroes who dared mountain summits or braved tempests in lighthouses. Sometimes wheeling and dealing on quarry sites to acquire minerals or fossils at minimum cost. Sometimes with hands dirty from shovelling the soil looking for specimen bones. By all means, the work of the museum directors also happened outside of the museum. External operations took Jourdan, for instance, to places which differed in type based on distance and therefore regularity of visit. Those sites were identified as useful for the necessary feeding of the museum beast, which requested accumulation. But they were also closely chosen in accordance with Jourdan's knowledge of their function in the scientific landscape. Some places were practically useful, others were symbolically useful to have been to. Embodied in the very director, the museum was taken outside and this generated geographies of influence and authority at various scales. Those various sites, but above all, the many people who were involved in the travelling and the collecting were thereafter removed, once inserted in the natural narratives displayed at the museum. Those conveyed a local natural landscape which had been carefully knitted together by a myriad gestures, conducted by the leading figure of the director.

Local capital

Increasingly, the museums of natural history became centres for the organisation of naturalist research. Campaigns of geological surveys, for instance, led to the concentration of mineral specimens and samples at the museum, where they served as accessible data. The museum display, more than other media such as maps or descriptions, was to offer a vision of the departmental mineralogy, *at a glance* ("*coup d'œil*"). Studying the geology of the *département* was mainly visual and the museum served as a walk-in material database where local industrious minds could be prompted through bedazzling displays of local nature.

The puzzlement with or the disregard for what was "non-indigenous" is sometimes troubling, but such was a characteristic of municipal collections. It was not a matter of accessibility to collected material from faraway explorations and voyages: in both Nantes and Lyon, the urban society was well-connected to travellers and the

like. Conchology and ichthyology in Nantes, or ornithology in Lyon were the only, at least partially, exotic collections, however small an investment they represented. They betrayed some fondness for the mixed aesthetic and scientific pleasure of the detail of nature.[6] But according to Cailliaud, the intrepid explorer of Lower Egypt in his youth, the natural riches of the local were too often neglected while they were just as spectacular. In the case of Jourdan, a growing attention to objects originating from Lyon was manifest. His scientific interest had moved from general zoology and readings of Cuvier to palaeontology and inspecting each and every crack of La Croix-Rousse in search of bones. His area of study was brought to narrow down, and more and more Lyon became his centre of attention. The decision of the departmental council to restrict the credits to the study of Lyon was perhaps not the result of sheer stinginess. In the meantime, collectors of historical and archaeological material became specialized in productions of Lyon exclusively.[7] The focus on the *département* and on Lyon therefore coincided with the narrowing of Lyonnais cultures of collecting to the essentialisation and materialisation of the "Lyonnais spirit".[8] The localist adaptation brought to methods of classification should therefore not be interpreted as ignorance of contemporary theoretical developments, which provincial scientists were very knowledgeable about. Their interest simply lay elsewhere, namely in fitting the universal into the scale of *their* local nature and in the universality of their own model.

The municipal natural history museum produced local norms of scientific work which did not neglect nor disregard universal scales of scientific knowledge. Museum directors had great plans for their museums. Their ambition was measurable through the relentless work they put into the making and the maintaining of the museums and the museum collections.

By means of the accumulation of objects, the local natural history museums were stupendous containers of a layered memory of natural collecting. The museum is where the separate collecting efforts came together in material form: specimens, letters, plates, casts, and also bills of purchase, memories of field experience. A geographical object of intermingled scales and patches, the natural history museum was also made of variegated temporalities which piled up, stopped and reappeared through those bodies of objects. Palaeontological plates designed by Jourdan displayed disappeared objects: pieces of the Monconys collection neighbour those from the Thiollière collection, next to Jourdan's latest find (Figure 72). The plates, at the same

[6] Bertrand, *Le détail du monde*.
[7] Saunier, *L'esprit lyonnais XIXe-XXe siècles: genèse d'une représentation sociale*.
[8] Ibid.

time, encapsulated the many places and moments in which the objects were found, through locational and date indications. Perhaps in Jourdan's times, they would have brought back memories of field experience, successful or failed or perhaps amusing.

The nineteenth-century placing of the museum of natural history led to an object inflow and an urban concentration of natural objects. The appropriation of local space materialised in museum cabinets became a miniature local environment in wooden and glass frames. There were hierarchies, strategies, inclinations for greatness. There was also a taste for this local natural world that was unfolded like a panorama on the shelves of the museums of Lyon, Nantes and Toulouse, whether covered with silk or mould and however imagined, celebrated or shabby.[9]

[9] Jean-Marc Besse, *Face au monde: atlas, jardins, géoramas* (Paris: Desclée de Brouwer, 2003); Besse, *Le goût du monde*.

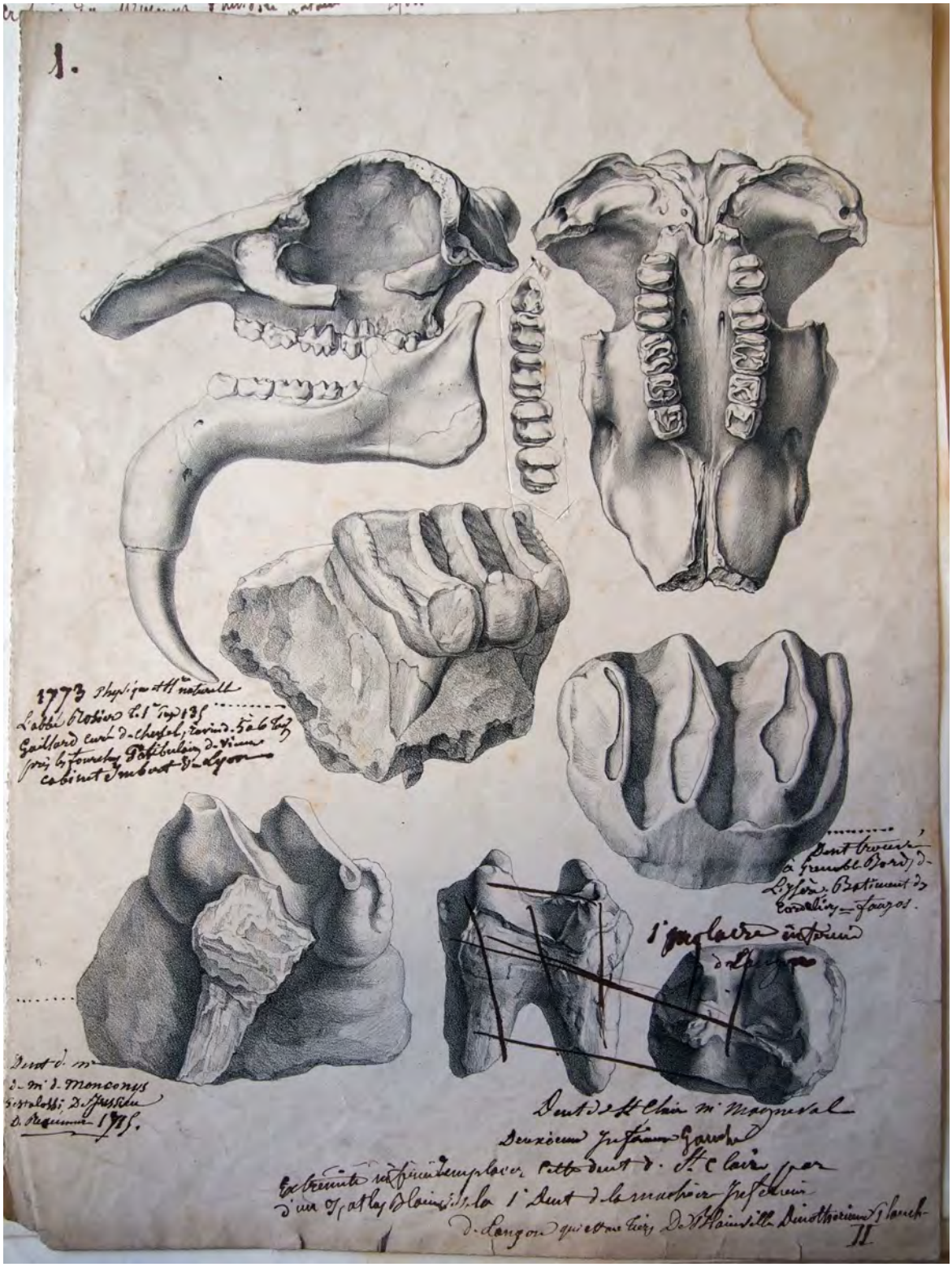

Figure 72 - Proof of plate annotated by Jourdan with engravings of specimens formerly in the collections of Monconys-Pestalozzi, Magneval, Abbé Rosier and one more recent piece collected by Jourdan. CCEC

Appendices

Appendix A: General chronology of the three museums

	LYON	NANTES	TOULOUSE
1790	**1794** Botanical Garden at La Déserte and creation of the école centrale's Botany class.		**1795** Opening of the 'Musée' ca. 1795 Philippe Picot de Lapeyrouse transfers the Botanical Garden in the field adjacent to the Carmelites.
1800	**1802** Project and establishment of the Conservatoire des Arts, in Palais Saint-Pierre. The Natural History Cabinet is transfered to La Déserte by Gilibert. Gilibert is the director of the Cabinet of Natural History and the Botanical Garden	**1802** Aquisition of the Buron collection. **1806** The Cabinet of Natural History passes under direct municipal authority. Dubuisson appointed museum director.	**1800** Philippe Picot de Lapeyrouse pleads for an école spéciale equipped with a natural history collection
1810	**1812** Dejean appointed as Garden director. Gilibert keeps Cabinet of Natural History **1814** Death of Gilibert **1816** Mouton-Fontenille appointed director of the Cabinet of Natural History and the Botanical Garden **1819** Mouton-Fontenille moves Cabinet of Natural History back to Palais Saint-Pierre Balbis appointed director of Botanical Garden		**1818** Death of Philippe Picot de Lapeyrouse
1820	**1827** Acquisition of the Mouton-Fontenille collection	**1822** Noisette appointed director of the Jardin des Plantes **1826** Acquisition of Dubuisson's collection	**1824** Acquisition of the mineralogical collection of Lapeyrouse for the Faculty of Science

	LYON	NANTES	TOULOUSE
1830	**1830** Balbis resigns due to old age. Temporary replacement by Latil. Seringe appointed with support of local community of naturalists. Mouton-Fontenille is replaced by Rey (interim). **1832** Death of Clerjon. Jourdan appointed director, with support of Prunelle (Maire) **1837** Grand opening of the new Zoology Gallery at the Museum.	**1831** Creation of a supervising committee for the museum **1836** Death of Dubuisson Cailliaud appointed director of the museum Ecorchard appointed director of the Jardin des Plantes	**1834** Death of Isidore Picot de Lapeyrouse Moquin-Tandon appointed director of the Jardin des Plantes **1836** Abandoned project of a Natural History Museum.
1840	**1841** Congrès Scientifique de France hosted in Lyon	**1844** Bequest of the Pesnau collection to the municipality	**1841** First donation of Rocquemaurel.
1850	**1858** Death of Seringe Botanical Garden transferred to Parc de la Tête-d'Or, under Préfet Vaïsse's influence.		**1854** Second donation of Rocquemaurel
1860	**1869** Resignation of Jourdan.	**1863** Bequest of the Bertrand-Geslin collection **1865** Project of new museum at Place de la Monnaie take off **1869** Death of Cailliaud	**1865** Opening of the Natural History Museum of Toulouse, on the site of the former Carmelite convent. Édouard Filhol, the director of the School of Medicine is appointed to organise the museum.
1870	Louis Lortet appointed director.		

Appendix B: Location of main sites of Lyon

On the 1801 map:

A - Benedictine abbey of Saint-Pierre

B - Benedictine convent of La Déserte

C - Jesuits' Collège de la Trinité

On the 1844 map:

D - Palais Saint-Pierre

E - Jardin des Plantes

F - City Hall

G - Prefecture

H - Place Bellecour

On the 1856-1870 map:

I - Palais Saint-Pierre

J - City Hall & Prefecture

K - Parc de la Tête d'Or

L - Railway station of Vaise (trains to Paris)

M - Railway station of Perrache (trains to Paris or Saint-Étienne)

O - Railway station to Marseille

Figure 73 - Plan géométral de la ville de Lyon, assujetti aux nouveaux alignements, augmenté des quartiers neufs et enrichi des bâtiments principaux (extract), 1801. BNF

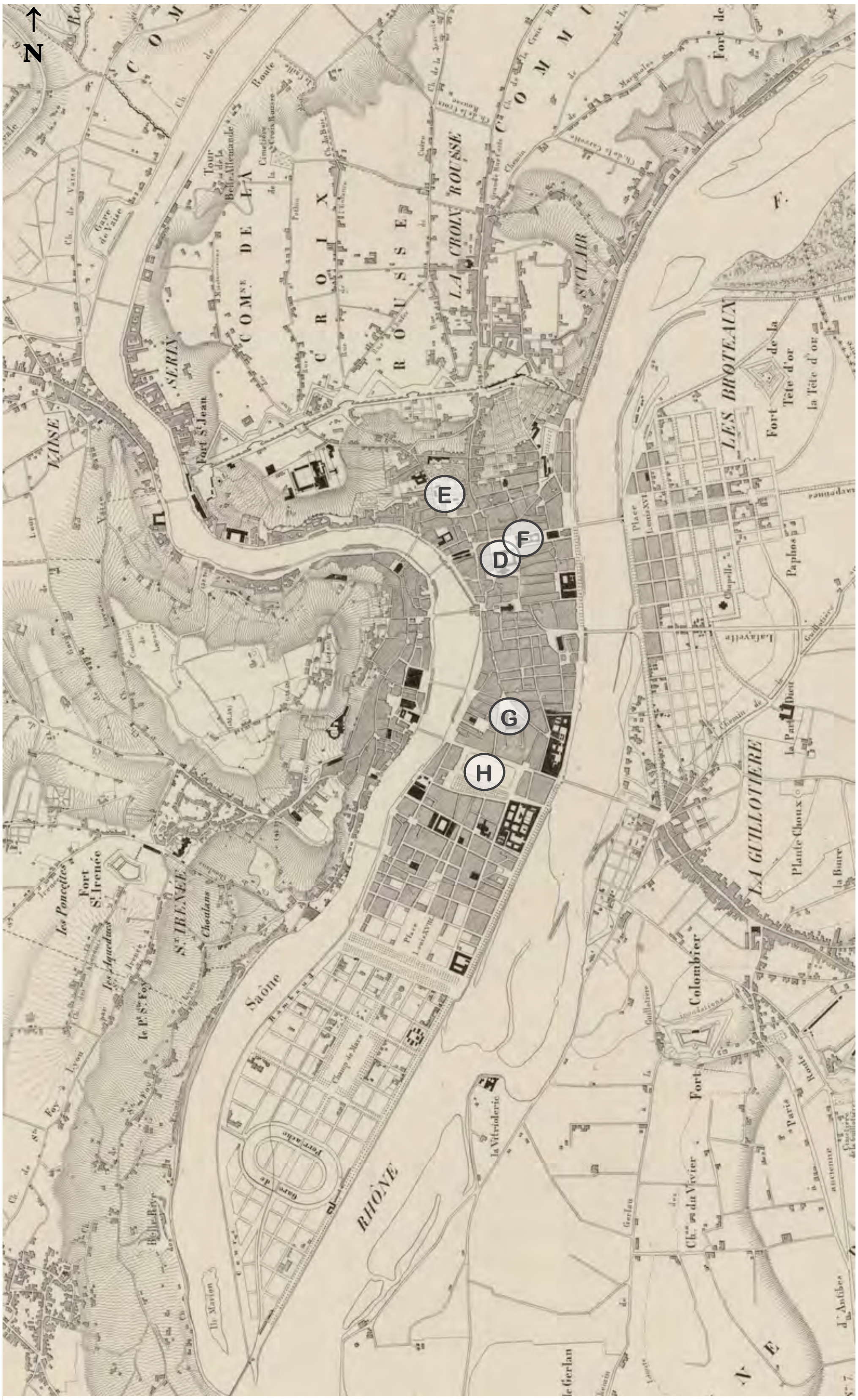

Figure 74 - Plan de Lyon, de ses environs et des forts (extract), by Le Dignoscyo, 1844. BNF

Figure 75 - Plan de Lyon, 1856-1870. BNF

Appendix C: Location of main sites of Nantes

On the 1825 map:

A - Museum of Natural History (Rue Saint-Léonard)

B - City Hall (Hôtel de Ville)

C - Prefecture

D - Jardin des Plantes

E - Place Graslin

F - Cours Henri-IV

G - Quai de la Fosse; port area

On the 1871 map:

H - Museum of Natural History; Place de la Monnaie

I - City Hall

J - Prefecture

K - Railway station

L - Jardin des Plantes

M - Place Graslin

N - Quai de la Fosse; port area

Figure 76 - Plan de Nantes, by Sébire, 1825. Bibliothèque Nationale de France.

Figure 77 - Plan de Nantes, by Jouanne, 1871. BNF

Appendix D: Location of main sites of Toulouse

On the 1815 map:

A - Former convent of the Scalced Carmelites

B - Jardin des Plantes

C - Le Capitole: City Hall

D - Académies des Sciences, Inscriptions et Belles-Lettres; Académie des Jeux-Floraux

E - Prefecture

F - Musée; École Spéciale des Arts

G - School of Médecine

H - Faculty of Science; former École Spéciale des Sciences

I - Observatory of Rue des Fleurs

On the ca. 1868 map:

J - Museum of Natural History

K - Jardin des Plantes

L - School of Medicine

M - Observatory of Jolimont

N - Veterinary School

O - Musée

P - Le Capitole; City Hall

Q - Prefecture

R - Railway station

Figure 78 - Plan de la ville et faubourgs de Toulouse (extract), by Vitry, 1815. AMT

Figure 79 - Plan de la Ville de Toulouse, ca.1868. AMT

Appendix E: Chronology of Mayors of Lyon, Nantes & Toulouse

	Lyon	Nantes	Toulouse
1795			Pierre Roussilou Souchon
1796	Nord: Jean-François Bossu Pierre Maute ville Ouest: Berthelet		
1797		Danyel de Kervegan Julien-François Douillard	
1798		Louis-Marie Saget	Jacques Vaisse
1799			Paul Vaisse [Jacques Vaisse]
1800	Nord: Jean-Marie Parent Sud: André-Paul Sain-Rousset, baron de Vauxonne Ouest: André Bernard de Charpieux	François Felloneau	Philippe-Isidore Picot de Lapeyrouse [Raymond de Lanneluc 3 months]
1801		Claude-Sylvain Pâris	
1802			
1803		Augustin de Loynes	
1804			
1805	Nicolas-Marie-Jean-Claude Fay de Sathonay	Jean-Baptiste Bertrand-Geslin	
1806			Raymon de Bellegarde
1807			
1808			
1809			
1810			
1811			Joseph de Malaret
1812	André-Paul Sain-Rousset, baron de Vauxonne		
1813	André-Suzanne d'Albon	François-Marie Bonaventure du Fou	[Raymond de Lanneluc]
1814	Jean-Joseph Méallet		Louis d'Escoulouobre [Raymond de Lanneluc (1 day)] Joseph de Malaret
1815	Antoine-Gabriel Jars	Jean-Baptiste Bertrand-Geslin Maurice Étiennez	Joseph de Villèle Jacques Demouis Marie-Nicolas Ferradou Raymon Lanneluc
1816	Jean-Joseph Méallet	Louis Rousseau de Saint-Aignan	Joseph de Villèle Paul Thoron
1817			Bruno Dubourg
1818	Pierre-Thomas Rambaud		Guillaume de Bellegarde
1819		Louis-Hyacinthe Levesque	
1820			
1821			
1822			
1823			Joseph d'Argenvilliers
1824			
1825			
1826	Jean de Lacroix-Laval		Guillaume de Montbel
1827			
1828			Jean Gounon
1829			Athanase Rességuier

1830	Victor Prunelle	Maurice Étiennez Philippe-René Soubzmain	Joseph Viguerie
1831			
1832		Ferdinand Favre	
1833			Joseph Arnoux Théodore Rolland
1834			
1835	Christophe Martin		Jacques Vilhes
1836			Joseph Arnoux
1837			
1838			
1839			Armand Perpessac
1840	Jean-François Terme		
1841			Benoît Arzac Louis Lejeune Pierre Bories
1842			Noël Fornier
1843			Noël Fornier François Sans
1844			
1845			Jean Cabanis
1846			
1847			Jacques Vilhes Auguste Lignières
1848	Démophile Laforest Édouard Réveil	Évariste Colombel	Nicolas Joly Adolphe-Félix Gatien-Arnoult Rey Benoit d'Arzac Pierre Roquelaine
1849			Théodore Rolland Alexandre Fourtanier François Sans
1850			
1851			
1852	Creation of the Lyon agglomeration - Prefect operated as maire Claude-Marius Vaïsse [prefect]	Ferdinand Favre	Jean-Louis Cailhassou
1853			
1854			
1855			Antoine Policarpe
1856			
1857			
1858			Jean de Patras de Campaigno
1859			
1860			
1861			
1862			
1863			
1864	Henri Chevreau [prefect]		
1865			Jean Amilhau
1866		Antoine Dufour	
1867			Édouard Filhol
1868			
1869			
1870			

Appendix F: Donors of collections in Toulouse, 1819-1868

ID	Dates	Name of collector	Residence of collector	Social status	Posthumous	Nature of collection	Estimated value (in Francs)	Collection / Items	Purchase /Donation	Motives / Terms of exchange
id_coll_01	1819-1824	**Philippe Picot de Lapeyrouse**	Toulouse	Professor of Natural History; Naturalist; Baron	yes	Library; Mineralogy ; Botany		Collection	Purchase	Family in financial difficulty, wrote son Isidore (11 May 1819) Heir (grand-child Zéphyrin) wished to recover space in residence Equipment of Faculty of Science
id_coll_02	1833	**Capitaine Bellaire**	Ajaccio	Army Officer, retired		Conchology; Mineralogy		Collection	Purchase	Bellaire has retired.
id_coll_03	1835	**M. de Sainte-Vallière**				Ornithology		Items	Donation	
id_coll_04	1836	**Paul Gélibert**	Bagnères-de-Bigorre			Natural history	ca. 40,000	Collection	Donation	M. Gélibert wished to donate his collection and to keep the collection in a new museum in exchange for life-long position (wage and lodging)
id_coll_05	1836	**Dr Verdot**	Marseille	Physician		Ornithology, some zoology and Conchology	10,000	Collection	Purchase	Dr. Verdot, the owner, is called for a position in Egypt and cleared his property.
id_coll_06	1836	**Général Ravel**		Army officer		Ethnography		Collection	Purchase	Suggests the opening of an "Indian Museum" in Toulouse.
id_coll_07	1836	**Maureau**	Rochefort	Magistrate (Président du tribunal) Member of the Société de littérature, sciences et arts de Rochefort	yes	Conchology; Mineralogy	10,000	Collection	Purchase	Son-in-law and owner, M. Flamant, does not have the same "taste" as his former father-in-law.
id_coll_08	1836	**Léon Ducas**	Toulouse			Mineralogy		Items	Donation	Wishes to contribute to the new cabinet of natural history
id_coll_09	1836	**De Roume-Falgayrac**	Toulouse			Geology; Mineralogy		Collection	Purchase	Offers his collection for sale in the context of the new cabinet of natural history
id_coll_10	1837	**Capitaine Collard-Des Cherrets**	Lisieux	Army officer, retired Member of unspecified learned societies		Conchology		Collection		
id_coll_11	1837	**M. Barthélémy**	Marseille	Director of the Natural History Museum in Marseille		Conchology	3,000	Collection	Purchase	Proposal made because the collection is appropriately large and scholarly for a public institution
id_coll_12	1838	**Auguste Lefèvre**	Paris	Naturalist		Osteology,Mammals, Birds, Eggs in nests, Reptiles and Fish enameld		Collection; items	Purchase	Commercial Because the development of the natural sciences is immense
id_coll_13	1838	**M. Olive**	Verdun-en-Lauragais	Schoolteacher Municipal clerk		Conchology; Malacology		Collection	Purchase	Donation against position at municipal service. Ageing schoolteacher; precarious position ; no perspective of pension and a son.
id_coll_14	1839	**Gabriel-Délie Béguillet**	Toulouse	Administrative servant, retired Member of Académie des Sciences, Inscriptions et belles-lettres de Toulouse		Natural history		Collection	Purchase	Motives related to retirement
id_coll_15	1839	**Jeanbernat Aîné**	Toulouse	Merchant?		Natural history		Collection	Purchase	"Forced by circumstances"
id_coll_16	1842	**G. Terraillon**	Vienne, France		yes	Geology; Mineralogy	ca. 6,000	Collection	Purchase	Son, M. Terraillon wishes to sell his father's collection to serve the fruit of his work. Prefer to sell it "as bloc" rather than in fragments to various merchants.
id_coll_17	1841-1865	**Gaston de Rocquemaurel**	Toulouse	Navy Officer (Capitaine de Vaisseau)		Ethnography		Collection	Donation	"Exhibition to the eyes of the curious and the clever", "Enlightenment of the good population of Toulouse" AMT - 3D132 - x14_00003.JPG

ID	DATES	NAME OF COLLECTOR	RESIDENCE OF COLLECTOR	SOCIAL STATUS	POSTHUMOUS	NATURE OF COLLECTION	ESTIMATED VALUE (IN FRANCS)	COLLECTION / ITEMS	PURCHASE /DONATION	MOTIVES / TERMS OF EXCHANGE
id_coll_18	1845	**Édouard Lartet**	Paris	Geologist		Fossiliferous terrain, Sansan	ca. 5,000	misc.	Purchase	Because Toulouse is "the scientific centre of this part of France" (Lartet), and because this species contained in the site already belong to Toulouse "by the right of nature because they were found on the meridional grounds". AMT - 3D132 - x8_00003.JPG
id_coll_19	1847	**Col. Lafond de Villiers**		Army Officer (Lieutenant Colonel)		Ornithology; Mineralogy		Items	Donation	
id_coll_20	1856-1868	**Jules Roussel**	Bordeaux	Landowner	yes (in 1868)	Conchology	50,000	Collection	Purchase	No specific reason offered; Collection said to be one of the richest in Europe. In 1868, after Roussel's death, his widow, attempted again to sell the collection for ff. 100,000?
id_coll_21	1857	**Michel Artigue**	Paris			Ethnography [mummy of Peruvian "virgin", specimens of pottery]		Items	Donation	A traveller born in Haute-Garonne and a resident of Paris, Artigue wished to donate antique Peruvian objects to the City of Toulouse
id_coll_22	1857	**Prince Louis-Napoléon**	Paris	Emperor		Mineralogy; zoology		Items	Donation	Personal interest in the "Musée Ethnologique de Toulouse". Municipality is liable for transportation of the pieces.
id_coll_23	1858	**M. Voltaire-Lasbareilles**	Narbonne	Public road worker (Piqueur des Ponts-et-Chaussées)		Fossil		Items	Donation	None specified
id_coll_24	1859-1860	**Paul Bérenger**	Grasse	Naturalist Army veteran		Ornithology; zoology		Collection	Sale	Financial motives. 1859: seek employment as preparator at the Cabinet of Natural History 1860: A widower who needs to fund his son's education. Requests a position as police officer in exchange for the collection.
id_coll_25	1862-1864	**Louis de Blandinières**	Brest	1862: Officer Aspirant, Navy Ecole d'Hydrographie de Brest 1864: Officer (Enseigne de Vaisseau)		Conchology		Items	Donation	Native of Toulouse. Contribution to the Rocquemaurel Gallery. Shells personally collected on the shores of the Gulf of Guinea It seems L. de Blandinières was given a recommendation from the Maire of Toulouse at the Ministry (?).
id_coll_26	1865	**Auguste de Labouïsse-Rochefort**	Castelnaudary		yes	Conchology	ca.1,200	Collection	Sale	Opportunity of sale due to the opening of the museum of natural history. Daughter made the offer
id_coll_27	1866	**Ancien Piette**	Toulouse			Entomology	2,500	Collection	Sale	Selling collection to satisfy the pleasure of the director and *conservateur* of the Museum.
id_coll_28	1869	**Auguste Bories**	Sétif	Maréchal des Logis (NCO ?)		Zoology (2 mounts)		Items	Donation	Donation to his native city as he is on leave in Toulouse.
id_coll_29	1865	**Thomas-Comnène de Caraman**	Bien-Hoā	Traveller Member of Société de Géographie		Zoology; Botany		Items	Donation	Made proposal of collecting for the Toulouse museum, from Cambodia.

Appendix G: Projects for the new building of the Museum of Natural History of Nantes

Nantes: Transferring the NH collections to a new building: the projects.

Location	Sources		Key features of the project	Project designed by …	Date	Support	Criticism
Jardin des Plantes *Project abandoned*	AMN - 4M28			Cailliaud	1850-1851		Cailliaud responded to the request of the mayor. He was unconvinced by this location owing to the proximity of the train station.
Cours Henri IV *Project abandoned*	AMN - 2R565		Project suggested by Cailliaud, 7 March 1833. Main principle is to use the project of a new Prefecture building to design and build a museum, simultaneously, and on the same plot of land. Note that this museum was meant to receive art collections too, even though the natural History galleries notably outsized the art display.	Cailliaud	1833		
Quai de la Fosse *Project abandoned*	AMN - 4M28		Avant-projet pour l'emplacement d'un édifice destiné à recevoir Muséum d'Histoire Ntaurelle, bibliothèque , Ecole supérieure des Sciences et des Lettres Compound building hosting 3 elements (museum, library, school) Projected in to a hexagonal square overhanging the Loire embankment.	Bourgerel	14 April 1865		
Place de la Monnaie A *Project abandoned*	AMN - 1Fi1676		Untitled Museum projected in a new building, separated from extant Ecole des Sciences at the other end of the square. Separation operated by a garden. No detail about internal specificities	Bourgerel			
Place de la Monnaie B *Project abandoned*	AMN - 1Fi1652-1653-1654		Group of three documents documenting a three level building.The building would feature a public garden, circumscribed by a colonnade which would also serve as a stand for the two other levels meant to host the library and on top of that the natural history collections No communication planned with ecole des sciences	?		Hypothetically a project initially submitted by Bureau, then formalised by Bourgerel.	
Place de la Monnaie C *Project abandoned*	AMN - 1Fi1655-1657-1658		Drafted project of new Natural History Museum and Library. Set of three documents. New extension would cover most of Place de la Monnaie up to Rue Kléber. The building features three levels. *First level hosts a commercial area (shops); *Second level hosts a library; *Third level hosts the natural history collection and a special room for the Bertrand-Geslin collections. No architectural communication planned with École des Sciences	Bourgerel - commissioned with project, according to AMN-4M19-4	1864*	Hypothetically a project initially submitted by Bureau, then formalised by Bourgerel.	Opposition from Cailliaud and Delamare, in a common note to the mayor. They consider it is an inappropriate and noisy move, which would only raise little income. (AMN-4M19-6)

Nantes: Transferring the NH collections to a new building: the projects.

Location	Sources		Key features of the project	Project designed by …	Date	Support	Criticism
Place de la Monnaie D *Project abandoned*	AMN 1Fi1650-1651		Drafted project of new Natural History Museum and Library. (modified) This project contains two levels. *First level hosts reading room and library, and yard; vestibule, and 2 apartments (1 for the librarian, one for the *conservateur*). Among noticeable modifications to the previous project: both wings were truncated to create smaller spaces (meeting room, room for rare books, etc.) and therefore storage room was reduced. Storage and furniture is in line with the architecture. * Second level: more galleries (double); Collection Bertrand Geslin stands at the middle of the planned room, at the centreof gravity of the building. At the end of each wing, apartments for *conservateur* and librarian. The courtyard is very elaborated. Possibly a pre-project to 'Place de la Monnaie G' or reversely? Communication possible with École des Sciences (openings planned)	Bourgerel			
Place de la Monnaie E	AMN - 1Fi1649-1Fi1675		Set of 2 documents with similar projects. Plain building without a salient vestibule. Principle is to make use of sections of the extant building for room (with stairs) The internal courtyard is used to build means of communication (stairs etc). Communication planned with École des Sciences. On the second page, the stairs were crossed out.	Bourgerel			
Place de la Monnaie F *Project 'N°3'*	AMN - 1Fi1660		Ground floor of new project of museum of natural history. The plan of first floor is missing. Plan contains a vestibule Dedicated rooms for the guardian and the '*préparateur*' Galleries for display. Layout is very simple No communication with École des sciences planned 'n°3"	Bourgerel			
Place de la Monnaie G *Project 'Lechalas'*	AMN - 1Fi1648		"Muséum d'histoire naturelle. Projet de M. Lechalas" A plain map which seems to introduce the vestibule option. One level only (no staircase, does not specify level either). No communication with École des Sciences This project seems to introduce partial use of the extant building, rather than just using the additions.	Lechalas			

Nantes: Transferring the NH collections to a new building: the projects.

Location	Sources		Key features of the project	Project designed by …	Date	Support	Criticism
PLACE DE LA MONNAIE H	AMN - 1Fi1674		"Ville de Nantes - Musée d'Histoire Naturelle - Mobilier - Plan du premier étage" This project abandons the idea of inside circular organisation.	Bourgerel			
PLACE DE LA MONNAIE I *Project 'N°3'*	AMN - 1Fi11656		"Museum d'histoire Naturelle. Plan modifié du Rez-de-Chaussée. Bears a "n°3" like above. Likely re-worked project of 'Place de la monnaie J" vestibule with room for guardian:. At the back of the room, laboratory for the *préparateur*;. Tables/ cupboards in the rooms are doubled, but layout is similar. Part of the extant buildings are connected to create additional rooms, using small staircases to reach a half-floor.	Bourgerel			Possibly the one supported by Cailliaud 'AMN-4M19) > has an avant-corps, and does not cover the entire square space. In that case the project would have the support of : Ecorchard, Dufour (Prof. of Natural Sciences), neighbours, surveillance committee of museum
PLACE DE LA MONNAIE J	AMN - 1Fi1659		"Muséum d'Histoire Naturelle (nouveau projet). Au premier étage, entrée sur la place" Circular distribution of space made patent by 'galerie de communication') Vestibule; amphitheater In this version, the museum space has taken up the École des Sciences entirely.	Bourgerel			
PLACE DE LA MONNAIE K	AMN - 4M19		*Untitled* Simple map without internal organisation Situates building in neighbourhood of Place de la Monnaie.		1866*	With this map, Cailliaud expresses his favour for the location of the new building, more that for a project in particular (as opposed to the Quai de la Fosse project). Arguments in favour are that building are in the vicinity of te Place Graslin. Also, consideration for the improvement on the view from adjacent buildings owing to the changes to the square. (way of saying that it would an improvement for the neighbourhood.)	

Appendix H: Overview of Jourdan's scientific trips

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1834_01	AML - 78WP017	n/d	Voyage à Paris, Londres et Liverpool	"Achat de doubles de la collection de Gillet de Laumont, accroissement des collections"	Collection visit Commercial motives	1834	1834	n/d	Jourdan			2,300.00
T_1841_01	AML - 78WP017	08/10/1841	Voyage sur les côtes de la Méditerranée près Marseille et Toulon	"Etude et récolte des animaux marins inférieurs qui manquaient aux collections de la ville"	Outdoor collecting	15/07/1841	05/08/1841	21	Jourdan	Alexandre	Perret	450.00
T_1847_01	JE - "Journal d'Entrées" Entry "11 mai 1848"	11/05/1848	Voyage en Suisse, dans le Duché de Bade, dans les Vosges'	collect minerals, stones and fossils destined to the collections of the museum	Outdoor collecting Long trip	24/08/1847	27/09/1847	35	Jourdan	Alexandre, docteur, chef des travaux anatomiques du Muséum		800.00
T_1850_01	AML - 78WP017	n/d	Excursion de recherches dans les Vosges, la Prusse rhénane, la Belgique ainsi que dans le nord de la France depuis les bords de l'océan jusqu'aux rives du Rhin	"Faire les collections géologiques et minérales du Rhin et surtout pour leur donner une valeur scientifique - comparer et déterminer les terrains et les fossiles du Basin du Rhône, principalement ceux que l'ont trouve aux environs de Lyon, c'est-à-dire dans sa partie centrale"	Outdoor collecting Long trip	17/09/1850	09/11/1850	54	Jourdan	n/d		1,192.65
T_1850_02	AML - 78WP017	n/d	Coupe géologique de Lyon à Cusset et de Cusset à Lyon		Outdoor collecting	11/11/1850	21/11/1850	11	Jourdan	n/d		216.10
T_1850_03	AML - 78WP017	n/d	Coupe géologique de Belleville à Saint-Rigaud-sur-Monsol		Outdoor collecting	30/11/1850	03/12/1850	4	Jourdan	n/d		72.00
T_1853_01	JE - "Journal d'Entrées" Entry n° 15, p. 9	27/04/1854	Voyage dans la Drôme	collect minerals, stones and fossils 'necessary to his class at the Faculty of Science'	Outdoor collecting	28/03/1853	02/04/1853	6	Jourdan	n/d		250.00
T_1853_02	JE - "Journal d'Entrées" Entry n° 15, p. 9	27/04/1854	Voyage dans le Bassin de Ménat et dans le Bassin de Saint-Eloy et Commentry	collect minerals, stones and fossils 'necessary to his class at the Faculty of Science'	Outdoor collecting	13/08/1853	19/08/1853	7	Jourdan	n/d		250.00
T_1855_01	JE - "Journal d'Entrées" Entry n° 21, p. 13	31/08/1855	Voyage de recherches dans les Alpes françaises, Oisans, Briançonnais	"pour des recherches minéralogiques et zoologiques"	Outdoor collecting Long trip	11/08/1855	24/08/1855	14	Jourdan	Perret (préparateur), Lepagnez (dessinateur)		185.60
T_1855_02	JE - "Journal d'Entrées" Entry n° 22, p. 13	04/10/1855	Voyage dans la Drôme et l'Isère	"pour recueillir des échantillons géologiques et paléontologiques dans les terrains tertiaires et de la craie'	Outdoor collecting	15/09/1855	24/09/1855	10	Jourdan	1	1	
T_1856_01	JE - "Journal d'Entrées" Entry n° 26, p. 14	25/03/1856	Voyage à Saint-Jean-de-Bournay	"Course de recherches géologiques et paléontologiques à St Jean d Bournay etc."	Outdoor collecting	08/02/1856	11/02/1856	4	Jourdan	Lépagnez	Denervaud	101.90
T_1856_02	JE - "Journal d'Entrées" Entry n° 26, p. 14	25/03/1856	Voyage à	"Course de recherches géologiques et paléontologiques à St Jean d Bournay etc."	Outdoor collecting	15/02/1856	17/02/1856	4	Jourdan	Lépagnez	Denervaud	101.90
T_1856_03	JE - "Journal d'Entrées" Entry n° 26, p. 14	25/03/1856	Voyage à l'Habergement près Cuisery	"Course de recherches géologiques et paléontologiques à St Jean d Bournay etc."	Outdoor collecting	19/03/1856	22/03/1856	4	Jourdan	Lépagnez	Denervaud	101.90
T_1856_04	JE - "Journal d'Entrées" Entry n° 27, p. 15	10/04/1856	Voyage dans le Sud du Bassin du Rhône (Bollène à Avignon, retour par Miribel)	"Voyage de recherches paléontologiques effectuées dans les parties sur du bassin du Rhône"	Outdoor collecting	26/03/1856	07/04/1856	13	Jourdan	1		263.00
T_1856_05	JE - "Journal d'Entrées" Entry n° 28, p. 15	05/05/1856	Course à Hauterive (Drôme)		Outdoor collecting	12/04/1856	14/04/1856	3	Jourdan	1		1.75

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1856_06	JE - "Journal d'Entrées" Entry n° 36, p. 20	02/08/1856	Voyage de recherches à Paris, Dijon, Autun	"Voyage de recherches et de détermination paléontologiques"	Commercial motives	05/06/1856	24/06/1856	19	Jourdan	0		113.90
T_1856_07	JE - "Journal d'Entrées" Entry n° 28, p. 15	05/05/1856	Voyage dans les Mont-d'Or (Montmerle)		Outdoor collecting	04/05/1856	04/05/1856	1	Jourdan	1		1.76
T_1857_01	JE - "Journal d'Entrées" Entry n° 48, p. 25	22/09/1857	Voyage de recherche pour l'étude des sables tertiaires, à Beaurepaire (Isère), Petit Lemps et Marcolin (Drôme)	"Voyage d'etude et de recherche"	Outdoor collecting	06/04/1857	07/04/1857	2	Jourdan	n/d		400.00
T_1857_02	JE - "Journal d'Entrées" Entry n° 48, p. 25	22/09/1857	Voyage à Paris	"Voyage d'étude avec aide pour comparaisons et déterminations des principaux mammifères fossiles, trouvés dans le Bassin du Rhône avec ceux que renferment les collections de Paris'"	Outdoor collecting	09/05/1857	18/05/1857	9	Jourdan	1		400.00
T_1857_03	JE - "Journal d'Entrées" Entry n° 48, p. 25	22/09/1857	Voyage de recherches avec 2 aides, à Seyssel Bellegarde, Nantua, Bourg, Macon et Tournus	"Voyage d'etude et de recherche"	Outdoor collecting	30/08/1857	05/09/1857	7	Jourdan	n/d		400.00
T_1857_04	JE - "Journal d'Entrées" Entry n° 48, p. 25	22/09/1857	Voyage de recherches avec deux aides à Neuville et Saint Germain du Mont d'Or, etude du gisement de dents de mastodonte et d'un fragment de mâchoire inférieure de Rhinocéros trouvés dans la propriété de M. Reignier, à Saint Germain au Mont-d'or		Outdoor collecting	13/09/1857	14/09/1857	2	Jourdan	n/d		400.00
T_1857_05	JE - "Journal d'Entrées" Entry n° 49, p. 26-27	22/12/1857	Voyage dans le département de l'Ain, la Savoie et surtout la Suisse	"Etude des terrains tertiaires comparés à ceux des environs de de Lyon + recueillir les collections de ces mêmes terrains, de plus acquisitions d'ossements fossiles"	Outdoor collecting Commercial motives Long trip	22/09/1857	13/10/1857	22	Jourdan	1	1	578.40
T_1857_06	JE - "Journal d'Entrées" Entry n° 49, p. 26-27	22/12/1857	Course a Saint-Germain-des-Monts-d'Or		Outdoor collecting	16/10/1857	16/10/1857	1	Jourdan	?		
T_1857_07	JE - "Journal d'Entrées" Entry n° 49, p. 26-27	22/12/1857	Voyage a Saint-Germain et Curis aux Places		Outdoor collecting	25/10/1857	25/10/1857	1	Jourdan	?		
T_1858_01	JE - "Journal d'Entrées" Entry n° 57, p. 43	29/05/1858	Voyage dans Hérault, Gard, Bouches du Rhone, Saone et Loire, Ain	"Étude des terrains tertiaires comparés à ceux du département du Rhône"	Outdoor collecting Long trip	06/04/1858	15/04/1858	9	Jourdan	1		306.15

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1858_02	JE - "Journal d'Entrées" Entry n° 57, p. 43	29/05/1858	Course à Pont-de-Veaux, Saint-Albin, Pont de Veyle (Ain)		Outdoor collecting	24/05/1858	26/05/1858	3	Jourdan	?		
T_1858_03	JE - "Journal d'Entrées" Entry n° 59, p. 44	18/07/1858	Voyage dans le département de Saône et Loire et de l'Ain - Louhans	"Recherches pour études et récoles de terres arables durant deux voyages"	Outdoor collecting	28/05/1858	04/07/1858		Jourdan	0		50.50
T_1858_04	JE - "Journal d'Entrées" Entry n° 59, p. 44	18/07/1858	Voyage dans le département de Saône et Loire et de l'Ain - Bourg, Nantua		Outdoor collecting	05/07/1858	09/07/1858	5	Jourdan	n/d		43.00
T_1858_05	JE - "Journal d'Entrées" Entry n° 63, p. 46	17/09/1858	Voyage de recherche en Suisse, en Savoie, an Auvergne et Nivernais	"Étude des terrains carbonifères, des terrains jurassique et des terrains tertiaires"	Outdoor collecting Long trip Commercial motives	24/07/1858	07/08/1858	15	Jourdan	1		407.80
T_1858_06	JE - "Journal d'Entrées" Entry n° 63, p. 46	17/09/1858	Voyage dans les Mont-d'Or et à Nevers		Outdoor collecting	29/08/1858	10/09/1858	13	Jourdan	1		407.80
T_1858_06_2	JE - "Journal d'Entrées" Entry n° 63, p. 46	17/09/1858	Voyage à Vienne		Outdoor collecting	25/09/1858	26/09/1858	2	Jourdan			
T_1858_07	JE - "Journal d'Entrées" Entry n° 78bis, p. 56	29/11/1858	Voyage au Pilat	"Pour l'étude des terrains jurassiques et tertiaires du Bassin du Rhône'	Outdoor collecting? Commercial motives?	04/08/1858	06/08/1858	3	Perret	0		8.30
T_1858_08	JE - "Journal d'Entrées" Entry n° 78bis, p. 56	29/11/1858	Voyage de recherche dans la vallée de l'Albarine et sur le plateau de Hauteville (Bugey)	"Pour l'étude des terrains jurassiques et tertiaires du Bassin du Rhône'	Outdoor collecting? Commercial motives?	21/08/1858	21/08/1858	1	Perret	0		12.85
T_1858_09	JE - "Journal d'Entrées" Entry n° 78bis, p. 56	29/11/1858	Voyage de recherches à Génève, dans le Faucigny et le Chablais	"Pour l'étude des terrains jurassiques et tertiaires du Bassin du Rhône'	Outdoor collecting? Commercial motives?	05/09/1858	08/09/1858	4	Perret	0		35.10
T_1858_10	JE - "Journal d'Entrées" Entry n° 78, p. 54	25/12/1858	Frais de recherches paléontologiques et géologiques pour l'étude des terrains jurassiques et tertiaires du Bassin du Rhone.	"Pour l'étude des terrains jurassiques et tertiaires du Bassin du Rhône'	Outdoor collecting? Commercial motives?	03/09/1858	10/09/1858	8	Jourdan	préparateur, aide-naturaliste		400.26
T_1859_01	JE - "Journal d'Entrées" Entry n° 89, p. 61	16/06/1859	Voyage de recherche à l'ouest du basin du Rhône et dans le bassin de la Garonne, en Auvergne, dans l'Allier, à Paris	"Recherches paléontologiques et géologiques", "acquisitions", "par comparaison avec bassin de la Garonne"	Outdoor collecting Long trip Commercial motives	21/04/1859	22/05/1859	32	Jourdan	une aide pour l'étude des fossiles des terrains tertiaires, surtout des fossiles vertébrés		808.00
T_1859_02	JE - "Journal d'Entrées" Entry n° 93, p. 64	20/06/1859	Voyage de recherches dans l'Ain	"Recherches paléontologiques et géologiques et des acquisition pour l'accroissement et la bonne détermination des collections du Bassin Géologique du Rhône"	Outdoor collecting Long trip Commercial motives	30/05/1859	02/06/1859	4	Jourdan	0		400.00

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1859_03	JE - "Journal d'Entrées" Entry n° 112, p. 74	26/10/1859	Voyage de recherche dans l'Ain, l'Isère et le Rhône par M. Jourdan avec la Société Géologique de France	"Voyage de recherche exceptionnel provoquées par la session extraordinaire de la société géologique de France à Lyon", "acquisitions"	Congress Outdoor collecting	02/09/1859	10/09/1859	9	Jourdan	?		68.65
T_1859_04	JE - "Journal d'Entrées" Entry n° 112, p. 74	26/10/1859	Voyage en Auvergne	"Pour reconnaître et emballer les collections de Mademoiselle Croizet de Neschers et Mr Chapon de Vialette"	Commercial motives	23/09/1859	27/09/1859	5	Jourdan	1	1	201.79
T_1859_05	JE - "Journal d'Entrées" Entry n° 112, p. 75	26/10/1859	Voyage de recherches dans le Jura	"Pour compléter l'étude des terrains tertiaires et surtout des molasses marines, dans le Jura, à cause de leur analogie avec celles des environs de Lyon. Dans ce voyage on a recueilli en outre les terres arables et plusieurs fossiles importants . Une grande partie des frais de ce voyage étant supportée par le Ministère de l'Agriculture, il n'y a de porté en compte que les frais qui ont été rigoureusement afférents aux recherches paléontologiques et aux collections du muséum"	Outdoor collecting Long trip	28/09/1859	19/10/1859	22	Jourdan	1		59.40
T_1860_01	JE - "Journal d'Entrées" Entry n° 137, p. 88-89	30/08/1860	Voyage de recherches dans le département du Rhône	"Course pour vérification des gisements de terrains tertiaires marins et terrains tertiaires d'eau douce à Pont d'Ain, Oussiat, Neuville-sur-Ain, Saint-Jena-le-Vieux, Jujurieux etc."	Outdoor collecting	18/02/1860	19/02/1860	2	Jourdan	1		401.45
T_1860_02	JE - "Journal d'Entrées" Entry n° 137, p. 88-89	30/08/1860	Course à Heyrieux, Chalessin, Septême, Valencin, Chandieux etc. (Isère)	"Course pour étude des terrains miocènes supérieurs Pliocènes et Néocènes"	Outdoor collecting	25/02/1860	27/02/1860	3	Jourdan	1		
T_1860_03	JE - "Journal d'Entrées" Entry n° 137, p. 88-89	30/08/1860	Course à Bourgoin, le Plateau de Chabon, le grand Temps, la Côte Saint-André	"Course pour l'étude des terrains quaternaires et tertiaires"	Outdoor collecting	17/03/1860	19/03/1860	3	Jourdan	0		
T_1860_04	JE - "Journal d'Entrées" Entry n° 137, p. 88-89	30/08/1860	Séjour à Paris	"Recherches géologiques et paléontologiques des terrains tertiaires du bassin du rhone et pour comparaison des terrains tertiaires des environs de Paris "	Outdoor collecting Commercial motives Long trip	03/04/1860	18/04/1860	15	Jourdan	1		
T_1860_05	JE - "Journal d'Entrées" Entry n° 137, p. 88-89	30/08/1860	Course dans la vallée de Tenay (Ain)		Outdoor collecting	07/04/1860	09/04/1860	3	Perret	0		
T_1860_06	JE - "Journal d'Entrées" Entry n° 137, p. 88-89	30/08/1860	Course dans les montagnes de la Drôme, le Vercors et le Diois		Outdoor collecting	10/05/1860	15/05/1860	6	Perret	0		
T_1860_07	JE - "Journal d'Entrées" Entry n° 137, p. 88-89	30/08/1860	Course à Tenau, Verrieux-le-Grand, environs de Belley, Artemare		Outdoor collecting	26/05/1860	29/05/1860	4	Jourdan	1		

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1860_08	JE - "Journal d'Entrées" Entry n° 156, p. 97	25/11/1860	Voyage de recherches dans le midi de la France - principalement des Alpes; depuis les Hautes-Alpes jusqu'aux Alpes maritimes	"Recherches géologiques et paléontologiques des terrains crayeux et tertiaires du midi de la France"	Outdoor collecting Long trip	13/09/1860	10/10/1860	27	Jourdan	1		518.00
T_1860_09	JE - "Journal d'Entrées" Entry n° 157, p. 98-99	25/11/1860	Voyage de recherches dans le midi de la France	"Nouvelles recherches dans le Midi et dans les Basses-Alpes"	Outdoor collecting Long trip	27/10/1860	06/11/1860	11	Jourdan	1		283.65
T_1861_01	JE - "Journal d'Entrées" Entry n° 158, p. 99-100	02/05/1861	Voyage de recherches	"Voyages de recherches géologiques et paléontologiques dans le département de l'Ain et de l'Isère pour étudier des gisements de reptiles, poissons, plantes, crustacés fossiles de l'oxfordien supérieur ainsi que les couches a lignites des terrains tertiaires supérieurs"	Outdoor collecting	23/02/1861	25/02/1861	3	Jourdan	1	1	180.70
T_1861_02	JE - "Journal d'Entrées" Entry n° 159, p. 99-100	02/05/1861	Voyage dans le département de la Drôme	"Pour comparer des terrains tertiaires marins et d'eau douce avec ceux de l'Intérieur de la ville de Lyon"	Outdoor collecting	11/04/1861	13/04/1861	3	Jourdan	0		180.70
T_1861_03	JE - "Journal d'Entrées" Entry n° 170, p. 103-105	22/08/1861	Voyage à la Grive-Saint-Alban	"Recueillir tous les restes découverts successivement dans l'argile ferrugineuse qui remplit les fentes des carrières oolithiques de la Grive-SaintAlban près Bourgoin. ces restes fossiles ont fourni au Muséum, les représentants d'environ trente genres de mammifères"	Outdoor collecting	25/05/1861	25/05/1861	1	Jourdan	0		19.65
T_1861_04	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à la Grive-Saint-Alban		Outdoor collecting	31/05/1861	31/05/1861	1	Jourdan	0		18.80
T_1861_05	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage de recherche en Ardèche de la Voulte à Celles-les-Bains	"Pour accroitre les collections du bassin du Rhône"	Outdoor collecting	31/05/1861	04/06/1861	5	Perret	0		21.60
T_1861_06	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à la Grive-Saint-Alban		Outdoor collecting	04/06/1861	04/06/1861	1	Jourdan	0		32.50
T_1861_07	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à la Grive-Saint-Alban		Outdoor collecting	21/06/1861	21/06/1861	1	Jourdan	0		36.20
T_1861_08	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à la Grive-Saint-Alban		Outdoor collecting	03/07/1861	03/07/1861	1	Jourdan	1		36.90
T_1861_09	JE - "Journal d'Entrées" Entry n° 170, p. 103-105	22/08/1861	Course à Bourg, La Varette, Pont d'Ain	"Pour les alluvions anciennes et les graviers marins"	Outdoor collecting	04/07/1861	05/07/1861	2	Jourdan	1		
T_1861_10	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à la Grive-Saint-Alban		Outdoor collecting	09/07/1861	09/07/1861	1	Jourdan	1		34.30
T_1861_11	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à la Grive-Saint-Alban		Outdoor collecting	18/07/1861	18/07/1861	1	Jourdan	1		33.60

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1861_12	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à Paris	"Pour comparer les nombreux fossiles recueillis à la Croix-Rousse et à La Grive-Saint Alban avec ceux des flancs des Pyrénées apportés à Paris par Mr Lartet et ceux rapportés de Pikemi près d'Athènes par M. Gaudry"	Collection visit Commercial motives	19/07/1861	22/07/1861	4	Jourdan			120.20
T_1861_13	JE - "Journal d'Entrées" Entry n° 170, p. 105	22/08/1861	Voyage à la Grive-Saint-Alban		Outdoor collecting	17/08/1861	17/08/1861	1	Jourdan	1		43.40
T_1861_14	JE - "Journal d'Entrées" Entry n° 183, p. 112	10/09/1861	Voyage à l'étang de Berre	"Pour l'accroissement des collections du Bassin du Rhône	Outdoor collecting	21/08/1861	01/09/1861	12	Perret			54.85
T_1861_15	JE - "Journal d'Entrées" Entry n° 183, p. 111-112	08/02/1862	Voyage et études comparatives	"Recherches et études comparatives de la géologie et de la paléontologie du bassin du Rhône - voyage dans le Midi"	Outdoor collecting	24/08/1861	31/08/1861	8	Perret	0		520.80
T_1861_16	JE - "Journal d'Entrées" Entry n° 183, p. 111-112	08/02/1862	Voyage à la grive-Saint-Alban		Outdoor collecting	06/09/1861	06/09/1861	1	Jourdan	1		
T_1861_17	JE - "Journal d'Entrées" Entry n° 183, p. 111-112	08/02/1862	Voyage à l'Arbresle, à Tarare, le Gouget	"Recherche de fossiles carbonifères"	Outdoor collecting	16/09/1861	18/09/1861	3	Jourdan	/		
T_1861_18	JE - "Journal d'Entrées" Entry n° 183, p. 111-112	08/02/1862	Voyage à la Grive-Saint-Alban		Outdoor collecting	01/10/1861	01/10/1861	1	Jourdan	1		
T_1861_19	JE - "Journal d'Entrées" Entry n° 183, p. 111-112	08/02/1862	Voyage à Chagny etc.	"Recherche des gisements de dents de mastodontes dissimilis et borsoni et de l'elephas meridionalis"	Outdoor collecting	12/10/1861	27/10/1861	16	Jourdan	1		
T_1861_20	JE - "Journal d'Entrées" Entry n° 183, p. 111-112	08/02/1862	Voyage à Paris	"Étude comparative de nos nombreux fossiles vertébrés du miocène de la Grive Saint-Alban avec ceux de terrains de même époque qui se trouvent dans les collections du muséum de Paris"	Outdoor collecting	22/11/1861	09/12/1861	18	Jourdan	0		
T_1862_01	JE - "Journal d'Entrées" Entry n° 192, p. 120-122	08/08/1862	Voyage à Vienne, Saint-Vallier, etc.	"Recherches et études comparatives de la géologie et de la paléontologie du bassin du rhone - étude des terrains tertiaires"	Outdoor collecting	21/03/1862	31/03/1862	11	Jourdan	aides'		602.45
T_1862_02	JE - "Journal d'Entrées" Entry n° 192, p. 120-122	08/08/1862	Voyage dans l'Ardèche		Outdoor collecting	19/04/1862	19/04/1862	1	Perret	0		
T_1862_03	JE - "Journal d'Entrées" Entry n° 192, p. 120-122	08/08/1862	Course à Tournus, Cuisery etc.		Outdoor collecting	23/04/1862	01/05/1862	10	Jourdan	1		
T_1862_04	JE - "Journal d'Entrées" Entry n° 192, p. 120-122	08/08/1862	Voyage dans l'Allier	"Pour récolter des fossiles du mésocène"	Outdoor collecting	07/05/1862	11/05/1862	5	Jourdan	?		

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T_1862_05	JE - "Journal d'Entrées" Entry n° 192, p. 120-122	08/08/1862	Voyage à la Grive-Saint-Alban		Outdoor collecting	18/05/1862	18/05/1862	1	Jourdan	n/d		
T_1862_06	JE - "Journal d'Entrées" Entry n° 196, p. 120-122	08/08/1862	Voyage dans la Savoie et en Isère	"Recherche géologiques et paléontologiques"	Outdoor collecting	29/07/1862	03/08/1862	6	Jourdan	1		
T_1862_07	JE - "Journal d'Entrées" Entry n° 197, p. 122	10/10/1862	Voyage dans le département de la Saone et de la Loire	"Etude du grès de Keyser"	Outdoor collecting	30/09/1862	06/10/1862	7	Jourdan	1		121.50
T_1862_08	JE - "Journal d'Entrées" Entry n° 200, p. 124	14/11/1862	Voyage sur les bords de la Seille		Outdoor collecting	07/11/1862	10/11/1862	4	Jourdan			
T_1863_00	JE - "Journal d'Entrées" Entry n° 209, p. 131	06/04/1863	Voyage à Vienne et Solaize		Outdoor collecting	01/03/1863	02/03/1863	2	Jourdan			
T_1863_01	JE - "Journal d'Entrées" Entry n° 217, p. 135	04/05/1863	Voyage à Paris	"Étude comparative des fossiles des terrains anciens du bassin du Rhone avec ceux des grandes collections de la Capitale"	Collection visit Commercial motives	07/04/1863	13/04/1863	7	Jourdan	n/d		350.00
T_1863_02	JE - "Journal d'Entrées" Entry n° 217, p. 135	04/05/1863	Voyage dans les Alpes	"Étude de terrains houillers métamorphiques et des terrains nummulithiques"	Outdoor collecting	21/04/1863	24/04/1863	4	Jourdan			
T_1863_03	JE - "Journal d'Entrées" Entry n° 217, p. 135 + Entry n° 229, p. 141	04/05/1863 et 04/09/1863	Voyage dans les Vosges et la Lorraine et Dijon	"Recherche de fossiles de terrains anciens de l'extrémité nord du bassin du Rhône et des deux parties des Vosges"	Outdoor collecting Long trip	25/04/1863	05/05/1863	12	Jourdan	1		161.30
T_1863_04	JE - "Journal d'Entrées" Entry n° 228, p. 141	04/09/1863	Voyage en Savoie	"Complément du voyage d'avril 1863"	Outdoor collecting	10/06/1863	15/06/1863	6	Jourdan	1		142.20
T_1863_05	JE - "Journal d'Entrées" Entry n° 228, p. 142	08/10/1863	Voyage dans les montagnes du Bugey	/	Outdoor collecting	05/10/1863	06/10/1863	2	Jourdan	1	1	51.25
T_1864_01	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course à Neuville et Saint-André du Corcy	"Course pour l'étude des terrains tertiaires supérieurs et d'alluvions"	Outdoor collecting	20/02/1864	20/02/1864	1	Jourdan	1		604.20
T_1864_02	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course à Givors (Rhone) etc.	"Pour étude des terrains houillers anciens, des gneiss et de leurs filons"	Outdoor collecting	05/03/1864	05/03/1864	1	Jourdan	0		
T_1864_03	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course à Ecully, Dardagny et Dommartin (Rhône)	"Course pour étude des terrains où se sont trouvés des débris d'elephas meridionalis - à Écully où l'on a trouvé la veille (28 mars) des dents de mastodonte et d'elephas."	Outdoor collecting	29/03/1864	29/03/1864	1	Jourdan	1		
T_1864_04	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course à Chagny, Cheilly, Préty, Domsure et Coligny (Saône et Loire)	"Comparaison des terrains où ont été trouvées des dents de mastodonte et d'elephas meridionalis"	Outdoor collecting	30/03/1864	03/04/1864	5	Jourdan	1	1	

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1864_05	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course sur les bords de la Saône	"Pour vérifier et comparer de nouveau les terrains à mastodonte"	Outdoor collecting	24/04/1864	24/04/1864	1	Jourdan	1		
T_1864_06	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course à Roanne, Périgny etc. (Isère)	"Étude des terrains tertiaires moyens de l'Allier et les houilles supérieures du petit bassin de Best"	Outdoor collecting	03/05/1864	09/05/1864	7	Jourdan	1		
T_1864_07	JE - "Journal d'Entrées" Entry n° 244, p. 151-152 + Entry n° 245, p. 153	03/08/1864 + 02/08/1864	Voyage à l'étang de Berre, sur les montagnes qui longent la mer de Marseille, à Toulon, Ste Baume et retour par les montagnes de l'Ardèche	"Accroissement des collections du Bassin du Rhône"	Outdoor collecting Long trip	04/06/1864	20/06/1864	17	Perret	0		
T_1864_08	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course sur les confins de l'Isère et de la Drôme	"Étude des grandes alluvions alpines"	Outdoor collecting	19/06/1864	20/06/1864	2	Jourdan	1		
T_1864_09	JE - "Journal d'Entrées" Entry n° 244, p. 151-152	03/08/1864	Course dans la Haute-Savoie	"Seulement une partie de la course pour des recherches géologiques"	Outdoor collecting	10/07/1864	20/07/1864	11	Jourdan	n/d		
T_1864_10	JE - "Journal d'Entrées" Entry n° 244, p. 151-152 + Entry n° 245, p. 153	03/08/1864 + 02/08/1864	Voyage dans la Grande Chartreuse, la Savoie vers la Guier et l'Isère	"Accroissement des collections du Bassin du Rhône"	Outdoor collecting	02/07/1864	10/07/1864	9	Perret	0		
T_1864_11	JE - "Journal d'Entrées" Entry n° 264, p. 164	25/12/1864	Voyage à Paris	"Mise en oeuvre et surveillance des tirages de planches chez Becquet frères"	Printing	s/d (1864)	s/d (1864)		Lépagnez	0		67.15
T_1864_12	JE - "Journal d'Entrées" Entry n° 258, p. 159-161	13/01/1865	Course sur les rives du Haut Rhône - Lyon - Collonges (Ain)	"Étude des terrains tertiaires miocène et éocène"	Outdoor collecting	01/08/1864	01/08/1864	1	Jourdan	1		115.50
T_1864_13	JE - "Journal d'Entrées" Entry n° 258, p. 159-161	13/01/1865	Voyage dans les Vosges	"Étude des terrains paléozozoiques, terrain carbonifères devoniens et siluriens"	Outdoor collecting	12/11/1864	17/11/1864	6	Jourdan	1	1	286.90
T_1865_01	JE - "Journal d'Entrées" Entry n° 261, p. 162-163	07/02/1865	Voyage dans le bassin du Rhone	"Recherches géologiques et paléontologiques, relatives aux terrains d'alluvions anciennes et des terrains miocènes marins dans le milieu du bassin du Rhône"	Outdoor collecting	s/d (1865)	s/d (1865)		Jourdan	1		117.40
T_1865_02	JE - "Journal d'Entrées" Entry n° 284, p. 173-174	23/12/1865	Voyage géologique et paléontologique en Saône et Loire et confins du Jura	"Étude des terrains tertiaires du bassin du Rhône"	Outdoor collecting	16/04/1865	23/04/1865	8	Jourdan	1		301.80
T_1865_03	JE - "Journal d'Entrées" Entry n° 284, p. 173-174	23/12/1865	Voyages géologiques et paléontologiques dans l'Ain et la Savoie	"Étude des terrains tertiaires du bassin du Rhône"	Outdoor collecting	23/05/1865	30/05/1865	8	Jourdan	n/d		301.80

New trip ID	Source	Date of registration	Main destination	Objective	Type	Departure date	Return date	Trip length (in days)	Main traveler	Second traveler	Third traveler	Expenditures (ff.)
T_1866_01	JE - "Journal d'Entrées" Entry n° 304, p. 189-190	12/05/1866	Voyage à Rome et dans la Val d'Arno	"Recherches géologiques et paléontologiques dans les environs de Rome et du val d'Arno es deux points d'Europe où se trouvent des terrains marins et d'eau douce analogues à deux de Lyon et de ses environs et où se trouvent surtout, abondamment, les restes de grands animaux fossiles de même genre que ceux de notre Bassin du Rhône entre autres les Elephants. Ce voyage était indispensable comme étude comparative pour la publication de la géologie et de la paléontologie de Lyon et de ses environs, qui est en voie d'exécution."	Outdoor collecting	20/03/1866	03/05/1866	45	Jourdan	1		1,020.70
T_1866_02	JE - "Journal d'Entrées" Entry n° 329, p. 205-206	01/12/1866	Voyage de recherches géologiques et paléontologiques dans les montagnes du Beaujolais des environs de Thizy	"Récolte de roches et de fossiles"	Outdoor collecting	12/09/1866	18/09/1866	7	Jourdan	1		82.45
T_1866_03	JE - "Journal d'Entrées" Entry n° 329, p. 205-206	01/12/1866	Voyage de recherches géologiques et paléontologiques dans les montagnes du Beaujolais, dans les montagnes entre la Grône et la Saône	"Recherches géologiques et paléontologiques"	Outdoor collecting	27/10/1866	28/10/1866	2	Jourdan	1		51.65
T_1867_01	JE - "Journal d'Entrées" Entry n° 372, p. 235-236	31/12/1867	Voyage à Paris	"Étude et comparaison des terrains du Rhône - Comparaison des fossiles tertiaires avec ceux du bassin de Paris et pour recherches d'anatomie comparée afin d'arriver à une détermination plus exacte des ossements que nous trouvons si souvent aux environs de Lyon"	Collection visit	22/04/1867	29/04/1867	8	Jourdan	n/d		212.00
T_1867_02	JE - "Journal d'Entrées" Entry n° 372, p. 235-236	31/12/1867	Voyage dans le Midi aux environs de Marseille et Toulon -	"Étude et comparaison des terrains du Rhône - Etude des terrains tertiaires et secondaires, récolte de fossiles et d'échantillons de roche"	Outdoor collecting	20/06/1867	24/06/1867	5	Jourdan	n/d		154.00
T_1867_03	JE - "Journal d'Entrées" Entry n° 372, p. 235-236	31/12/1867	Voyage au Bassin de Vals et d'Aubenas	"Compléter d'étude du dit bassin et en recueillir les fossiles et les roches."	Outdoor collecting	été 1867	été 1867	30	Jourdan	n/d		192.00

References

ARCHIVAL MATERIAL

The references below use the content of institutional inventories. The references are therefore provided in French, and sometimes the description given in the inventory can be relatively different from actual content.

Archives Départementales de Haute-Garonne

1L		Fonds révolutionnaire - Instruction publique
	1L991-992	École centrale - généralités
	1L1008-1014	Enseignement secondaire / École centrale
	1L1018	Enseignement supérieur
	1L1019-1020	Jardin botanique
	1L1032-1038	Musée

5T		Fonds moderne - Sociétés savantes et littéraires, institutions savantes 1793-1886
	5T1	Sociétés savantes
	5T9	Enseignement supérieur - Ecole des Arts et des Sciences.
	5T11-12	Sociétés savantes

7T		Fonds moderne - musées
	7T1,3-4	Monuments historiques, les musées et les sites an IX-1859

Archives Départementales des Hautes-Alpes

4T		Affaires culturelles
	4T134	Musée départemental. Enrichissement des collections minéralogiques, ornithologiques, archéologiques, artistiques, an XI-1928

Archives Départementales du Rhône

3N		Budget
	3N33-40	Budget départmental, 1859, 1860, 1861, 1862, 1863, 1864, 1868, 1870
	3N129	Budget départmental 1864
	3N130-133	Budget départmental 1866, 1867, 1868, 1869
4T		Musée d'Histoire Naturelle de Lyon, 1700-1968
	4T59-68	Conservatoire des arts (Palais saint-Pierre)
	4T262	Atelier et laboratoire: dossiers individuels 1836-1882
	4T266	Gardiennage et conciergerie: dossiers individuels 1836-1882
7M		Sociétés savantes
	7M41-42	Société d'Agriculture de Lyon
	7M67-71	Société d'Agriculture, Sciences et Industrie de Lyon
T368		Enseignement supérieur

Archives Municipales de Lyon

1-3S		Documents figurés
	2S0330_1-0330_3	Plan du Palais Saint-Pierre indiquant l'utilisation des salles, 1811
	2S0400	Projet d'ouverture de la rue de l'Impératrice ou de l'Hôtel de Ville - 1859
	2S0600	Palais des Arts. Façade méridionale sur cour, 1860
	3S0122	Plan de la Ville de Lyon avec ses percées de rues, et ses projets d'agrandissement, par Dignoscyo, 1827
	3S0157	Plan du monastère de la Déserte, projet d'ouverture de rue, 1810
	3S1214-1216	Palais Saint-Pierre. Restauration du cloître. Plan, coupe et élévation d'une arcade, 1850
	3S1418	Hôtel de Ville, Palais du Commerce et des Arts, et Théâtre à Lyon : planche d'ensemble, 1845
	3S1419	Palais des Arts et du Commerce établi dans l'ancien couvent de Saint-Pierre à Lyon ; plans du rez-de-chaussée du 1er et du 2e étages, 1806
	3S1420	Palais des Arts et du Commerce : coupes longitudinale et transversale, 1806

77-78WP		
	77WP001	Conservatoire des Arts 1804-1875
	78WP001	Musée Saint-Pierre, Administration générale 1824-1898
	78WP013-014	Musée Saint-Pierre (Bâtiment, gestion du personnel, papiers de conservateurs), 1813-1926
	78WP017-021	[non décrit] Musée d'histoire naturelle, env. 1805- env. 1900
	78WP029-031	[non décrit] Musée d'histoire naturelle. Registres bordereaux dépenses
465WP		
	465WP001	1794-1820 Musée - Palais des Arts place des Terreaux
	465WP003	1818-1825 Musée - Palais des Arts place des Terreaux
	465WP004	1822-1829 Musée - Palais des Arts place des Terreaux
	465WP005	1824-1843 Musée - Palais des Arts place des Terreaux
	465WP006	1825-1864 Musée - Palais des Arts place des Terreaux
	465WP013	1860-1886 Musée - Palais des Arts place des Terreaux
	465WP014	1860-1887 Musée - Palais des Arts place des Terreaux
1403WP		
	1403WP039-043	Registre du budget et état de dépenses 1816-1878 [sauf 1855-1870, 1872-1877]

Archives Municipales de Nantes

II		
	II158*68	Plan des écoles de chirurgie de la ville de Nantes
1O		Travaux publics, Voirie, Moyens de transport, Régime des eaux, 1688 - 1980
	1O16139-16168	Jardin des Plantes
2R		Instruction publique, Sciences, Lettres et Arts - Sciences, Lettres et Arts, 1690-1939
	2R565	Muséum d'histoire naturelle. Administration : extraits des délibérations du conseil municipal, règlements, correspondance, rapports du conservateur, notice historique, états des dépenses, factures, 1806-1936, 1946
	2R566	Muséum d'histoire naturelle. Personnel : correspondance, arrêtés municipaux, procès-verbal de la commission, lettres de réclamation du conservateur. Commission de surveillance : extrait des délibérations du conseil municipal, arrêtés municipaux de nomination, rapports de fonctionnement, correspondance, 1808-1938

	2R567	Muséum d'histoire naturelle. Legs. Extraits des délibérations du conseil municipal, testaments, inventaires estimatifs des collections, extrait des registres des actes de décès, An X-1913
	2R568	Muséum d'histoire naturelle. Dons et dépôts: correspondance coupures de presse, croquis et photographies d'objets, liste des acquisitions annuelles, inventaires estimatifs de cabinets d'histoire naturelle, arrêtés municipaux, An VI-1938
	2R569	Muséum d'histoire naturelle. Expositions et cours: correspondance, programmes des cours de sciences naturelles; recherches scientifiques: correspondance, rapports d'activité, comptes-rendus d'explorations minéralogiques, notes. 1806-1947
	2R570-574	Sociétés savantes
4M		Edifices à usage d'établissements d'enseignement, de sciences et d'art, 1696-1939
	4M18	Edifices à usage d'établissements d'enseignement, de sciences et d'art. Construction du Muséum d'Histoire Naturelle, 1806-1838
	4M19	Projet et reconstruction du Muséum d'Histoire Naturelle et de la bibliothèque, 1864-1931
	4M20	Construction du Muséum d'Histoire Naturelle. Translation à l'ancienne Monnaie, 1838-1867
	4M21	Projet de construction du Muséum d'Histoire Naturelle. Rapport de l'ingénieur de la ville, détail estimatif des travaux et devis descriptif, conditions particulières, mémoire du conservateur, 1864-1868
	4M22	Construction et adjudications du Muséum d'Histoire Naturelle, 1866-1872
	4M28	Notes, rapports et devis sur la reconstruction du Muséum d'Histoire Naturelle
Fi		Documents figurés
	1Fi33	Muséum d'histoire naturelle. Projet, 1866
	1Fi131	Peccot. Plan de salle à construire, Muséum d'histoire naturelle, 1810
	1Fi132	Peccot. Plan de salle à construire, Muséum d'histoire naturelle, 1810.
	1Fi133	Peccot. Plan de porte cochère, Muséum d'histoire naturelle, 1812.
	1Fi134	Peccot. Plan de vestibule, Muséum d'histoire naturelle, 1812.
	1Fi135	Peccot. Plan de rez-de-chaussée, Muséum d'histoire naturelle, 1812.
	1Fi136	Peccot. Plan d'armoires, Muséum d'histoire naturelle, 1812.
	1Fi137	Peccot. Plan de salle ronde, Muséum d'histoire naturelle, 1812.
	1Fi138	Peccot. Plan d'armoires 1er étage, Muséum d'histoire naturelle, 1812.
	1Fi1646	Plan de corniche, Muséum d'Histoire Naturelle, 1835
	1Fi1647	Plan d'aménagement, Muséum d'Histoire Naturelle, 1838

1Fi1648	Lechalas. Plan de projet, Muséum d'Histoire Naturelle, [1864]
1Fi1649	Bourgerel. Plan du rez-de-chaussée, Muséum d'Histoire Naturelle, [1864]
1Fi1650	Bourgerel. Plan du 1er étage, Muséum d'Histoire Naturelle, [1864]
1Fi1651	Bourgerel. Plan du rez-de-chaussée, Muséum d'Histoire Naturelle, [1864]
1Fi1652	Bureau. Plan du soubassement, Muséum d'Histoire Naturelle, [1864]
1Fi1653	Bureau. Plan du rez-de-chaussée, Muséum d'Histoire Naturelle, [1864]
1Fi1654	Bureau. Plan de l'étage, Muséum d'Histoire Naturelle, [1864]
1Fi1655	Bourgerel. Plan du soubassement, Muséum d'Histoire Naturelle, [1864]
1Fi1656	Bourgerel. Plan du rez-de-chaussée, Muséum d'Histoire Naturelle, [1864]
1Fi1657	Bourgerel. Plan de bibliothèque, Muséum d'Histoire naturelle, [1864]
1Fi1658	Bourgerel. Plan du 1er étage, Muséum d'histoire naturelle,[1864]
1Fi1659	Bourgerel. Plan, Muséum d'histoire naturelle, [1864]
1Fi1660	Bourgerel. Plan du rez-de-chaussée, Muséum d'histoire naturelle, [1864]
1Fi1663	Plan de situation, Muséum d'Histoire Naturelle, 1866
1Fi1664	Bourgerel. Plan du rez-de-chaussée, Muséum d'Histoire Naturelle
1Fi1665	Plan du terrain occupé par les constructions détaillées et les dépendances du Muséum d'Histoire Naturelle, 1841
1Fi1673	Plan des terrains du Muséum et de leur abords, 1852
1Fi1674	Bourgerel. Plan du 1er étage, Muséum d'histoire naturelle
1Fi1675	Bourgerel. Plan du 1er étage, Muséum d'histoire naturelle
1Fi1676	Bourgerel. Plan de situation, Muséum d'Histoire Naturelle
1Fi1677	Echalas. Plan, Muséum d'Histoire Naturelle, 1869
1Fi5994	Peccot, Plan général de la ville de Nantes, premier canton-première feuille, troisième canton-3ème feuille (rue du muséum, rue saint-Léonard, rue de l'hôtel de ville, rue du port-communeau), 1818
40Fi37	Vue de la façade du Muséum d'histoire naturelle de Nantes, vue sur le fronton et les colonnes, 1878

Archives Municipales de Toulouse

1D	Délibérations du Conseil Municipal
1D10	Délibérations de l'administration municipale et arrêtés du Maire et des adjoints. 1 Pluviôse VIII - 12 Messidor IX. (21 janvier 1800 - 1er juillet 1801)

	1D38	Délibérations du conseil municipal 3 mars 1821 - 29 décembre 1823
	1D43	Délibérations du conseil municipal: procès-verbaux des séances. 27 mai 1835 - 8 mai 1837
1L		Budget municipal
	1L17-21	Finances de la communes, comptabilité 1797-1860; 1801-1849; 1818-1846; 1805-1810
2R		Instruction publique, Sciences, Lettres et Arts - Sciences, Lettres et Arts - 1718 - 1975
	2R3-5	Sociétés savantes
	2R20-25	Musée de Toulouse (Musée des Augustins)
	2R42-43	Muséum d'histoire naturelle (après 1870)
3D		Administration générale de la commune
	3D132	Collections
6D		Secrétariat général de la mairie
	6D142	Travaux au musée
	6D227	Jardin botanique
7D		Archives du Cabinet du Maire
	7D69	Travaux Faculté des Sciences
	7D473	Travaux au musée
Fi		Documents figurés
	20Fi13	Vitry, plan de la ville de Toulouse, 1815
	20Fi35	Plan de la Ville de Toulouse, 1866-68
	20Fi102	Vitry, plan de la ville de Toulouse, 1825
	21Fi4	Bellot, plan géométrique de la ville de Toulouse, 1847
	20Fi69-72	Vitry, Projet non retenu de construction d'une école de Médecine, sur l'emplacement du couvent des Carmes Déchaussés. 1831

Archives Nationales

F^{17}		Instruction publique
	F^{17}1947-1948	Facultés des sciences: affaires diverses, dossiers classés par academie an VIII-1849 (Toulouse)

F[17]2479	Catalogue des bibliothèques et collections scientifiques des lycées : 1837-1857 (Toulouse)
F[17]3996	Jardins botaniques dans les départements, en algérie, et aux colonies 1817-1852

Bibliothèque Centrale du Muséum d'Histoire Naturelle

AM200		Index de la correspondance à l'arrivée
AM625		Registre des Demandes d'Objets d'histoire naturelle pour les Musées des Départemens et pour divers Etablissemens d'Instruction publique et des remises ou envois d'objets faits sur ces demandes par l'Administration du Museum. Ouvert en 1836 et remontant à l'Année 1831.
BLA4		Fonds Henri-Marie Ducrotay de Blainville. Correspondance A-B
	It. 135-136	Béguillet, 19/09/1828, 18/03/1830
	It. 170	Boisgiraud, 20/06/1841
BLA5		Fonds Henri-Marie Ducrotay de Blainville. Correspondance C-E
	It. 1-3	Cailliaud, 5/03/1841; 20/03/1841;14/05/1841.
BLA9		Fonds Henri-Marie Ducrotay de Blainville. Correspondance P-R
	It. 42-45	Isidore Picot de Lapeyrouse, 26/11/1814; Philippe Picot de Lapeyrouse 28/09/1814; 28/12/1815; 25/03/1818
BLA13		Fonds Henri-Marie Ducrotay de Blainville - Voyages et expéditions
Ms627		Carnet. Voyage dans le Midi de la France Papiers et manuscrits du baron G.-L.-Chr.-Fr. Cuvier (1769-1832)
	Vol.2	Dubuisson, n.d.
Ms1971-1983		Recueils d'autographes de divers personnages
Ms1975	It. 914-917	Gilibert to Thouin, 1773-an IX

Ms1980		
	It. 2030	Moquin-Tandon à Thouin, 2/02/1842
	It. 2057	Mouton-Fontenille à Thouin, 8 Floréal VI
Ms1990-1994		Correspondance de Philippe Picot de Lapeyrouse
Ms2358		Faculté des sciences des départements
	Ms2358a	1854. Inspection des facultés de Besançon, Dijon, Grenoble et Lyon Minute du rapport et note au ministre de l'instruction publique, notes d'Adolphe Brongniart et pièces à lui adressées concernant l'organisation et le personnel enseignant des quatre facultés.
	Ms2358b	Programmes des Facultés des sciences Histoire Naturelle
Ms2604		Correspondance de Charles-Lucien Bonaparte, Hartlaub - Kestner
	It. 1735	Nicolas Joly, 1/11/1853
	It. 1736	Nicolas Joly, 14/04/1854
	It. 1740-1748	Claude Jourdan, 11/08/1841; 14/05/1842; 15/05/1842; [184?]; 5/12/1851; [20/12/1851]; 21/12/1851; 10/02/1852; 30/12/1856
Ms2735		Papiers d'Etienne Geoffroy Saint-Hilaire. Correspondance intime et scientifique
	It. 44	Cailliaud, 4/02/1826
Ms2736		Papiers d'Etienne Geoffroy Saint-Hilaire. Correspondance intime et scientifique
	It. 264	Maire de Lyon, 15/04/1834
Ms3273		Alfred Moquin-Tandon. Correspondance reçue
	It 11	Cailliaud, 28/07/1840
Ms3383/48		Ensemble de correspondances constitués autour de Geoffroy Saint-Hilaire
	It. 1-3	Jourdan, n.d.

Centre de Conservation et d'Étude des Collections, Musée des Confluences, Lyon

CO-CC-JT	"Catalogue roches envoyées par Paris"
CO-CLM	"Inventaire mammifères"

CO-CLO	"Classification des oiseaux Cuvier"
CO-CON	"1793-1834"
CO-CON	"1832-1834"
CO-JE	Muséum d'Histoire naturelle de Lyon, achats, échanges: journal d'entrée, 1843-1869
CO-M	"Moulages"
CO-P	"Prêts d'objets"
DP-J	"Cours de Zoologie"
DP-J	"Journal de Jourdan", 1854-1864
DP-J	"Notes mammifères"
No shelf number	Proofs of plates for the *Annales du Muséum de Lyon*, Vol. 1

Bibliothèque Scientique du Muséum d'Histoire Naturelle de Nantes

Fonds Dubuisson		
	Dubuisson 1	Catalogue Collection minéralogique (...), 3 vol.
	Dubuisson 2	Catalogue collection Dubuisson 1822; Supplément Catalogue collection Dubuisson 1822
	Dubuisson 3	Catalogue des collections de minéralogie du museum d'histoire naturelle de Nantes 1827; Supplément minéralogie suite classe mollusque
	Dubuisson 4	Addition au catalogue aux pétrifications de polipiers; Catalogue des minéraux du cabinet histoire naturelle Nantes 1809; Catalogue des substances calcaires du terrain de Paris; Suite des terrains de Paris; 10 etiquettes minéralogiques; Copie Catalogue minéralogie Générale Nantes 1827.
	Dubuisson 5	Catalogue mammifères selon Cuvier; Catalogue Oiseaux 1832; Catalogue oiseaux Portier 1833; Catalogue règne animal; Insectes; Poissons et mollusques; Suite catalogue cabinet dubuisson - regne organique; Supplément oiseaux
	Dubuisson 6	Correspondance: Comité de surveillance
	Dubuisson 7	Archives contemporaines

Fonds Cailliaud		
	Cailliaud 1	Journal du voyage au désert en Égypte supérieure; Journal 1er voyage en Égypte;
	Cailliaud 8	Sur l'existence d'une faune troisième diluvienne, manuscrit 1861; Carte géologique de la Loire-Inférieure; Notes diverses conchyliogie, géologie.

Caillaud 10	Correspondance
Cailliaud 11	Notice sur le muséum d'histoire naturelle (ms); Règlement; Proposition de projet de recontsruction du musée; Muséum d'histoire naturelle, Projet de M. Cailliaud et observations sur les musées de Paris et de Londres; Cailliaud, notes sur la carbonifère;

Bibliothèque Émile Cartailhac, Muséum d'Histoire Naturelle de Toulouse

A_06_6_6	Catalogue général Histoire naturelle - Ecole pharmacie 1858 [intégral]
A_06_6_14	Minéralogie - catalogue de la collection de minéralogie de Lapeyrouse
A_06_6_15	Minéralogie - catalogue de la collection de minéralogie de Lapeyrouse

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Ms956	Philippe Picot de Lapeyrouse, Voyage au Mont-Perdu, 15 Fructidor V [ms] Rosalis [online], http://numerique.bibliotheque.toulouse.fr/ark:/74899/B315556101_MS_000956, accessed 03/09/2019
Ms2093	Philippe Picot de Lapeyrouse, correspondance avec Gillet de Laumont, 1788-1809 Rosalis [online], http://numerique.bibliotheque.toulouse.fr/ark:/74899/B315556101_MS_002093, accessed 03/09/2019

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