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► **To cite this version:**

Hugues Chabot. The Academy's best kept secrets. *Metascience*, 2021, 30, pp.255-257.
10.1007/s11016-021-00643-2 . halshs-03776479

HAL Id: halshs-03776479

<https://shs.hal.science/halshs-03776479>

Submitted on 24 May 2023

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The Academy's best kept secrets.

Edgardo-D. Carosella (ed.): *Sous le sceau du secret, les plis cachetés de l'académie des sciences*. Paris: CNRS Éditions, 2020, 240pp, 25€

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In 1976, under the impetus of its perpetual secretary Paul Germain, the French Academy of sciences undertook a profound reform of its statutes, which then dated back to 1816, the year of their previous revision. Among the specialized committees created on this occasion, a commission was set up to assess the sealed notes that had never been asked to be opened, either by their authors or their families, and that were more than one hundred years old. The innovation implemented the right established by a regulation of 1860 to open, publish, preserve, or even destroy (!) unclaimed deposits. By the end of the 1980s, all the sealed notes dating from before 1870 had been opened (about 5,000 of them). Pierre Costabel devoted a regular column to a few of them in *La Vie des sciences*, the Academy's publication for the dissemination of scientific knowledge. In the updated academy regulations from 2003, the procedure for depositing sealed notes remains in place, as does the role of the commission in charge of examining them, including the out-of-date materials. Today, the biennial meeting of the sealed notes commission is the occasion to open between 200 and 400 envelopes deposited at the Academy over a century ago.

The present book is a collective work by the current commission, composed of two mathematicians, three physicists, two chemists, two physicians, a palaeontologist and a historian and philosopher of science (Claude Debru). The project has been coordinated by the Academy's librarian-archivist Christine Foulcher. From the Academy's point of view, the sample of examples gathered here should serve to promote the mission of the Academy, by preserving the memory of the institution's science. The approach offers a representation of the history of science through the prism of the contemporary disciplinary affiliation of the members of the commission. The reasons for the choice of the materials selected are not explicit, but the classification that is used suggests a form of sentimental history of science - a "peculiar and original" history, as we can read on the back cover - aimed at a wider, albeit scientifically informed, public. Actually, the four themes are listed as follows: touching sealed notes, outstanding sealed notes, quaint sealed notes, sealed notes reflecting a period. The 21 subsequent contributions have no other ambition than to draw attention to remarkable pieces, without aiming to establish any kind of historiographical overview. Echoing the work of evaluation assigned to the members of the sealed envelopes commission, these different texts are very brief retrospective analyses of the scientific content of some of the most astonishing notes entrusted to the secrecy of the Academy over the course of nearly three centuries.

It is not surprising to come across the famous names of Buffon, Lavoisier, Ampère, and Pasteur, whose sealed notes precede a formal publication by a few weeks or a few months. These authors used this method to ensure the priority of a discovery or an idea, the main motivation for resorting to the procedure of depositing these secret notes with the Academy. In addition to those of these leading French scientists, many of the sealed notes mentioned are already well known to historians (for example, Scott de Martinville's note on the recording of

the human voice, or Jackson on a method of anaesthesia, or Joliot-Curie on nuclear chain reactions, or those of the pioneers of photography in France). Some have been the subject of significant publications in the history of science (for example, the discovery some twenty years ago by Bernard Bru of a major contribution to the theory of probability by the mathematician Döblich, who died at the age of 25). More unexpectedly, a sealed note deposited by Poincaré in 1883 was (re)discovered very recently by Étienne Ghys, who here puts it into context and describes its limits. Finally, three texts that address this historical material from a thematic point of view are worth mentioning. Jean-Paul Poirier and Robert Guillaumont have unearthed about thirty sealed notes related to the (false) discovery of N rays at the very beginning of the twentieth century, and they draw up a chronological list that is somewhat frustrating for the reader. In this particular case, there would have been a good opportunity to study the role played by the sealed notes procedure in the publication strategy of the researchers involved in this fiasco (which was brilliantly studied by Marie Jo Nye some forty years ago). Similarly, one of the longest contributions of the book reviews some of the 90 sealed envelopes deposited at the Academy during the First World War, but the historical perspective to contextualize these notes is to be found elsewhere, in the proceedings of a recent colloquium on academies at war published under the direction of Claude Debru. Appropriately, in one of the most interesting texts in the book, Debru plays the game of systematically associating sealed envelopes with publications in the *Comptes rendus hebdomadaires des séances de l'Académie des sciences*, working on a few pages devoted to the impact of phylloxera in France in the last third of the 19th century.

In the introduction of the book, the current president of the sealed notes commission, Edgardo-D. Carosella, provides some partial (if not contradictory) quantitative data, which can be advantageously complemented by a short article published in 1986 in the *Revue d'histoire des sciences* by Pierre Berthon, the first titular archivist of the Academy appointed in 1960. Notably, the reader will find there an accurate description of the three registers recording the sealed notes from 1735 to 1896, then from 1897 to 1949, and finally from 1950 on, as well as a list of the forty or so sealed envelopes analysed between 1977 and 1983 in the *Comptes rendus*. In addition, Berthon wrote a study of the sealed notes that can be found in the archives of the Academy (with a detailed analysis of the notes concerning medicine). Moreover, Claude Debru informs us that Pierre Buser, a former president of the sealed notes commission, also wrote, in 2004, an unpublished text entitled "*Secrets de l'Académie des sciences, Coup d'œil sur les plis cachetés*", which is also housed in the archives of the Academy.

The procedure of depositing sealed envelopes did not attract great interest until the nineteenth century. While there were barely 300 of them in the period 1735-1792, their total number exceeded 6,000 at the beginning of the twentieth century. In his landmark study on the history of the French Academy of Sciences, Maurice Crosland states that the growth became exponential in the 1820s, reaching a maximum in the middle of the century. Today, the cumulative number of sealed notes is close to 19,000. The magnitude of such a corpus can only fascinate the historian. There is a database, but it is only available at the archives of the Academy, and when it becomes more widely accessible it will surely reveal many more secrets. In an article published in 2013 in the French edition of *Scientific American (Pour la Science)*, Carosella and Buser provide some clues (probably derived from this database) about the authors of the sealed envelopes from 1760 to 1960. For this period, it seems that they counted a whole of 7,000 different authors, and that they encountered among them 1,500 engineers, 1,400 physicians, 1,360 teachers and scientists, 800 members of the Academy, 400 military officers, 280 craftsmen, and so on. The subject definitely deserves further

investigation using more explicit quantitative historical methods. Approached correctly, this unique archive can inform a major area of research for the historians of the French Academy of Sciences as for historians of science more generally.