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## Drug expertise and drug experts in Antiquity, Oriental Middle Ages and Occidental Renaissance: knowledge, know-how and social impact

Knowledge and know-how are a part of medical expertise. Ancient physicians such as Dioscorides and Galen write treatises about *materia medica*, drug classification and use, personal experience in collecting medicinal substances. Paramedical drug *specialists* are rare: Galen mentions servants acting under his guidance, or sellers of medicinal components; but he is *the* specialist. The target public of pharmacological treatises and drug narratives is mostly physicians or at least people with a comparable social status.

In the Oriental Medieval world, physicians continue to be *the* drug experts and to write pharmacological treatises. However, physicians as well as patients must buy their drugs at the market, from druggists. Druggists' social and economic position is regarded as extremely important by the authorities; hence a specialized police or *muhtasib*, which controls drugs, prevents cheating, and establishes the relation between the expertise of physicians and the know-how of druggists.

The Renaissance humanists (Leonhart Fuchs, Konrad Gesner, physicians, philologists *and* experts on plants and medicines) translate and comment on Dioscorides and Galen, targeting mainly physicians, rarely druggists, whose qualification and competence is recognized, but mostly depends on their understanding of Greek authors. A French Renaissance druggist from Tours (Thibault Lespleigney 1496-1550) will help us to shift the focus from learned editions or semi-learned manuals to practical treatises.

To examine the difference of social and economic status between drug experts and physicians, we will study the ways physicians speak to/for druggists: terminology; description and (critical) assessment of their work; relationship between trade activity and know-how; and a gender issue: druggists compared to midwives, both paramedics who possess know-how and skill.

### 1. Terminology

The various Greek words for “druggists” underline different aspects of their activity: drug sellers (φαρμακοπῶλαι) or makers (φαρμακοποιοί), root cutters/collectors (ρίζοτόμοι), perfume experts (μυρεψοί).

A TLG search yields no results for the “makers” in medical texts; in the Hippocratic corpus, neither the “makers” nor the “sellers” are referred to as such: the search shows the importance of *drinking* drugs (20 occurrences).

There is no mention of the sellers in Dioscorides, while ρίζοτόμος is found in the introduction of *De materia medica*: “Krateuas the *rhizotomos* and Andreas the physician: even though their work was more precise than the others', they let unnoticed many useful roots and herbs”.

Galen mentions the sellers (4 times), but privileges the root cutters (7 times) and the perfumers (6 times). One of his references has a pejorative connotation: in *De diebus decretoriis* K. 9, 823, the “actual physician who is a servant of nature” should be “distinguished from the seller of drugs met in the crossroad” (i.e. vulgar, common folk, φαρμακοπώλης ἐκ τριόδου). In *De simplicium medicamentorum temperamentis et facultatibus* (K. 12, 216), he focuses on his apprenticeship: since his young age (μειράκιον), he learned how to prepare drugs and noticed that sometimes it was impossible to distinguish the authentic ones, this is why he traveled in Lemnos, Cyprus, Palestine and Syria in order to acquire personal experience about medicinal substances.

In general, Galen mentions preparation and administration of drugs *by the physicians* during the healing process. The physician's assistants are often "servants"; some of them may be druggists, as in his *Commentary on Hippocrates' Epidemics* (K. 17b, 229) where the "root cutters" are included in a list of servants, together with the perfumers, the butchers/cooks (μάγειροι), those who apply cataplasms (καταπλάττοντες) or perform phlebotomy.

Ps.-Demosthenes, *In Olympiodorum* 12-15 mentions the φαρμακοτρίβαι (drug grinders). They are slaves (άνδράποδα), included in the heritage left after their master's death, like his two houses. In Modern Greek, the "drug grinder" is still in use, with a pejorative connotation (φαρμακοτριφτης).

Latin terms used in Fuchs' *Paradoxa medicinae* (1535) and *Historia stirpium* (1542): *pharmacopolae*, the most frequent, which is actually the Greek "sellers of drugs", and *seplasiarii*, literally "ointment merchants" (etymology: Seplasium, a street in Capua where ointments were sold). The two terms are used indiscriminately, but the frequency of the first one introduces the "commercial" aspect of the activity, while the physicians (*medici*) don't *sell* anything. It might also focus on druggists as persons active in the marketplace where their *officina* is located, while the physician has no shop.

Gesner also uses indiscriminately *pharmacopolae* and *seplasiarii* in two treatises published in 1542: *Catalogus plantarum* and *Apparatus et delectus simplicium medicamentorum* [On how to prepare and select simple medicines]. *Pharmacopolae* is often used with reference to their *officinae*.

In Thibault's Latin treatise *Dispensarium* (1543)<sup>1</sup>, as well as in his French *Promptuaire* (1537)<sup>2</sup>, the term "apothecaries" is also used as a synonym of *pharmacopolae*.

Druggists are often referred to as *apothecarii* in the Latin texts: this Greek word literally means "keeper of a storehouse". The modern German/Swiss Apotheke derives from this term. In Modern Greek, the meaning of "apotheke" has lost its medical connotation. Latin vocabulary includes *herbarii*, herb experts, and *aromatarii*, perfumers.

In Du Cange's *Glossarium mediae et infimae latinitatis*, the term *seplasiarius* means "merchant of pigments or unguents", while *seplasium* is a simple "grocery" (Greek παντοπωλειον, literally "a shop where anything can be sold"). *Pharmacopolae* are not mentioned, the only related term is *pharmaceutiare*, "to provide poison" (*venenum praebere*), an allusion to the usual identification of drug with poison experts.

## 2. Description of what druggists shall know and how they shall work

Galen and Dioscorides give recipes and cite some druggists by their name. Yet it is difficult to find in the ancient texts specific descriptions of the druggists' activity, as it was the case for midwifery.

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<sup>1</sup> *Enchiridion (dispensarium vulgo vocant) compositor ab antiquioribus iunioribus archiatriis medicamentor, tum copia, tum eruditione cunctis artis medicae candidatis satisfaciens* [Manual (commonly called "a book dispensing drug information") composed by ancient and new chief physicians on medicines, and satisfying all candidates of the medical art thanks to its erudition and copiousness] Lyon 1543.

<sup>2</sup> *Promptuaire des medecines simples* Tours 1537 (Paris 1544), digitized ed. 1899 by Paul Dorveaux, librarian at the Paris faculty of pharmacy, with a preface by Émile Roy, professor of the University of Dijon.

The humanistic treatises underline the importance of **nomenclature** to avoid “corruption and confusion”, as Gesner says in the dedicatory epistle of the *Apparatus*. According to him, the names commonly used are wavering: they either derive from “ancient” Greek or from “more recent” Greek, but at any rate those Greek names seem to be transmitted “more elegantly and correctly” than the ones employed “nowadays”. The vernacular names are included because druggists may have difficulties to understand Latin: Gesner’s *Catalogus* in 4 languages (Latin, Greek, German, French) explicitly mentions the need of those vernacular names “used by *pharmacopolae*”, while Fuchs’ *Historia stirpium* includes “common names used by *seplasiarii*”, as well as Greek, Latin and German names. A separate index is devoted to plant nomenclature “used in the *officinae* of our contemporary druggists and *herbarii*”. Even though this treatise targets physicians, knowing the common nomenclature is indispensable, hence this index.

Gesner, in the *Catalogus*, thinks necessary to include the “barbaric” names the druggists use and to value their expertise, while Greek terms might be sufficient for “erudite” readers (p.9). Local names are not rejected: the *pharmacopolae* in Montpellier give *elaphoboscum* a different name, “ears of hare” (p.73); the Italian *pharmacopolae* gave the “common” name *tegnamen* to the *lacapthum* (*Gr. βάσκαφθον*), referred to by Paulus of Aegina (but also by Dioscorides 1, 23, not mentioned here). It is an aromatic kind of wood, of Indian origin, “used for its scent in the houses of noble Portuguese” (*Lusitani*) p.107, 151. If a plant has no Greek name (the *doronicum*), Gesner’s reference is its presentation by the druggists, who distinguish its two different versions.

Gesner (*Hypomnema ad lectorem* at the end of the *Catalogus*) explains the futility of being involved in *controversies* about “naming plants and simple medicines”: nomenclature is a part of the druggists’ “practical” knowledge, not of an erudite debate.

**Competence** is based on reliable sources and ancient models, good advice (actually the physician’s), and experience (humanists refer to their own or relate their meetings with druggists).

Unsurprisingly, Fuchs, whose *Paradoxa* and *Historia stirpium* target an audience of physicians, prioritizes the Greek sources: in the 1<sup>st</sup> book of the *Paradoxa*, devoted to *materia medica*, Dioscorides and Galen are key authors. But this is also the case for Gesner, whose target audience is mixed: the *Apparatus*, according to its title page, is intended both for physicians *and* druggists (*pharmacopolae*) “in order to provide them all the information they need”. It draws upon: Paulus of Aegina, Aetius, Mesue, and, concerning the specific methodological point, Galen’s *On the composition of drugs “per genera”*.

The 3<sup>rd</sup> part of the *Apparatus* is a digest from Galen’s *De compositione medicamentorum per genera*. Gesner makes the most suitable selection for druggists, but in many cases he refers to physicians, who may use such a book as a mere everyday reading. Gesner explains why he omitted translation of Galen’s *De compositione...* book 5, which “only deals with particular cases” of no interest for his purpose. This statement shows the difference between the *Apparatus* and a “learned” edition like Dioscorides’ *Euporista hoc est de curationibus morborum per medicamenta paratione facilia* (1555) by Johannes Moibanus and Gesner. Gesner’s selection of Galen’s, *a physician’s* treatises, supposed to be helpful for *druggists*, provides them the ancient physician as a model.

As “shopkeepers”, druggists must follow the best advice in order to stock and sell the best products in their pharmacies. Gesner’s *Apparatus* is aimed at druggists, whose pharmacies will be *recte constitutae* (well-ordered and provisioned) if they have at their

disposal all the available knowledge about drugs' names, history, reciprocal action (*reciprocation*), selection and preparation.

He wishes that the druggists could benefit from this book in order to progress further in their learning. "Factors of drugs" (*pharmacorum institores*) can find here superior rank information about how to cook, wash, "burn" (or parch/dry), extract the juice or accomplish some other necessary tasks. If all those things are correctly explained, Gesner "does not see what other information they may need".

Fuchs refers to druggists in the *Paradoxa* to increase the *physicians'* awareness of the drug question and assessment of the druggists' professionalism. He targets quality. He presents his visits to some druggists as a means to verify the authenticity of the substances they sell and their conformity with the Greek sources and rejection of the Arabic (or Latin medieval) ones:

- *Dictamus* (dittany) is an exclusively Cretan plant. Georg Öllinger, a competent druggist from Nuremberg, "showed me a genuine *dictamus*" he had in his pharmacy, the only available in Germany. There is no evidence about the provenance of Öllinger's *dictamus*, but its authenticity is confirmed by Fuchs' description ("its leaves are covered with down"). The genuine picture features twice in Öllinger's *Magnarum medicinae partium herbariae et zoographiae imagines* (1553).
- *casia/cassia* Greek and Arabic, the former is supposed to be the authentic, described by Dioscorides, Galen, Oribasius and Pline. The cassia sold in pharmacies, the Arabic one, is a common commercial good. Fuchs corrects Georg Öllinger: the authentic cassia is not the one he had in his pharmacy.
- Erroneous ideas about hemlock stem from the medieval pharmacological treatise *Antidotarium Nicolai* (Nicolas of Salerno, 12<sup>th</sup> cent.). A druggist from Ansbach (*Onoltzbachensis*) used to consult this manual of pharmacy, until he met Fuchs.

Gesner's *Catalogus* considers personal experience as a valuable source as Galen, concerning the medicines' description and action/efficiency (*vires*): the book includes "what I have found myself and presented here for the 1<sup>st</sup> time". In the dedicatory epistle, he pays a tribute to his grandfather (*avunculus*) "who took me into his well-cultivated garden and learned me much about medicinal herbs".

### 3. Criticism towards druggists

In the ancient sources, there are recipes, i.e. guidance (mostly targeting physicians), but not criticism. As Galen competes with his fellow physicians, he gives advice to paramedics, seldom critics.

Fuchs, Gesner, but also Symphorien Champier (ca. 1472-1539), author of the *Myrouel* [mirror] *des apothicaires* (1531), criticizes many aspects of the druggists' profession.

Are druggists **trustworthy** people? Fuchs criticizes physicians who trust them: druggists become "subcontractors" of physicians; knowledge about simple drugs becomes a low-level activity, left to "illiterate" druggists. Thus, physicians don't collect first-hand information, nor do they look for ancient reliable knowledge in Dioscorides and Galen. Druggists are hold responsible for the physician's lack of efforts to study *materia medica*. They have at their disposal abundance of remedies (*remediorum copia*), because druggists make them easily available.

Fuchs underlines dissensions within the druggists' corporation, due to their sources: "stupid little women" (*mulierculae*, a term with a pejorative connotation). No reliable information can be expected from such women, only accumulation of errors. As a result, "to trust the *seplasiarii* is more risky than to be ill". Concerning the emetic and purgative *ricinus* (castor-oil plant), Gesner insinuates that there is a proximity between druggists and "the *mulierculae* in the countryside [who] have some superstitions whose accuracy is impossible to verify". The druggist Thibault Lespleigney warns against "those *mulierculae* who "would rather occupy themselves with their womanly tasks instead of being involved in medicine", and "the *pharmacopolae* whose only concern is to be agreeable to *mulierculae*". Such a criticism might imply a gendered division of tasks: druggists are certified experts, while "little women", often "provincial" or "rural" ones, i.e. common folk, are second-order, non reliable and non certified sources.

The sharpest critic targets the commercial aspect of the druggists' profession, related to market and **greed**.

In his *editio princeps* of the Dioscoridean *Euporista/parabilia*, Gesner criticizes "those physicians called *receptarii*" who change recipes in order to adapt them to *pharmacopolae*. The *pharmacopolae* "are admirers" of such physicians because they are impressed by "ostentation", given that this kind of remedies involves eccentric and expensive components; but the main reason is greed (*avaritia*): druggists can earn money from this kind of recipes, while their activity is less or not at all lucrative if medicines are easy to prepare (*parabilia*) or if everyone has the ingredients to hand. This complicity between greedy druggists and physicians is "impious" if their victims are poor people, "whose purse they empty out".

In the third part of his *Apparatus*, Gesner endorses Galen's critic against merchants and their clients: they introduce "out of season" medicines spreading confusion among people who then ask Galen to expertise those products; they adulterate medicines or let themselves being cheated. Drugs appear as mere commercial goods. There seem to be little difference between *mercatores*, *coemptores* (traders) and *herbarii* ("experts on medicinal herbs", a synonym for druggists), or between expertise and lust for money.

Fuchs sharply criticizes this complicity between physicians and druggists: their only goal is rapid accumulation of wealth. To do this, the ignorant druggists sell substances referred to as authentic *in the Arabic sources*: they follow the general trend of putting aside the Greek ones, Galen and Dioscorides, the only reliable:

- The inauthentic cassia commonly *sold* in pharmacies is the Arabic one;
- Avicenna's description of *harmel/cicuta hemlock* is misleading, but it seems "seductive" to many druggists;
- The druggists promote the Arabic agrimony instead of the authentic Greek *eupatorium*.
- Ingredients of theriac (Fuchs gives a list) are *sold* in pharmacies under a false label
- Druggists are "merchants of corpses". According to Razes' misleading definition followed by stupid (*stolidi*) druggists, *mumia/sanies* is considered a kind of "gore", a discharge from a dead body mixed with the aloe used to coat it. The druggists falsify *mumia*, replacing the rare and expensive aloe with crow's excrements (*corborum stercora*). Some of them expose corpses as a kind of "public entertainment". But *mumia* is in fact the Dioscoridean *pissasphaltos* (*Materia medica* 1, 73-74, not 93 as Fuchs mentions), a mineral substance,

nothing to do with “gore”. Despite Fuchs’ allegation, this term cannot be found in Galen, who mentions the combined effect of *pissa* (*pitch*) and *asphalt*. “People must not regard pharmacies as a dens of vultures and cannibals (*anthropophagarum*), where a human substance is *sold* as a medicine”. The German term is “Tirschenblut”: Georgius Transtetter Collimitius (who is not a druggist, but a physician, cartographer and natural scientist from Innsbruck, 1482-1535) sent Fuchs an authentic sample of *sanies/mumia/pissasphaltos*.

Thibault Lespleigney is aware of his fellow druggists’ greed. He cites the example of *julep rosatum*. The original julep is composed of 3 pounds of rose water and 1 pound of white sugar. But “nowadays, the *apothecarii* are cheating, replacing one of the 3 pounds of rose water with ordinary water, and therefore the julep loses its efficiency”.

Physicians writing for druggists underline **the difference of social status** between the two categories: Champier criticizes the druggists’ trend to be “counterfeiters of physicians”, instead of being “the physician’s ministers”, because they “administer” medicines under the physician’s guidance. Druggists are “mediators” between knowledge (detained by the physicians) and patients (who receive medical care and treatments). Gesner explicitly mentions physicians *when the subject matter is therapy*: one of the specific effects of *chamelaea* is to “alleviate the spleen suffering from growth defect” (*vitium incrementi*), but “this is a topic to discuss for physicians, not for druggists”. This hierarchical distinction between physicians and paramedics is a frequent topic in treatises concerning midwives.

#### 4. The druggist by himself: Thibault Lespleigney

A comprehensive survey of the life and work of this druggist from Tours is provided by Claude Viel<sup>3</sup>. We will focus on Thibault’s bilingualism (Latin and French), his target audience, his sources, and his taste for novelty.

Unlike Champier, who is not comfortable with the use of French in a serious treatise and asks not to be mocked for it, Thibault writes in Latin his *Enchiridion/dispensarium* a book on medicines drawing on “ancient and new chief physicians”, and “satisfying all candidates of the art of medicine”. He compares it to Dioscorides’, and targets “all those who are involved in erudite, as well as in barbaric medicine”, without explicit distinction between them and the druggists. His *Promptuaire* in French and in verse is dedicated to “his brothers apothecaries, sellers of drugs and perfumes in the city of Tours”. Thibault’s aim is not to educate them, but to “be educated, informed thanks to their expertise”. Nevertheless, he gives detailed instructions, for example on the collection of the herbs involved in the composition of an ointment: “May is the best month; the collection shall be finished within 1-2 days if possible, and scheduled between 9 a.m. and noon”. There are few references to his own pharmacy. Thibault thinks that physicians and druggists must cooperate, not compete.

In both treatises, Thibault draws on a wide range of sources: unlike the physicians examined above, he does not value ancient Greek authors (Galen, Andromachus 1<sup>st</sup> cent. A.D., Archigenes from Apamea ob. ca. 113 A.D) more than byzantine (Actuarius), Arabic (Avicenna, Mesue, Haly ibn Riwan, Razes) or Latin ones (Bernard de Gordon, ca. 1260-1318, master of medicine in Montpellier; Gentile Gentili/Gentile da Foligno, a physician from Padua ob. 1348; Nicolaus Florentinus [Niccolò Falcucci] author of *Sermones*

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<sup>3</sup> Claude Viel, *Thibault Lespleigney un apothicaire tourangeau* in *Pratique et pensée...* 2009, 161-171

*medicinales* ob. 1412; Giovanni Manardo 1462-1536; Sylvius = Jacques Dubois, physician and anatomist, 1478-1555). He thus introduces those learned authors to an audience of druggists.

Thibault wrote a treatise (1545) about the so-called “wood of *esquine*” i.e. *smilax China*, introducing this new medicine in France and praising its efficiency against gout. Chinese merchants introduced this medicine in India in 1535. As an evidence of Thibault’s open-mindedness, this book can be compared to Fuchs’ recommendation “not to use exotic ingredients, to privilege local ingredients one has to hand”. The erudite physician seems more narrow-minded than the provincial druggist. The use of “exotic” ingredients is a controversial issue including affordability and availability in the marketplace.

#### 5. Female vs. male paramedics

Recognition: ancient physicians (Galen, Dioscorides) possess both knowledge and know-how about drugs, and provide instructions to their fellows. Druggists are often assimilated to servants, while midwives’ specificity is recognized. Galen’s futile “druggist met in the crossroad” contrasts with his “best midwives in Rome” taking care of Boethus’ wife. Soranos’ treatise on midwives’ education mentions their “excellence”.

Vocational education vs. market regulation: midwives don’t have shops or sell anything, while druggists are mostly referred to as merchants, joining their commercial activity -- and greed -- to their skill. The Renaissance treatises by physicians and obstetricians alluding to or aimed at midwives insist on their skill and know-how, while druggists are under surveillance because they are suspected for cheating.

One of the druggists’ main virtues is honesty, i.e. respect for their broad clientele (physicians, but also everyday people), while midwives must above all have a good morality, i.e. respect for their “feminine” condition to match with the one of their exclusively female clientele.

The impact of midwives is related to the beginning of life; the impact of physicians is broader, because their intervention is needed during the entire lifetime. Of course, both midwives and druggists are criticized when they pretend to be equal to physicians, but druggists can acquire erudition through “digests” of learned sources, while midwives don’t need any scholarly debate. A typical example: Charles Guillemeau’s attack of the “master midwife” Louise Bourgeois (1563-1636), mostly targets Louise’s preference of Hippocrates rather than Galen, i.e. her pretention to perfectly know and use the ancient medical authorities instead of being a mere technician.

#### **Conclusion**

This is still an on-going process... From antiquity until now, appreciations on druggists fluctuate between simple merchants and trustworthy professionals.

In France, the schools of pharmacy were founded after the Revolution (18<sup>th</sup> cent.): Paris, Strasbourg and Montpellier, as a result of the need for specific university curricula. This was the official transition from a status of “merchant” to those of a skilled and graduate person. Nowadays, in France, only graduates of the faculty of pharmacy are allowed to open a pharmacy, but the commercial lobbies are exercising important pressure in order to allow medicines that need no medical prescription to be sold in supermarkets, regardless of hazards posed by this “liberalization” of the market.

In the current “connected world” where many medicines, authentic or counterfeited, are easily available on the Internet, this is a crucial question related to high stakes about public health and informed citizenship in the globalized society.

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