



## **Transmitting (and Hiding) Knowledge in Ancient Greek**

### **Pharmaceutical Poetry**

The literary forms used to transmit the pharmacological knowledge in antiquity range from a rich variety of prose genres to epic, elegiac, and iambic poetry. In Rome, Scribonius Largus chose the epistolary form for his pharmacological treatise (*Compositiones*), some centuries later, Serenus Sammonicus wrote a *Liber medicinalis* in elegiac distichs, in which the pharmaceutical material was structured according to the human body *a capite ad calcem*, “from head to heel.” This book starts with a prescription against headache and finishes with a cure for hemorrhoids. Galen (ca. 129–216 CE), the most famous physician of later antiquity who was very severe against exaggerated use of metaphors and ambivalent expressions<sup>1</sup>, wrote his works in prose. However, his style was not absolutely abstract and impersonal, as one could expect; perspicacious Bakhtin recognized a development of the idea of autobiographical novel in Galen’s production.<sup>2</sup> Notwithstanding the fact that the treatise *Materia medica* of Dioscorides (1<sup>st</sup> century CE) has reached us copied in alphabetic order, careful examination shows that originally the material was structured according to the *dynameis* of each pharmaceutical ingredient, of vegetable, animal or mineral origin.<sup>3</sup> Thus, whether the ancient authors chose prose or poetry for fixing pharmacological information in time and space, they had at their disposal various ways to organize and present the material, by genres, literary techniques, catalogues ordered by different principles, etc.

This paper will discuss some aspects of the transmission of pharmacological knowledge *in verse* in Ancient Greece. First I treat the function of the poetical meters in pharmacological poetry, then I shall focus on one particular example composed by Philo of Tarsus (1<sup>st</sup> century CE?) that offers the recipe for a remedy against colic. As we will see, poetry could be used for limiting access to pharmacological knowledge as well as for creating true intellectual games.

Once written down, every pharmacological text becomes open to all kinds of distortion of its content. It may be inaccurately copied, for example, or its dosages may be intentionally altered. Even the entrusting the books to established libraries does not protect them from accidents—or malicious interventions:

Certain [drug prescriptions] are badly recorded, because some people intentionally deceive in the act of giving the prescriptions to those who have requested them, while others distort the copies they have obtained from some (and, in fact, the books deposited in libraries—the books containing the signs for numbers [specifying dosages, etc.]—are easily distorted), making ‘5’ a ‘9’ likewise a ‘70’ into ‘13’, by the addition of a single letter as by the subtraction of a different single letter.<sup>4</sup>

It seems that the most efficacious way to preserve a pharmacological prescription over time would be to carve it upon a stone as was done in the temple of Asclepius on Cos for an antidote against venomous animals, as Pliny the Elder tells us (*NH* XX 264):

*Et discessu<ri> ab hortensiis unam compositionem ex his clarissimam  
subteximus adversus venenata animalia incisam in lapide versibus Coi in  
aede Aesculapi.*

And now that I am about to leave garden plants, I have appended a very famous preparation from them which is used to counteract the poison of venomous animals. It is carved in verse upon a stone in the temple of Aesculapius in Cos.

(tr. W. H. S. Jones).

So the question is: Why not carve one's pharmacological prescriptions upon a stone? Various reasons prevent this.

It is a striking fact that claims about the efficacy of remedies are constructed upon paradoxical and contradictory bases. Cross-cultural studies show that believing in the power of ancient drugs, which must be effective because old and proven (since they have cured many in the past) may be weighed against a belief in the value of new, recently invented drugs, which are the fruit of the latest studies and therefore give promise of curing those on whom the existing medicines have not had any effect. In a similar way assumptions that drugs imported from far away must be more powerful than local ones do not forestall the belief that being abroad one can be cured best or only with familiar, domestic medicines.<sup>5</sup> Consequently there is always a market for new drugs, a demand that coexists with the need to preserve old ones as well. This system of perceptions interacts with the centrifugal and centripetal forces of all that concerned the transmission of ancient pharmacological knowledge. On the one hand,

the destiny of each and every recipe was to be changed constantly over time; on the other, the compendium of texts had to be fixed and faithfully transmitted. An example is the described in the *Theriaka* of Andromachus the Elder, chief physician of the emperor Nero in the 1<sup>st</sup> century CE. An antidote against the bites of poisonous creatures and also against many poisons of botanical origin, it was created as a re-elaboration of *Mithridatium*, a famous remedy from the preceding century, the legendary fruit of long experiments by the King Mithridates VI of Pontus (d. 62 BCE). Mithridates took this prescription every day, not trusting anybody at his court or household—and always expecting to be poisoned.<sup>6</sup> The most radical modification of *Mithridatium* that Andromachus made was to add to the concoction a viper whose tail and head, the most venomous parts, were cut off. Adding some dozens of ingredients more Andromachus created the *theriaka* and gave it the name *galēnē* (calm). He detailed its preparation as well as its instructions in elegiac distichs.

The poem of Andromachus begins as follows:

Hear the vigorous power of the antidote of many virtues  
Caesar, giver of the peaceful freedom.  
Listen, Nero; it is called Galene, cheerful  
and serene, which does not worry about the dark ports,  
neither is it defeated if one would drink avidly  
from a hateful cup in which has been squeezed bundles of poppy.

We may ask again: Why write in verse what could be much more easily conveyed in prose? Galen, who quotes many recipes of preceding ancient authors in his pharmacological treatises (more than 2,500 pages in Kühn's edition!) explained:

The drug recipes written in verse form are the most useful with a view both to the accuracy of the weights of the medicaments and to the memory of them.

(Galen, *De antidotis* 2, 2, K XIV 115).<sup>7</sup>

In this way the transcription in verse of pharmacological preparations was supposed to protect the content against any distortion, for metrical demands of verse do not easily substitute for the specified quantities of a remedy's ingredients. Furthermore, rhythmical poetry can facilitate memorization of the prescriptions.

There is a long tradition of setting so called "didactic poetry" apart from other kinds in a separate class; of not acknowledging the aesthetic value of such verses—in a one word, of denying the presence of Muses in it. For instance a little poem describing "the birth of azoth" (nitrogen) by Erasmus Darwin (the grandfather of Charles) was included in an anthology of "the best of the bad poetry," *The Stuffed Owl* of Lewis and Lee<sup>8</sup>, while the *Alexipharmaka* and *Theriaka* of Nicander of Colophon (2<sup>nd</sup> century BCE?) are traditionally not discussed in conjunction with the standard collections of Hellenistic poetry.

This attitude goes back to Aristotle who famously denied the name of true poets to the authors of versified prescriptions among other writers on scientific subjects in verse:

Of course, people attach the verbal idea of “poetry” [*poiein*] to the name of the metre, and call some “elegiac poets”, others “epic poets”. But this is not to classify them as poets because of mimesis, but because of the metre they share: hence, if writers express something medical or scientific in metre, people still usually apply these terms. But Homer and Empedocles have nothing in common *except* their metre; so one should call the former a poet, the other a natural scientist.<sup>9</sup>

Leaving apart the very complex question of mimesis in poetry, it would be opportune instead to emphasize the fact that the meters in pharmacological poetry and scientific verse in general did not have only a basic communicative function, for once selected the various metrical forms may determine the way of proposing the material as well. For example, an appeal to the gods (in particular Apollo and his son Asclepius, both concerned with healing) is quite usual in pharmacological poetry. The intent of these appeals was to give divine authority to the following content, as if the author were guided by the gods, indeed as if the verses were dictated by the gods themselves—a convention that corresponds to the divine inspiration that epic poets claim in their invocations. To write a prescription in verse therefore does not mean simply to organize the names of ingredients and dosages in a rhythmical way. Moreover, the specimens of Greek pharmacological poetry that have reached us show clearly some

erudition in quoting canonical poets, e.g. Homer and Pindar; in choosing archaic word forms; and in deploying unusual metaphors and elegant comparisons.<sup>10</sup> In other words it applies all the devices of poetry.

Some recipes were versified in a readily comprehensible way, as for instance the description of the preparation of the *Theriaka* by Andromachus the Elder cited above. Sometimes, however, the arsenal of poetry was used in a more elaborate and cryptic way, when meters instead served as a secure medium to preserve and transmit knowledge to only those deserving few readers who had the learning and would take the trouble to puzzle their meaning out. Perhaps the most suitable example to illustrate this approach in the extant pharmacological poetry is the *Philonium*, a medicine against colic whose composition its creator Philo of Tarsus (1<sup>st</sup> cent. AD?) describes in elegiac distichs. These verses have survived because Galen quoted them in his treatise *De compositione medicamentorum secundum locos* (I 4, XIII 267 – 269 Kühn)<sup>11</sup>. The first seven elegiac distichs of the poem (*prographē* and *epangelia* of recipe<sup>12</sup>), where the antidote itself speaks in first person, comprise a list of the various symptoms and diseases against which the medicine will be effective. This enumeration finishes with a warning of being useful only among *sophoi*, “wise persons”:

I am a great invention of the physician Philo of Tarsus for mortals against numerous pains provoked by illnesses. If someone is suffering in colon, one single time given (I cure), also the liver, or difficulties in urinating, as well as stones. I cure also the spleen and the orthopnea which strikes men. Besides I cure phthisis that strikes with the spasms and the dangerous pleuritis.

Whoever spits out blood or throws it up will have me as adversary to his death. All the pains that are placed in the bowels I make to cease, cough and suffocation, hiccup and catarrh. I am written for the wise; a man of no little knowledge will have me as a gift. In the unlearned I do not want to enter.

The remainder of the poem, a further seven elegiac distichs (*sunthesis* and *skeuasias* of the prescription), describes the ingredients of the antidote and their dosages. We owe the deciphering of this recipe to the erudition of Galen, according to whom these distichs of Philo indicate the eight ingredients required. *Philonium* has to be prepared with five drams of saffron, one dram of pyrethrum, one of euphorbia, one of ear of nard, twenty drams of white pepper and another twenty of henbane, ten drams of opium; and all this must be mixed together with Attic honey.

It would take too long to discuss here the description of all ingredients in the very enigmatic second part of the poem. We will take just few examples.

Put the blond fragrant hairs of one equal to the gods, whose blood is shining in the fields of Hermes. Put of Crocos so many drams as there are the *phrenes* of a man; in fact it is not obscure.

But obscure it surely is! Saffron is mentioned first. The verse alludes to a very rare if not unique version of the myth of the young Crocos, killed by accident while he was



playing the discus-throw with Hermes. Quite possible the myth was invented by Philo himself, although the parallelism is evident with other mythical tales in which a young man dies and then is metamorphosed into a flower, like Narcissus or Hyacinthus. As for the dosage of saffron— one must put the same number of drams ‘as there are *phrenes* of man’—the choice of the Homeric term, complex conceptually<sup>13</sup>, is very unusual. According to the explanation of Galen these ‘*phrenes* of man’ correspond to the five senses (*phrenas aneros eipōn tas aisthēseis, ousas pente*)<sup>14</sup>. It is possible that Philo chose this word among all the Homeric terms designating the mental-emotional component of human beings (such *thumos*, *kēr* or *kardia*) because normally *phrenes* was used in plural. Thus this word was suitable to encrypt the simple quantity “five.” The initial sequence of association would be—“five”—“five senses”—“(five) *phrenes*”; but the addressee of the prescription would have to perform the operation in reverse. To indicate the juice of opium Philo (or rather the speaking prescription itself) orders the reader to write “pion” and to put at the beginning of word the masculine article, which in Greek would be “o”; from this operation would come the word *opion*, poppy/opium.

Another fluid in the recipe is Attic honey, which is called “liquid of the daughters of the oxen, which is descendant of Cecropides.” Philo refers here to the famous legend of bees’ *bougonia*, their supposed spontaneous birth from rotting flesh of kine. Such kenning for “honey” in the pharmacological literature is not a rarity; for instance Nicander of Colophon calls Attic honey simply “the works of the bees of the Hymmetus”<sup>15</sup>, then making a digression to tell about the birth of the bees from the cadaver of a calf dead in the pastures.<sup>16</sup> However, Philo chooses a more riddling expression, calling the bees only “the daughters of oxen” and specifying the particular

variety by referring to Cecrops, the legendary founder of Athens, so that “liquid-descendant of Cecrops” encodes “honey of Attica.”

The poem concludes with a mention of inhabitants of Tricca, another way in poetical texts to name Asclepios and his descendants, assuring thereby a divine authority for the recipe – a frequent motive, as was noted above, in the pharmacological poetry.<sup>17</sup> In this way besides being a recipe, an instruction for use which should facilitate the preparation of a drug, the *Philonium* represents a kind of test. The prescription itself in first person is testing readers in their knowledge of mythology, grammar, and professional literature.

With this example we find another way of transmitting pharmacological knowledge in Ancient Greece besides prosaic prescriptions and easily comprehensible recipes in verse. It is obvious that Philo did not want to carry his invention with him to the tomb, in silence, but neither did he want to make it a legacy for everyone who lived after him. He chose instead from the infinite possibilities to write down the results of his pharmacological investigations in a hyper-sophisticated way, creating a text for a few select *sophoi* to understand, in this way making the transmission of the knowledge into a real intellectual game.

Svetlana Hautala

Università degli Studi di Siena

Facoltà di Lettere e Filosofia

Centro degli Studi Antropologici sulla Cultura Antica

Via Roma 47

Siena 53100

Italia

Email: [satissuperque@hotmail.com](mailto:satissuperque@hotmail.com)

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<sup>1</sup> On Galen's theory of metaphor see Heinrich von Staden, "Science as text, science as history: Galen on metaphor", in "*Ancient Medicine in its Socio-Cultural Context*" eds. Philip J. van der Eijk, Manfred H. F. J. Horstmanshoff, Pieter H. Schrijvers, (Amsterdam, 1995), 499 – 517.

<sup>2</sup> Mikhail Bakhtin, "Le forme del tempo e del cronotopo nel romanzo" in M. Bakhtin, *Estetica e romanzo*, (Torino: Einaudi 2001), 286 – 287. The just said regards first of all Galen's theoretical works about the method of healing, but is diffusing also on his pharmacological texts as well. Together with an enormous quantity of the pharmacological preparations of his predecessors which Galen transmits to us and which makes his treatises extremely precious for the history of pharmacology, very often he insert the stories about the discovering some remedy by himself by way of his empirical observations and always guided by method.

<sup>3</sup> Alain Touwaide, "La botanique entre science et culture au 1er siècle de notre ère" in ed. Georg Wöhrle, "*Geschichte der Mathematik und der Naturwissenschaften in der Antike. Band 1, Biologie*" (Stuttgart : Steiner, 1999), 219-252.

<sup>4</sup> Gal., *De antidotis*, 1, 5 (K XIV31 – 32), translation of Heinrich von Staden ("Inefficacy, error, and failure: Galen on δόκιμα φάρμακα ἄπρακτα" in "*Galen on Pharmacology, Philosophy, History and Medicine*", Armelle Debru ed. (Brill, Leiden, 1997), 67.

<sup>5</sup> Nina L. Etkin, "Ethnopharmacology: Biobehavioral Approaches in the Anthropological Study of Indigenous Medicine", *Annual Review of Anthropology* (1988)17: 23 – 42; Nina L. Etkin, "Cultural constructions of efficacy," in "*The Context of Medicines in Developing Countries: Studies in Pharmaceutical Anthropology*", eds. Sjaak van der Geest, Susan Reynolds Whyte (Dordrecht: Kluwer, 1988), 299 – 326; Sjaak van der Geest, Susan Reynolds Whyte, and Anita Hardon, "The Anthropology of Pharmaceuticals: A Biographical Approach," *Annual Review of Anthropology* 25 (1996): 153 – 178.

<sup>6</sup> Cf. a beautiful poem of classicist A. E. Housman (1859–1936):

"He gathered all the springs to birth

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From the many-venomed earth;

First a little, thence to more,

He sampled all her killing store” (*A Shropshire Lad*, 1896).

<sup>7</sup> Cf. also Gal., *De compositione medicamentorum per genera*, 5, 10, K XIII 820; *De antidotis* 1, 15, K XIV 89.

<sup>8</sup> Wyndham Lewis and Charles Lee, eds., *The Stuffed Owl. An Anthology of Bad Verse* (London: J. M. Dent, 1930).

<sup>9</sup> Arist., *Poet.*, 1447b (tr. by S. Halliwell)

<sup>10</sup> See, e.g., among recent studies on the relationships between poetry and versified prescriptions Innocenzo Mazzini, “Presenza e funzione della lingua e della letteratura poetiche profane in alcune opera mediche in versi del mondo antico”, in Alfrieda and Jackie Pigeaud, eds. “*Les textes médicaux latins comme littérature*”, (Nantes : Presses Université de Nantes, 2000), 173 – 185.

<sup>11</sup> The text of *Philonium* was edited by Hugh Lloyd-Jones and Peter Parsons, *Supplementum Hellenisticum* (Berlin: De Gruyter, 1983), 332-333.

<sup>12</sup> These are the technical terms of the ancient recipes identified by Cajus Fabricius, *Galens Exzerpte aus älteren Pharmakologen* (Berlin and New York: Walter de Gruyter, 1972), 24-29 ff.

<sup>13</sup> See on *phrenes* Richard Broxton Onians, *The Origins of European Thought About the Body, the Mind, the Soul, the World, Time and Fate. New Interpretations of Greek, Roman and Kindred Evidence Also of Some Basic Jewish and Christian Beliefs* (Cambridge, New York, etc.: Cambridge University Press, 1989), 13 – 15, 23 – 40, *passim*, 116 – 117.

<sup>14</sup> Gal., *De comp. med. sec. loc.*, I 4 (K XIII 269 – 270). On the number of the senses in the ancient medicine see: see J. Jouanna, “Sur la dénomination et le nombre des sens d’Hippocrate à la médecine impérial: réflexions à partir de l’énumération des sens dans le traité hippocratique du Régime, c. 23,” in Pascal Luccioni, ed. “Les cinq sens dans la médecine de l’époque impériale: sources et développements”, (Coll. du Centre d’études et de recherches sur l’Occident romain: n.s. n° 25, 2003), 9 – 20.

<sup>15</sup> Nicander, *Alexipharmaca*, 445 – 446.

<sup>16</sup> Nicander, *Alexipharmaca*, 446 – 451.

<sup>17</sup> Cf. Ser. Samm., *Praefatio*, Marcell., *Carm.*, 3 – 8, Androm. *apud* Gal., *De antid.*, II (XIV 42 K).