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*Galen: On Problematical Movements. Edited with Introduction and Commentary by Vivian Nutton, with an Edition of the Arabic Version by Gerrit Bos*

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Galen's treatise *On Problematical Movements* (*De motibus dubiis*)—its critical edition by Vivian Nutton is under review here—has not been very well known in modern times, although in the Middle Ages it was widely circulated, mainly *via* a Latin translation from the Arabic. While in 1968 Margaret May even said that *De mot. dub.* had totally disappeared, the last 20 years have seen it slowly come back to light, mostly thanks to Carlos Larrain, who meritoriously published and commented on it [1994, 1996] using every piece of evidence that he could discover. Despite his efforts, the result was still unsatisfactory due to a number of difficulties inherent in the intricate tradition of this text. There are a very few fragments remaining from the lost Greek original,<sup>1</sup> which was still read in late Byzantine times, a Latin version translated from the Greek by Niccolò da Reggio, an Arabic version (apparently unknown to Larrain) compiled by the well known Syriac translator Ḥunayn ibn Isḥāq, and the aforementioned Latin version of Ḥunayn's text by Mark of Toledo. It is indisputably to Nutton's credit that he calls all these witnesses of the lost Galen to the stand and provides a critical text for each of them—the Arabic version is edited here for the first time by Gerrit Bos. This is the only way to ascertain the genuine argumentative path of this medical treatise.

*De mot. dub.* is, as a matter of fact, a thoughtful look into a very uncertain field of research at a time when the physiology was not well understood

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<sup>1</sup> These fragments were recognized by Larrain [1993] and are printed by Nutton in the first apparatus.

because of a lack of anatomical knowledge. Herein lies the starting point of Galen's inquiry:

- What distinguishes voluntary and involuntary movements?
- Is the cause of movement always the same?
- Studying the human will means studying the soul but what about those organs whose action does not usually require the intervention of will, although it can occasionally be altered by will itself?

In the beginning, Galen accepts and professes the paradigmatic (Alexandrian or, rather, Erasistratean) distinction between voluntary and involuntary motion: voluntary motion is produced by muscles and nerves, the impulse coming from the brain (which is the site of the ἡγεμονικόν, the ruling part of the soul) or at least from the spinal cord, while involuntary motion does not involve the brain. What, at first, is declared to be merely a problem of definition is quickly reframed by Galen as an anatomical issue. Dissection or vivisection might guide the practitioner to recognizing the source of each movement: for instance, the action of speaking or making sounds is to be imputed to the recurrent laryngeal nerves (those that 'run alongside the carotid arteries') because, if they are cut, the animal remains voiceless.

But still, there are some movements which are difficult to classify in such a rigid manner. For example, Galen asks, 'Are the protrusion of the tongue outside the mouth or the erection of the penis voluntary movements or not?' and explains that both are caused by the *pneuma* that springs from the arteries and inflates the pipe-like structures in those organs. Thus, we discover a voluntary movement which does not involve nerves or muscles. The same may be said for vomiting: it is allegedly caused by the action of the exterior tunic of the esophagus *and* by 'the expulsive power in the stomach'. While for most people vomiting is a natural function which occurs when necessary with no interference of the will, some people have trained themselves to control it. Breathing is one of the most complex movements in this regard: that it is a natural, i.e., involuntary, motion is self-evident because we breathe even when we are sleeping; but we can stop breathing for a while and, moreover, breathing is managed by nerves because, if they are cut, the animal stops breathing. The same is to be said about coughing or sneezing. But Galen could find no explanation for the fact that tickling under the armpits provokes laughing. Such a strange admission of defeat led Joubert [1579] to consider this treatise unworthy of Galen.

Galen meditated on such problematic movements as a philosopher. He was aware that evacuation is a double kind of motion: what is excessive or inappropriately ordered in the bladder or the intestine has to be expelled involuntarily; yet the will may make the process easier by relaxing the muscles that control the organs involved or may prevent it for a limited period of time. Whether relaxing the muscles may be properly called an action is a topic unworthy of consideration according to Galen, whereas refusing to act is a deliberation of the will and is, thus, an action (unlike what the Stoics say about deserters). There is also a sympathetic method of transmission of motion, just as of disease: watching someone who suffers from ophthalmia fills the observer's eyes with moisture; watching someone urinating or yawning causes the impulse to urinate or yawn. Not only the will but also states of mind (fear, anxiety, anger, and so on) can have physical effects on the body (Hippocrates had already said this in his *De humoribus*, quoted by Galen) and, moreover, imagination has a similar power: when a man thinks of his lover, his penis has an erection even if he does not want it to. Nutton claims that the basis of such an assumption is the Platonic tripartite soul, though Galen also inherited the understanding of the process of decision-making from Aristotelian philosophers.

What is striking in *De mot. dub.*—but which is also a feature that can be recognized in many Galenic works—is the flexibility of Galen's argument. He begins with the aforementioned paradigmatic distinction between voluntary and involuntary motion but soon discards it and moves on to a very pragmatic analysis of problems. His doubts about the origin of laughing, his coming back to previously addressed issues, his claiming the importance of anatomy as a way to test any hypothesis, are the methodological pattern of a practitioner who asked questions that nobody had asked before and turned his gaze onto unexplored fields of medical science without refraining from admitting his occasional failure to answer them. As Armelle Debru wrote, '*aporia*, in this case, has a heuristic value. This is *positive* anatomy' [2002, 81]. This compound way of looking at the human body, 'as a coherent organism to be investigated anatomically, physiologically, and philosophically' [18], is the most convincing proof of Galen's authorship.

As Nutton rightly points out, the textual arrangement of *De mot. dub.* is quite disappointing since 'it reads like a relatively impromptu exposition, just as if it was being dictated to a copyist' [10]: there is no harmony between the

parts and each problem seems to spring from the previous one. For instance, in 8.14 and 8.28, Galen apparently contradicts himself in explaining why one catches ophthalmia after looking at someone who suffers from that illness (i.e., because of the weak nature of the eye or because of thinking about it). But such hesitation is likely to be the effect of the genesis of the treatise from dictation or from some didactic activity.

Indeed, doubts about the authorship date back to the very Medieval tradition: the Bolognese erudite who annotated the unique manuscript of Niccolò da Reggio's version suspected that it contained at least some interpolations. Most recently, similar doubts have been raised by Armelle Debru, even though, in her opinion, the impression of a 'cento, produced in the Christian centuries', is counterbalanced by the perception of its 'almost entirely Galenic content' [2002, 85].<sup>2</sup>

It is never easy to judge a text which is not preserved in its original form and has to be evaluated on the basis of secondary evidence. Nutton firmly attributes the work to Galen after having closely scrutinized Niccolò da Reggio's version,<sup>3</sup> which is assumed to be the most faithful to the original Greek text: as a result, Nutton has been able to discern many distinguishing Galenic expressions. One of the most successful features of this edition is its in-depth inquiry into the vocabulary of the Latin translators (although without providing a glossary of Latin words) and their 'styles of translation'—the 'almost pedantic accuracy of Niccolò da Reggio' and his attempt to imitate as faithfully as possible the original through his Latin, Hunayn's concern with meaning rather than wording, and Mark of Toledo's desire to be clear even when it meant concealing his (sometimes) poor understanding of the Arabic version by recasting it. The difference is very evident if we compare their attitudes toward difficult terms: Niccolò has a tendency to transliterate them,<sup>4</sup> while Mark mixes paraphrase and definition.<sup>5</sup> This clearly explains the suc-

<sup>2</sup> She adds: 'in spite of its considerable obscurities and its strange structure'. Such oddities can now be better understood thanks to Nutton's scientific and much more reliable edition.

<sup>3</sup> This was also the opinion of Garofalo [2004, 553].

<sup>4</sup> 8.20: *syngosa substantia* from «ρηραγγώδης»/«συραγγώδης» ('porous'), where Mark translates 'porositates modice'.

<sup>5</sup> 6.1: *id quod ymaginamur extimando*, where Niccolò has 'fantasiis que secundum cogitationes'.

cess of Mark's version in the universities, as well as the poor circulation of Niccolò's translation [cf. [Garofalo 2004](#), 554].

The wide distribution of manuscripts containing Mark of Toledo's version made it possible for Nutton to conduct an in-depth and inestimable inquiry into the role and significance of Galenic science for medieval medicine. The combination of two translation movements, one stemming from Arabic Spain and the other from Constantinople and Southern Italy, created the so-called 'New Galen', a new, richer collection of Galenic writings to be used in the universities in the 13th and 14th centuries. The manuscript evidence suggests that Paris (or perhaps Chartres) seems to have played an important role in the making of such a corpus. The presence of *De mot. dub.* in university teaching is certain because of the fact that most of its manuscripts have a typical university layout (large format, double columns, broad margins, annotations by more than one owner). However, what is remarkable is that the New Galen was never utilized as a means to circulate medical knowledge but continued to be read only by very expert practitioners or teachers. This is clear in the case of *De mot. dub.*: the marginal notes often deal with 'the interaction of the body and the will, the proof that each part of the body has both an attractive and an excretive faculty, and disorders such as ophthalmia and satyriasis', i.e., with topics designed to be handled in university classes. If occasionally in these notes there are improvements on philosophical issues, there is never any evaluation of Galen's statements regarding anatomy on the basis of the annotator's own experience. In only one documented case can it be said that *De mot. dub.* had a substantial influence on the method of anatomical research: Mondino de' Liuzzi (ca. 1270–1326), a Bolognese professor who actually practised dissection, is caught by Nutton summarizing Galen and, moreover, concentrating his interests on those parts of the human body (primarily, the throat and the thorax) that had already been investigated in *De mot. dub.*

As is known, in antiquity the Empiricists were opposed to dissection, considering it useless since the very act of dissection was thought to alter the body on which it was practised [[Rocca 2008](#), 246]. Galen was aware of these criticisms and was very careful in *De mot. dub.* to point out to the reader the proper way in which to perform dissection (or even vivisection). For instance, in 11.17, Galen, who wanted to explore the process of swallowing, suggested starving the animal and depriving it of drink for long enough

before vivisectioning it to be able to watch the animal trying to eat and drink before bleeding to death; and he makes it as clear as possible that *human* dissection would be best (as his Alexandrian predecessors had been able to do but he was not)<sup>6</sup> and, accordingly, censured his opponents by saying that they had been misled by the anatomy of monkeys. We should not forget that dissection for the purposes of investigation soon disappeared after Galen's time and, thus, that Galen's anatomical texts represented an odd challenge for Medieval scholars: this explains why the real impact of this and other<sup>7</sup> Galenic texts on learned physicians was still quite limited.

I had previously assumed that Niccolò's version was the most faithful to the original Greek text in light of its literal phrasing.<sup>8</sup> Actually, the usefulness of Ḥunayn's and Mark's versions cannot be discounted, in part because Niccolò was frequently working with a defective Greek manuscript. Thus, in my opinion, Nutton abstains from publishing a back-translation to Greek with good reason: he aims instead to provide a reliable edition of the Latin and Arabic versions of the text as Niccolò, Mark, and Ḥunayn wrote them. However, the English translation tries to take a step forward: it is based on Niccolò's text but often looks at those of Ḥunayn and Mark, especially to fill the gaps in Niccolò's version, and in this way tries to reconstruct Galen's thought. For instance, in 5.10–11, when Galen explains the anatomy of the muscles that move the tongue, Niccolò's text suffers from a major loss which makes it impossible to understand Galen's description properly. Unfortunately, this section of Ḥunayn's text also appears to be marred by significant mistakes, which would require a lot of care (and anatomical knowledge) to correct: e.g., he makes Galen say that the tongue is moved downwards by muscles inserted from above ('descendit per lacertum qui continuatur ei desuper' in Mark's rendering), which is the opposite of both reality and what we know Galen stated elsewhere. As we cannot ascertain

<sup>6</sup> Nutton [2004, 231] remarks how difficult performing human dissection was even for Galen, as many of his anatomical accounts are true for animals but not for human beings.

<sup>7</sup> The last six books of *Anatomical Procedures*, which are almost useless to people who do not dissect, have no Greek tradition. Cf. Nutton 2008, 357.

<sup>8</sup> With well-supported arguments, Garofalo [2004, 558–559] praises Mark's version as more skillful: he stresses Niccolò's unfamiliarity with Latin technical vocabulary and asserts that Mark's version is much more understandable, especially regarding anatomical terms.

whether the mistake had already occurred in the Greek tradition (and surely it already had occurred in the Arabic), Nutton is right to print Mark's text in the anatomically wrong (but philologically correct) form.

I wonder whether the obscurities in the treatise can always be traced back to its genesis as a dictation: many of them could be due to some kind of abridgment made during the Greek Medieval tradition. This might explain why, in *Anatomical Procedures* 4.3, Galen explains that 'more is said' about the nerves and muscles of the lips in *De mot. dub.*, which is not true, at least according to the text that we can read now. However, the question is quite complicated and Nutton may be right when he says that this could be a reference to a planned work, not to one that was already written, and that the work was then perhaps not actually written in the way it was planned.

Nutton's edition is followed by a very useful commentary in which there are not only philological discussions that lead to a better understanding of the meanings of the text but also information about Galen's methodological patterns and their historical significance—information which is very helpful to people less familiar with the history of ancient medicine. Among many examples, of particular interest are the notes on page 345 where Nutton explores a quite vague hint ('cuidam phylosopho absque servitute et invidia phylosophiam exercenti') by briefly reconstructing Galen's acquaintance with the philosophical *milieu* in Rome.

On strictly philological grounds, one of the most important advances that this edition offers is the in-depth inquiry into the Latin manuscript tradition of Mark of Toledo: 31 manuscripts are described and classified into two families,  $\alpha$  and  $\beta$ . Nutton verifies that no manuscript is parent to any other and draws [65] a detailed *stemma codicum* (with some contamination that affects two manuscripts and the corrector of a third one). He ascribes family  $\alpha$  to Bologna and remarks that it sticks more literally to the Arabic model; family  $\beta$  is more extensive both geographically and chronologically and provides a much more elegant and refined text. Nutton hypothesizes that at least some of the variants between the two families originate from the author and thus chooses to follow  $\beta$  in the constitution of the text, assuming that  $\beta$  reflects an attempt at stylistic refinement made by Mark of Toledo himself.

These assessments are of great importance, not only to those who intend to study *De mot. dub.* but also to the future editors of other Galenic translations

(the New Galen) which are preserved in those manuscripts. This is a fact. A bit oddly (but not overly so), Nutton draws a further conclusion:

This division simplifies and improves the task of selecting codices for collation when the choice is apparently vast.... Rather than relying on what is closest to hand and thereby risking a great deal of time collating many mss of the same family and missing or underestimating important mss of the other, editors of Galen need select only one or two mss from each family in order to gain a reasonable impression of the accuracy of a medieval Latin translation. [50]

The specific purpose of such a statement is perfectly understandable and acceptable, since Nutton is thinking of editors of Greek texts who need to establish the reliability of Latin versions *before* constituting the original text. But, generally speaking, the idea of selecting, somehow randomly, one or two witnesses from each family, instead of analyzing the stemmatic relationships between *all* the manuscripts of each family (as Nutton actually did), sounds unmethodical<sup>9</sup> and may become an unfortunate outcome of the fact that such studies are very long and need consistent funding which is, nowadays, more and more difficult to find. Our hope is that Nutton's very precious work may be continued by him and/or by other scholars, and assumed as a 'template' (as he defines it) onto which the manuscript tradition of other Medieval Latin translations of Galen may be studied and systematized.

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<sup>9</sup> Nutton himself says that 'the quality of individual mss varies within each group' (more remarks about that in [Nutton 2007](#)); moreover, nobody should exclude *a priori*, i.e., without closely evaluating variants, that, in the same manuscript, the text of *De mot. dub.* might belong to one family and the text of a different Galenic work to the other one (or even to neither). Such a possibility may not be likely but, nevertheless, should not be ruled out.



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