Abstract

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Maimonides on Medicinal Measures and Weights, from his Galenic Epitomes

Some of the personal comments inserted by Maimonides in his epitomes of Galen’s Qātāğānas (De compositione medicamentorum per genera) and Mayāmīr (De compositione medicamentorum secundum locos) are discussed. The most valuable of these comments, which have neither been edited nor studied to date, is undoubtedly a lengthy and detailed discussion of medicinal weights and measures employed in Galen and subsequent medical literature. The text of this comment, found on ff. 4b–6a (pp. 6–9) of his epitome of Galen’s Qātāğānas, as extant in MS Berlin 6231, is presented along with a translation. Maimonides’ discussion of these weights and measures is interesting because it is based on prominent ancient sources, above all Yuḥannā Ibn Sarābiyūn (ninth century), that date from the period when the so-called canonical units were established.
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Introduction

The medical system developed by Galen of Pergamon (129–ca. 216) became dominant soon after his death, as it was generally adopted by subsequent generations in both the East and West. An important role in the propagation of his medical system was played, in addition to commentaries and encyclopedic compilations, by summaries or abbreviations of his works, which were considered to be too voluminous, unsystematic, complex, and repetitive for a physician to consult. The earliest summaries we know about are those compiled in Alexandria around 500. These summaries, which have been lost in the original Greek and are only known through the Arabic tradition, under the name Ġawāmiʿ al-Iskandarāniyyīn (Summaria Alexandrinorum), are probably associated with those Galenic treatises, which formed a curriculum of sixteen books, that were taught with formal commentaries and read in a specific order in pre-Islamic Alexandria and in the early centuries of Islam.¹

¹ I thank Tzvi Langermann and the anonymous reviewers for their helpful comments and suggestions for corrections.
Later, in 1322, the Gawāmiʿ al-Iskandarāniyyīn were translated into Hebrew by Simeon ben Solomon, under the title Kibbatse Galenus; this spread knowledge of Galen’s medical system in Jewish circles. The process of transmission of these summaries is exemplified in some of the Hebrew incipits. That of De sectis, for instance, reads: “This is the summary of Galen’s book on the medical sects according to the Alexandrians, translated by Hunayn ibn Ishāk.”

In addition to the Galenic works that were part of the Gawāmiʿ al-Iskandarāniyyīn, Arab physicians could familiarize themselves with Galen’s doctrines and teachings through several other summaries. Important collections of such summaries were prepared by Thābit b. Qurra (834–901), Ibn al-Ṭayyib (d. 1043), and Maimonides’ illustrious contemporary Ibn Rushd (1126–1198).

Moses Maimonides

Like his Arab colleagues, Moses Maimonides (1138–1204), the famous Jewish physician and philosopher, was acutely aware of the problem of the inaccessibility of Galen’s writings. In order to facilitate the perusal of these works he composed several summaries, all of them in Arabic; they were also employed for the composition of his Medical Aphorisms, in which he repeatedly criticizes Galen for his contradictory statements. The summaries produced by Maimonides are based on the same sixteen books that are treated in the Gawāmiʿ al-Iskandarāniyyīn mentioned above. Maimonides, like everyone else, considered the Gawāmiʿ to constitute the “core curriculum,” but he used Galen, not the Gawāmiʿ. Thus a colleague of Maimonides’ son Abraham at the Nāṣīrī hospital in Cairo, the Arab bibliographer Ibn Abī Uṣaybiʿa, calls Maimonides’ epitomes an epitome of Galen’s sixteen books. The famous physician ‘Abd al-Lāṭif al-Baghdādī, who traveled to Cairo especially to meet with three prominent men, one of whom was Maimonides, is reported by Ibn Abī Uṣaybiʿa to have characterized Maimonides’ epitomes more correctly as covering Galen’s sixteen books and five others. A similar statement


This manuscript contains three epitomes made by Ibn al-Qifti in his article on Maimonides in his History of Philosophers: “He composed an epitome of twenty-one books by Galen, adding five to the sixteen books.” While most of the epitomes compiled by Maimonides have been lost, some are extant today, in the following manuscripts:

1. MS Paris BNF, heb. 1203. This manuscript contains:
   (a) Asnaf al-hummayat (De febrium differentiis); (b) Tadbir al-shiha (De sanitate tuenda); and (c) Hilat al-bur (De metodo medendi).

2. MS Escurial 802. This manuscript contains: Hilat al-bur (De metodo medendi) on ff. 97b–144b; Tadbir al-shiha may also be extant in the same MS, along with a unique epitome of De simplicium medicamentorum temperamentis et facultatibus and of K. al-aghya (De alimenterum facultatibus).

3. MS Berlin 6231. This manuscript contains three epitomes of works on drugs, namely:
   (a) Qataqinas (De compositione medicamentorum per genera), ff. 2a–55a = pp. 1–113;
   (b) Mayamir (De compositione medicamentorum secundum locos), ff. 55b–235 = pp. 114–483; (c) al-Adviya al-muqabila li al-adwa (De antidotis), ff. 235b–269b = pp. 484–552.

In addition to these manuscripts, Stern discovered and identified fragments from epitomes of De temperamentis, De locis affectis, and De alimentorum facultatibus in the Geniza fragments in Cambridge. This makes a total of eleven extant Galenic epitomes by Maimonides (some complete and some fragmentary), of the twenty-one he is reported to have written.

As to the method followed by Maimonides in summarizing Galen’s works, he himself informs us in his Medical Aphorisms that the passages chosen by him were copied verbatim from Galen. ‘Abd al-Laṭṭif al-Baghdaḍi remarks in the same vein: “He has written a book on medicine, compiling it from Galen’s sixteen books and five others, and making it his rule not to change even a conjunction—excepting such cases as the wa- of coordination or the fa- of connection—but to transcribe exactly the passage chosen.” Ibn al-Qifti remarks that he

14. Cf. H. Zotenberg, Catalogues des Manuscrits hébreux et samaritains de la Bibliothèque Impériale (Paris: Imprimerie impériale, 1866). The manuscript is rather defective, because the folios are bound in the wrong order and there are several lacunae.
17. The supposition that these three treatises are in fact epitomes prepared by Maimonides derives from Stern, “Ten Autographs,” pp. 12, 16. I was unable to verify his supposition, because I did not have access to these treatises of the manuscript.
abbreviated the text so much and left so little substance that he achieved nothing.\textsuperscript{22} Maimonides himself informs us in his epitome of Qāṭāqānas (see below) that of the many compounds mentioned by Galen, he will mention only those whose simple components are readily available; nor will he take the trouble to mention the original composers of the medicines he has selected, since it is his intention to omit what is not of [practical] utility.\textsuperscript{22} On the basis of his analysis of the fragments of \textit{De temperamentis}, \textit{De locis affectis}, and \textit{De alimento rium facultatibus} that he found in the Geniza and compared with the original Galenic text, Stern concludes that Maimonides was obviously guided “by practical considerations and leaves out the theoretical discussions.”\textsuperscript{24} By contrast, Langermann, from his analysis and comparison of Maimonides’ epitome of \textit{De febrium differentiis} with the original Galenic text, concludes that Maimonides retained the theoretical material. Langermann adds that Maimonides wrote the epitomes as an aid to his daily review of the medical material and that one of the main aims of the review was “to provide the theoretical justification for whatever treatment he chose”; this can be understood in some sense as a “practical” justification for including theoretical material.\textsuperscript{25} In my view the epitomes are more than a personal aide-mémoire; they were also intended for the instruction of medical students. This idea is supported by Maimonides’ explicit statement at the end of his list, where he remarks that he composed it as an exercise “in the estimation and appraisal [of the standard weights].” Moreover, were his discussion a mere aide-mémoire one would expect the wording to be brief and concise with short references, and not as extensive and elaborate as in the examples adduced below. Our discussion thus far may give the impression that these epitomes are mere reproductions, admittedly abbreviated, of Galenic material, offering no additional information that might enrich our knowledge of Maimonides’ theoretical and/or practical medical knowledge. As Langermann has pointed out, however, Maimonides does occasionally insert short comments; he gives one example in which Maimonides formulates what Galen actually means in a sharp and concise way.\textsuperscript{26} Such additional comments appear in his epitomes of Galen’s Qāṭāqānas and \textit{Mayāmir} as well. Undoubtedly the most valuable of them is a lengthy and detailed discussion of medicinal measures and weights, as found in Galen and subsequent medical literature. This comment, which appears on ff. 4b–6a (pp. 6–9) of his epitome of Galen’s Qāṭāqānas will be presented below (Arabic text and English translation). Other shorter comments, too, deserve to be quoted, because they show different facets of both his theoretical and practical medical knowledge. Thus in his epitome of Galen’s Qāṭāqānas (f. 7b = p. 12) Maimonides discusses the unguent that Galen called φοινίκινη ‘palm unguent’\textsuperscript{27} (= al-marham al-naḥīt)\textsuperscript{28} and remarks that this compound, which Galen recommends for certain types of tumors and ulcers, is known in his place as “Galen’s salve” and is the black salve also called lázūq (= lazūq), i.e., a sticking plaster (cf. al-_KINDI, \textit{Aqrābādīn}, f. 119b: marhamum … aswad lazūqan li-l- ḥurāq [a black salve ..., a sticking plaster for an abscess]).\textsuperscript{29} This


\textsuperscript{23} F. 4b, p. 6a.


\textsuperscript{25} Langermann (“Maimonides on the Synochous Fever,” p. 178) based his conclusion on what Maimonides himself wrote to Ibn Tibbon about his daily study of medical books (see also ibid., p. 176).

\textsuperscript{26} Ibid., p. 178.

\textsuperscript{27} \textit{Cf. De compositione medicamentorum per genera} 1:4 (K 13:375).

\textsuperscript{28} See f. 6a (p. 9).


sort of explanation shows Maimonides’ concern with the correct identification of the medicines, which have different names in different regions, and the possibility of mistaking one for another. It was to prevent these possibly fatal mistakes that he composed his Šarḥ asmā‘ al-ʿuqdār (Glossary of drug names).

On f. 24b (p. 46) Maimonides introduces Galen’s survey of remedies that have the property of drying ulcers without a burning or roughening effect (De compotio medicamentorum per genera 4:1; K13:658ff.), by stating that in book three of De metodo medendi (K10: 157–231) Galen informed us that as a general rule all ulcers need to be treated by drying, explained what kind of ulcers these are, and which ones need moderate drying and which more intense drying. Maimonides adds that he intends to give a selection from these drugs with their degrees of drying and manner of composition.

On ff. 28b–29a (pp. 54–55) Maimonides mentions, in the context of Galen’s discussion of the treatment of foul ulcers in De compotio medicamentorum per genera 4:5 (K13:689), an unguent ascribed to Dioscurides. On ff. 44a–b (pp. 91–92) Maimonides introduces Galen’s discussion of emollient drugs and plasters in De compotio medicamentorum per genera 7 (K13:946ff.) by stating that in De simplicium medicamentorum temperamentis et facultatibus Galen discussed the nature of the strength of emollients and dissolving drugs, and that here (in this epitome), he (Galen) explained their degrees of weakness and strength and also mentioned the compound emollients and dissolving drugs prepared by earlier physicians.

In the epitome of Mayāmir Maimonides inserts the following comments. On ff. 75b–76a (pp. 104–105) he refers to Galen’s discussion of a headache resulting from a blow or fall (De comp. med. sec. loc. 2:1, K12:520ff.) but omits the section completely, with the argument that in De metodo medendi Galen has already discussed what happens to the head as a result of a dissolution of continuity (tafāwrq al-ittiṣāḥ), in addition to the internal and external cephalic tumors that result in headache and the rules for curing them. Maimonides probably considers Galen’s discussion here to be superfluous, because a headache caused by a blow or fall belongs in the same category as a headache caused by a dissolution of continuity. This can be concluded from his explicit statement in Medical Aphorisms 25:21 (ed. and trans. Bos, forthcoming):

Others than us and many physicians have contemplated Galen’s words on the causes of pain. We found that in a number of places he gives only one cause for it, namely a dissolution of continuity. He says about a hot cause of pain that it brings about a loosening of a tight structure, and about a cold cause of pain that it brings about contraction and thickening [cf. De inequali intertemperie liber 6 (K7:745)]32; In Hippocratis librum de fracturis commentarius 3 (K18B, p. 586)]. It is beyond doubt that if some parts of an organ become tighter, other parts become looser. All of it goes back to a dissolution of


31. For this Galenic notion, known as συνεχείας λυσίς, see Phillip de Lacy, “Galen’s Concept of Continuity,” Greek, Roman and Byzantine Studies 20 (1) (1979): 355–69; see also below.

continuity. On this fundamental principle he [i.e. Galen] bases his statement in the fourth [book] of De [morborum] causis et symptomatibus and a number of other places [De symptomatum causis 1:2 (K7:87)]. Then he explains in his treatise De inequali intemperie that a varying [kind of] dyscrasy is one of the causes of pain [De inequali intemperie liber 6 (K7:745)]. This is correct and therefore every pain may have one of two causes: either a varying [kind of] dyscrasy or a dissolution of continuity. It is on this that he bases his assertion. There is no doubt that [initially] he had the first opinion and that then it became clear to him that the matter is as he mentions it later, namely that there are two causes of pain.

On ff. 78b–79a (pp. 160–161) Maimonides comments on Galen’s statement that if the [head]ache lasts longer one should purge by means of a strong clyster (De comp. med. sec. loc. 2:1, K12:550). Maimonides remarks that Galen has also recommended bleeding if the age and strength of the patient are favorable, and a thinning diet if there is a large quantity of [superfluous] humors (cf. De comp. med. sec. loc. 2:1, K12:523, 550).

In the introduction to his survey of the compound remedies recommended by Galen in De compositione medicamentorum per genera Maimonides remarks that he thinks it appropriate to discuss first of all the measures and weights that are frequently used in the books on medicine and which recur throughout the De compositione medicamentorum per genera and similar books. Like other Arab physicians and pharmacologists, Maimonides knew very well that their metrological system had no uniformity or fixed standards and that in a practical science like medicine the use of inaccurate, equivocal terms could spell disaster for the patient. An awareness of the importance of a universal terminology can already be found in the Hippocratic writings and becomes especially prominent in Galen.34 Galen repeatedly complains that he does not know the exact meaning of some terms of measurement. For instance, in De compositione medicamentorum per genera 5:3 (K13: 789–790) he remarks:

But among those who have written about weights and measures there has been disagreement on how much the weight of the mna is: for, [sic!] some say that the mna consists of sixteen unciae, others of twenty, and still others draw a distinction, saying that the Alexandrian mna consists of twenty unciae, whereas the other consists of sixteen, and this is smaller. But among those who convert the mna into drachmai some say the mna consists of a hundred drachmai, others say of more, since most people also say that the uncia consists of seven and a half drachmai, while others say only seven and others again eight. This being so, it is difficult to discover how many drachmai one should calculate the mna recorded by Crito in his prescription to consist [sic'].35

But although Maimonides is thoroughly aware of the imprecise metrological terminology and the inherent risk of a wrong treatment, he remarks that he does not consider this a failure on the part of the physicians, since the [expert] physician uses his sound judgment and composes his medicines according to the individual condition of his

33. Galen actually speaks about the case that the headache becomes more severe (ἐξαχθέω).
patient. Still, even the expert physician needs standard medicines, the components of which he can adapt to the individual patient. And since the composition of these standard well-known medicines is sometimes problematic, because of inaccurate metrological terminology, Maimonides gives an example of how a physician can train himself in the correct estimation and appraisal of the weights and measures needed for the preparation and preservation of those medicines.

Like Maimonides, several Arab doctors and pharmacologists knew about the problem of the inaccurate and polysemous metrological terminology and composed minor treatises, sometimes appended to their works, in which they explained the particular medicinal weights and measures. A prominent and influential representative of this genre of literature, which was probably initiated by Pseudo-Galen’s Περὶ μέτρων καὶ σταθμῶν (De ponderibus et mensuris) (K19:748–781), was Yūḥānā Ibn Sarabiyūn (ninth century). Around 873 he composed a Kunnās (medical handbook), which only survives in fragments and quotations. One chapter of this handbook on weights and measures was subsequently borrowed by Ibn Sinā in his K. al-Qānūn fī al-tibb (vol. 3, pp. 441–42); it is also an important source for Maimonides’ discussion. In two cases Maimonides quotes from Ibn Gānāḥ’s lost book on medicines, the K. al-Talḥīš.

Unfortunately, the Arabic literature on medicinal weights and measures has been severely neglected by research. Accordingly, it is almost impossible to convert the Islamic system of a particular period into our current system. So it is no wonder that equivalents are left out of Ullmann’s survey of the most frequent Arabic metrological terms, and that Kahl remarks that the data he provides should be looked upon as “preliminary evaluations, intending to give at least a rough idea of what the units most probably stood for.” Another problem pointed out by Kahl is that the standard work on Arabic metrology, Hinz’s Islamische Masse und Gewichte, is based to a large extent on geographical and not medical literature. Editions and translations of the Arabic medical metrological treatises are thus an urgent desideratum. Maimonides’ survey of weights and measures seems to be particularly interesting, because it is based on prominent ancient sources that go back to the time when the so-called canonical units were established.

37. Ed. Bulaq 1877, repr. in 3 vols., Cairo, no date.
Maimonides on Medicinal Measures and Weights,
Translation, p. 1

1. Says the author: Some of the compound medicines which Galen included in his books were composed by himself and others were composed by famous earlier [physicians] and selected by him. He mentions many recipes of these [medicines as they were composed] by different [physicians]. But I will mention only those [medicines] which I have selected from those [medicines] whose simple [i.e., basic] components are easily obtainable as I said above. I will not take the trouble to mention the original composer of the medicines [which I select] since it is my intention to omit what is not of [practical utility].

2. I also found it proper to discuss here first of all the measures and weights which are frequently used in the books on medicine and which recur throughout this book and other similar ones. Galen says in this book (i.e. Qätäqānas) and in other books [composed by him] that according to some a man [is twenty áqiyas] while according to others it is seventeen áqiyas. He also says that one áqiya is eight mûtqâls, while in Mayâmir, book one, he says that one mûtqâl is one and a half dirhams. It is well known that one dirham is sixteen harrubas and that one harribâ weighs four barleycorns (habbas). This is also the weight of the qräf as al-Bîtrîq says. Galen also says in Mayâmir that one ãbãlas is one


2 Úqiya = Greek ούρια or υρία; cf. Ullmann, p. 317; Kahl, Sâbûr ibn Sahl, p. 226; Hinz, pp. 34–35.

3 Maimonides’ statement is not exact, since according to Galen a man is either 20 or 16 áqiyas; cf. De compositione medicamentorum per genera 4:14 (C. G. Kühn, Claudii Galeni opera omnia [Leipzig, 1821–1833; repr. Olms, 1964–1967], 13:749) (hereafter: K): εἴρηται γὰρ μοι καὶ διὰ τῶν ἡμισθῆσθαι υπομνήματον ένόυς μὲν ἐκκοπαὶ υριῶν ἐνόγους δὲ ἐκπαθέσθαι νομίζειν τὴν μοῦν (“Also in the previous commentaries I have said that according to some a man is twenty unciae, while others think that it is sixteen unciae”); cf. De comp. med. per gen. 2:15 (pp. 427–8) and 5:3 (K 13:789). See also von Staden, “Inefficacy, Error and Failure,” p. 71, and our introduction. Ibn Sinâ (K al-Qanûn fi al-jibb [Bulaq, 1877; repr. Cairo, n.d. (3 vols)], 3: 441 [hereafter Ibn Sinâ]) remarks that the Greek man is twenty áqiyas and the Roman and Egyptian man is sixteen áqiyas.

4 For mûtqâl corresponding to Greek δραχμή, cf. Ullmann, p. 317; Kahl, Sâbûr ibn Sahl, p. 228; Hinz, pp. 1–8. For the calculation cf. Galen, De compositione medicamentorum per genera 4:14 (K 13:789): ἐπαθή καὶ τὸν υρίαν οἱ πλεῖστοι μὲν ἐπὶ καὶ ἀπὸ τῶν δραχμῶν εἶναι φασὶν, ἐνοῦ δὲ τῇ (“… since an áqiya is according to most [doctors] seven and a half drachmas, and according to some eight”).

5 Dirham = Greek δραχμή; cf. Ullmann, p. 318; Kahl, Sâbûr ibn Sahl, p. 226; Hinz, pp. 1–8. This quotation from the K. al-Mayâmir (= De compositione medicamentorum scandum locos), book one (= K 12:378–497) could not be located.


8 For qräf from Greek καρπότον; cf. Ullmann, p. 319; Kahl, Sâbûr ibn Sahl, p. 228; Hinz, p. 27.

sixth of a mītqāl. Likewise he says that one ʿuṣūḥāsān is one and a half ʿażīyās. And he says that one gramma is one third of a mītqāl.

Ibn Sarabiyūn says that one ʾāṣānā is one and a half grammas and is thus half a mītqāl. Ibn Sarabiyūn also says that one drachma is one mītqāl and one dānīq one sixth of a dirham. Al-Bītrīq and trans. Gerrit Bos). For the calculation cf. Ibn Sinā: "القرآن أربع شعرات."

This quotation from the K. al-Mayāmīr could not be located; but cf. Pseudo-Galen, De ponderibus et mensuris 14 (K 19:775): Ἡ δὲ δραχμὴ ... ὁμοία τρία τους θέσην ὀλοίονος στ’ ("one drachma...contains three grammas, i.e. six oboli.").

Uṣūḥāsān = Greek ὄσσα; cf. Ullmann, p. 317.

This quotation could not be located in Galen’s works. According to Pseudo-Galen, De ponderibus et mensuris 14 (K 19:775) one ʿuṣūḥāsān has two ʿażīyās.


Cf. Pseudo-Galen, De ponderibus et mensuris 6 (K 19:758): Ἡ δὲ δραχμὴ γράμματα τρία ("One drachma is three grammas”; i.e. one gramma is one third of a drachma (= mītqāl).

For ʾāṣānā cf. Ullmann, p. 318; Hinz, p. 34.

This quotation has not been preserved in Ibn Sinā, the major source for Ibn Sarabiyūn’s chapter on measures and weights from his lost Kunnās; cf. my introduction. But cf. al-Zahrāwī, K. al-ṭaṣrīf, following H. Sauvaire, “Matériaux pour servir à l’histoire de la numismatique et de la métrologie musulmanes,” Journal Asiatique 4 (116) (1884): p. 240 [hereafter Sauvaire, JA 4]; “Le poids de la sâmoûnā est d’un gharama (gramme) et demi.” See also ibid., n. 5.


This quotation has not been preserved in Ibn Sinā’s K. al-UTDOWN fi al-ṭibb (3: 441–42); for other parallels cf. Sauvaire, JA 4, p. 302.

Kuwāṭūs = Greek κυψεῖς; cf. Ullmann, p. 319.


For istār, from Gr. στάριον via Syr. ʿstārā, cf. Ullmann, p. 317.

According to Ibn Sinā, one istār is six dirhams and two dānings, i.e. four mītqāls; see also Hinz, p. 15, and Sauvaire, JA 3, pp. 375–79.

For tassūg see Ullmann, p. 318; Kahl, Sābūr ibn Sahl, p. 227; Hinz, p. 34.

For this calculation, cf. Sauvaire, JA 4, p. 257. Sauvaire (ibid., p. 256) also notes that according to al-Zahrāwī one tassūg is two and a half Ḥabbas.

Le. Jonah ibn Ḥanāh, also called Abū ‘l-Walīd ibn Merwān, the undisputed master of Sepharidi linguistics, who lived in the first half of the eleventh century (died after 1040); see Encyclopaedia Judaica, 1 ed., 8: 1181–86, s.v. “Ibn Janāh, Jonah” (D. Tennen). The quotation comes from his lost book on medicine, entitled K. al-Talḥīs, which is once quoted explicitly by Ibn al-Quff in the section on metrology in his K. al-Girāḥa (following Ullmann, p. 320).

For nāṭal/nāṭal/nayṭal (see next note), cf. Ullmann, Medizin p. 329.


For this quotation cf. Sauvaire, JA 8.
is three ḥuṣṣiyaṭ and one small musṭrān six mitqāl. He also says that a large ṣadafa [seashell] is fourteen šāmānās, which equals seven mitqāl, and a small ṣadafa six šāmānās, which equals three mitqāl. He says that a milʿaqa (spoon) has the capacity of two mitqāl of medicine and four mitqāl of honey.

4. Galen says in a number of places that a riḍī is twelve ḥuṣṣiyaṭ. And in chapter four of this book (i.e. Qāṭāgalūs) he says that according to some a qaṭal is seven ḥuṣṣiyaṭ and according to others twelve ḥuṣṣiyaṭ. He also says that a qaṣf is ten ḥuṣṣiyaṭ, and in Mayāmīr, book three, he says that it is one and a half riḍī.

5. “Said the author: It is clear that there is no harm to us [physicians] in the different [opinions] concerning the quantity of the riḍī, qaṣf and mana and the other weights and measures, as long as we do determine the effect of each simple drug within the compound drug, its thinness and thickness, as well as the length of its [preparation by] cooking, depending on the sound judgment of the physician. [And this judgment is] according to the effects which he wants the

\[\text{riḍī} \] 45 Ibn Sarābiyūn says that a sukkūruḍa is forty dirhams, a duʿraq [eight riḍīs], and a harūs ten riḍīs. Ibn Gānāl states that a kaylaḍa is one and a half riḍīs, and an ibrīṭ 54 is close to a mana. 55

45 The quotation does not appear in De comp. med. ad locos, but in Pseudo-Galen, De ponderibus et mensuris 7 (K 19:762). In De comp. med. per genera 2:16 (K 13:435) Galen says that for the Romans a sextarius is one and four-sixths of a liter.
47 According to Ibn Sinā, a sukkūruḍa is 6⅔ istār; according to Khwārizmī, Muṣṭafā b. al-ʿulām, ed. G. Vloten (Leiden, 1895, p. 180), a small uskurada is three ḥuṣṣiyaṭ and a large one nine ḥuṣṣiyaṭ. See also Sauvaire, JA 7, p. 175f.
49 According to Ibn Sinā, an Italian duʿraq is eight ḡawāḥīn (for this term see Ullmann, p. 318); for one duʿraq equal to eight riḍīs see Sauvaire, JA 7, p. 170, quoting from an arithmetical compilation.
50 Harūs; cf. Sauvaire, JA 7, p. 167, s.v. ḥuṣṣiyaṭ.
51 According to al-ʿAṭṭār’s Minhāg al-dakkar it is seven and a half riḍīs (following Sauvaire, ibid.).
54 Ibrīṭ: cf. Sauvaire, JA 7, p. 133.
55 For different computations cf. ibid.
compound medicine to have and according to the [condition of] the body which he wants to treat with it and according to the powers of every single ingredient and their strength and weakness. I only mentioned the weights and measures stated above as an exercise in the estimation and appraisal [of the standard weights] needed for the [right] way of preparation and preservation of the well-known compound medicines.

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Maimonides on Medicinal Measures and Weights, Arabic text

1. قال [fol. 4b] أن قال جالونوس، المقدم، [الدوّارد المعروف] أن جالونوس كتبها ومنها ما أثبت أن الحساسين مشاهد كأنه مكثوريما، هو مكتوب بهما حسباً كثيرة لأشخاص مختلفة، فإن كنا نحن منها ما اختارنا مما نحب ووجد بساطة كما قلنا فلا أنعكس أن نستخدم ذلك الدواء لمركبة الأولى، فلما نحن نحذف ما لا نفاد فيه.

2. وكذلك رأيت أن أقدم هذا الأكيد والأوران الكبير الاستعمال في كتاب الطب المكرّر في هذا الكتاب وغيره من ذلك قال جالونوس في هذا الكتاب وغيره إن من السام عدد الناس عنوان أوقية ومعمل بعض سبع عشرة أوقية وكأن رأس المكرّل في أول المبكر قال إن المكال دهم ونصفي ونعمل إن الدهم ستة عشر خرجة والعربية وزن أربع جلود شعر وهذا هو أيضاً زنة القرطاء فذلك الطريق. وفي المبكر أيضاً ذكر جالونوس أن أوبيلوس سهم مثل وذلك ذكر أكسيوان. وأوقية ونصفي وكذلك ذكر أن غرامي ثلاث مقالات.

3. وذكر ابن سرابيون أن شامونا عرعي ونصفي يكون إذا نصف مقالة. وكذلك ذكر ابن سرابيون أن الدحمي مقالة ودائم سبست درهم. وكذلك ذكر الطريقي أن كوالوس وقال قوالوس وقال [بولس وقاذل بولس] زنثة أوقية ونصفي. وكذلك ذكر ابن سرابيون: إن استنار ستة درهم وثاني ابن جاح. ثم ناطل ابن استنار وذكر ابن سرابيون مسقرون كبير تلك (fol. 5b) والطشوج جناح. وذكر ابن جاح: ثم ناطل استنار وذكر ابن سرابيون متضمناً كبير تلك وأوق واكسرون صفرة ستة مقالات وكذلك ذكر أن صفقة كبيرة أربعة عشر شامونا يكون ذلك رئة سبع مقالات. وصفة صغرى ستة شوامان يكون ذلك ثلاثة مقالات. وكذلك ذات أن السمن تحت مثل مثل من الدواء وأربع مقالات من العمل.

4. وقال جالونوس في عدة مواضع أن الرطل الثلاثة عشرة أوقية وقال في رابطه هذا الكتاب إن قوطونيل عند بعض الناس مدعه أوقاً وقفت عند بعضهم الثلاثة عشرة أوقية وقال إن القسط عشرة أوقية في تلك المكرّل Appendix رطي ونصفي. وقال ابن سرابيون إن السكرجكة أربعون درهم وإن الدورق نابكية رطي وإن الحروس عشرة أرطال. وذكر ابن جاح أن الكليجة ولط ارطال (fol. 6a) ونصفي والآخرين قرب المرام.

1: emendation editor
2: emendation editor
3: emendation editor
4: ناطل
5: ﺍﻟﺘﻤﺎ hannan MS
قال المؤلف: وبيان هو أن لا ضرر يدخل علينا في اختلاف الناس في مقدار الرطل والقط، ومن وغيرها من الأوزان والأكاليل إذ تقدر تقدير ما يجعل من كل دواء مفرد في دواء المركب، وحال رقته وثخانته أيضا أو إطالة طبخه والتصسير في ذلك راجع لنظر الطبيب بحسب الأفعال التي يريد أن يفعلها الدواء المركب، وبحسب البذن الذي يعالج به وبحسب قوى كل واحد من المفردة وقوة أفعاله وضعفها. وإنما هذه الأوزان والأكاليل المذكورة للارتياض في الحدس والتخمين على صورة التركيب، وحفظ صورة الأدوية المركبة المشهورة.