

The Black Death in Hebrew Literature: Abraham Ben Solomon Hen's Tractatus de pestilentia.

Edition of the Hebrew text with Introduction, English translation and Supplement of the Romance Terminology¹

GERRIT BOS AND GUIDO MENSCHING

I. Introduction

The Black Death in medieval medical literature

The terrible pandemic of plague nowadays known as the “Black Death,” which erupted in the Eurasian continent and spread all over Europe between 1348–1352 and killed between 30% and 60% of Europe’s population, left ample traces in contemporary medical literature, composed by Muslim, Christian and Jewish doctors.²

Of the treatises composed by Muslim doctors, those by the Andalusian doctors Ibn Khātima, aš-Šaqūrī and Ibn al-Khaṭīb are especially important, as they were composed around the time of the Black Death and are thus valuable for their observations of this pandemic.³ The treatises

¹ We thank the anonymous reviewer for valuable comments and suggestions for corrections of this article.

² For a general exposition of the Black Death, see A. M. Campbell, *The Black Death and Men of Learning* (New York: Columbia University Press, 1931); P. Ziegler, *The Black Death* (London, 1969; repr. 1991); J. N. Biraben, *Les hommes et la peste en France et dans les pays européens et méditerranéens* (2 vols, Paris-The Hague: Mouton, 1975–1976); M. W. Dols, *The Black Death in the Middle East* (Princeton: Princeton University Press, 1977); R. Horrox, *The Black Death* (Manchester: Manchester University Press, 1994); J. Arrizabalaga, “Facing the Black Death” in *Practical Medicine from Salerno to the Black Death*, eds. L. García-Ballester et al. (Cambridge: Cambridge University Press 1994), 237–288.

³ For a general survey of the literature composed by Muslim doctors on the subject of the plague in general and the Black Death in particular, see M. Ullmann, *Die Medizin im Islam* (Leiden/Köln: Brill, 1970), 242–250; Dols, *The Black Death in the Middle East*, 320–335. For an analysis of the contents, see Dols, *The Black Death in the Middle East*, 84–142; D. Palazzotto, “The Black Death and Medicine: A Report and Analysis of the Tractates Written Between 1348 and 1350” (PhD diss., University of Kansas, 1973).

tise entitled *Tahsīl ġarad al-qāṣid fī tafṣīl al-maraḍ al-wāfid* composed by Ibn Khātima in the winter of 1348–1349 is, apart from the theoretical section dealing with the essence and therapy of the plague, especially interesting as it contains a detailed description of the progress of the plague in the city of Almería, where seventy people died every day.⁴

Amongst the Christian doctors, Jacme d'Agramont composed a treatise some time before the appearance of the pestilence in the city of Lerida in the Crown of Aragon in 1348. The author wrote the treatise in Catalan and not in Latin and emphasized prophylactic prescriptions and preventative medicine, as he intended to help the lay people of Lerida, and not to instruct the physicians.⁵ Gentile da Foligno, a lecturer in the medical faculty of Perugia, wrote a *Consilium contra pestilentiam* and three shorter consilia. They were written some time before June 12, 1348, when Gentile himself died from the plague in Perugia.⁶ In October 1348, the College of Masters at the medical faculty of Paris published a tractate on the pestilence entitled *Compendium de epidimia*,⁷ at the request of King Philip VI of France. The work consists of two major sections: the causes of the plague and its derivation, and preventative and curative remedies. Other plague treatises were composed by John of Penna in the city of Naples in 1348 and Alfonso de Córdoba, who wrote a *Epistola et Regimen de pestilentia* in the city of Montpellier in 1348 or 1349.⁸

Most prominent amongst the Jewish authors was without any doubt Abraham Caslari, who was active as a physician in the town of Besalú in the Kingdom of Aragon.⁹ Shortly after the outbreak of the Black Death,

⁴ See Ullmann, *Die Medizin im Islam*, 246–247; Palazzotto, “The Black Death and Medicine,” 42–43.

⁵ See Arrizabalaga, “Facing the Black Death,” 240–241; Palazzotto, “The Black Death and Medicine,” 31–35.

⁶ See Arrizabalaga, “Facing the Black Death,” 241; Palazzotto, “The Black Death and Medicine,” 239–241.

⁷ Edited by H. E. Rebusis in *Étude historique et critique sur la peste* (Paris, 1888), 70–148; see Arrizabalaga, “Facing the Black Death,” 241–242; Palazzotto, “The Black Death and Medicine,” 35–38.

⁸ See Arrizabalaga, “Facing the Black Death,” 241–242; Palazzotto, “The Black Death and Medicine,” 38, 41–42.

⁹ For a survey of the literature on the plague composed in Hebrew, see the fundamental article by R. Barkai, “Jewish Treatises on the Black Death (1350–1500): A Preliminary Study,” in *Medicine from the Black Death to the French Disease*, eds. R. French et al. (Aldershot, U. K.: Ashgate, 1998), 6–25. Although the article is fundamental with regard to the new material adduced, it unfortunately suffers from several grave mistakes. For instance, on pp. 14–15 Barkai discusses a “detailed chapter on the Black Plague, its causes, symptoms and therapy,” allegedly from Joshua ha-Lorqi's *Gerem ha-Ma'alot* and extant in MS Paris BN, Heb. 1143, fols. 51v–54r. However,

he composed a plague treatise entitled *Ma'amar be-qaddaḥot divriyyot u-minei qaddaḥot* (Treatise on pestilential fevers and [other] kinds of fevers).¹⁰ A second prominent author is Isaac Ben Todros, who lived in the city of Avignon in the second half of the fourteenth century. In his *Be'er la-Hay* (A Well of Life; cf. Gen 16:14) he strongly criticises contemporary physicians for not taking into consideration the different individual constitutions of the patients and the causes of the plague.¹¹ A third author is Abraham Bar Solomon Ḥen, who will be discussed below.

In addition to the work of these authors, who are known by name, we possess an anonymous treatise entitled *Ha-Ma'amar be-qaddaḥat ha-de-ver* (Treatise on pestilential fever),¹² which is extant in MS Berlin, Staatsbibliothek Preussischer Kulturbesitz, 232/10 (Qu 836)¹³ and in MS Leeuwarden, Provinciale Bibliotheek van Friesland 19HS.¹⁴ In addition to these treatises composed in Hebrew, Jewish authors hailing from Christian Spain used Arabic for compositions on the plague. Thus, Elijah Ben Abraham, whose Arabic name was Ilyās ibn Ibrāhīm al-Yahūdī al-Iṣbānī, wrote a treatise entitled *K. majannat at-ṭa'ūn wa l-wabā'*, which he dedicated to the Ottoman Sultan Selim I while he was staying at the sultan's court in Constantinople.¹⁵ In addition to these original works, we have Hebrew translations from other languages that testify

the text in question is none other than Ibn Sīnā's discussion of pestilential fevers and their treatment in his *K. al-qānūn fī l-ṭibb*, in the Hebrew translation of Nathan ha-Me'ati. Moreover, it does not appear on fols. 51v–54r, but on 51r–53r.

¹⁰ For the edition and translation into Dutch on the basis of one manuscript, namely Leiden, Bibliotheek der Rijksuniversiteit Or. 4778 (Warner 40/6), fols. 115r–123v, see H. Pinkhof, *Abraham Kashlari over Pestachtige Koorts en Hebreeuwsch met Nederlandsche Vertaling. Naar het te Leiden voorhanden handschrift, benevens een bericht over vier andere 14e eeuwse Hebreeuwsche handschriften, handelende over de pest* (Amsterdam, 1891). However, as Jessica Kley showed in her MA thesis ("Der Schwarze Tod im Mittelalter-Abraham Kaslari's *Traktat über pestilenzialische und ander Arten von Fiebererkrankungen*. Kritische Teiledition, Übersetzung und Einleitung"; Cologne, 2006), the edition is uncritical, contains many mistakes, and many pharmacological terms remain unidentified. Ms Kley is currently preparing a new edition of Caslari's *Ma'amar be-qaddaḥot divriyyot* and his *'Aleḥ Ra'anān* based on all the extant manuscripts as part of her doctoral dissertation.

¹¹ Cf. Barkai, "Jewish Treatises," 12–13. The treatise was edited on the basis of the MS Moscow, Guenzburg 165, by D. Ginzbourg in *Jubelschrift zum neunzigsten Geburtstag des Dr. L. Zunz* (Berlin, 1884), 91–126.

¹² Cf. Barkai, "Jewish Treatises," 12.

¹³ Cf. M. Steinschneider, *Die Handschriften-Verzeichnisse der Königlichen Bibliothek zu Berlin: Verzeichniss der hebräischen Handschriften* (2 vols., Berlin, 1878–1897; repr., in 1 vol, Hildesheim, 1980).

¹⁴ An edition of this text is forthcoming.

¹⁵ Cf. Barkai, "Jewish Treatises," 15.

to the strong interest of the subject of the plague in Jewish circles. Thus, the treatise on the Black Death composed in 1365 by John of Burgundy, professor for medicine in Liège between 1330–1370,¹⁶ was translated twice into Hebrew, first by Benjamin of Carcassonne in 1399 and later by Joshua of Bologna in the fifteenth century.¹⁷ Two further translations were probably produced in Spain. The first is a translation into Judeo-Spanish by an anonymous translator of the *Preservatio contra pestilentiam*, which was composed by Jean de Tournemire in 1370. The second translation is a Hebrew translation of a regimen of health during the plague ascribed to an otherwise unknown Pablo de Sipaya.¹⁸ Other Hebrew translations concern Gentile da Foligno's *Concilium*, Velescus' de Taranto's *Compendium utilissimum contra pestilentia*, and a plague treatise composed by Francisco de Cenellis of Bologna.¹⁹

The medical interpretation of the Black Death: aetiology, prevention and treatment

Medieval literature on the plague generally distinguishes two different types of causes for the occurrence of the plague: metaphysical, i. e. the will of God, and physical. The physical causes can be subdivided into a remote cause and a near cause. The remote cause, usually an astrological or celestial one, may create atmospheric or terrestrial disturbances which result in the near cause, namely miasma (i. e. corruption of the air) and contagion.²⁰ The most popular medieval explanation for epidemics was the theory of the Great Conjunctions, promulgated by the ninth-century Arab astrologer Abū Ma'shar (Albumasar). In this theory particular planetary conjunctions cause major political and natural disasters. The masters at the medical faculty in Paris embraced this causal model by stating that the Black Death was generated by the unfavorable conjunction of Saturn, Jupiter and Mars in the sign of Aquarius in the year 1345, which resulted in a deadly corruption of the surrounding air.²¹ The concept of the corruption of the air, which became prominent in

¹⁶ Cf. M. Steinschneider, *Die hebräischen Übersetzungen des Mittelalters und die Juden als Dolmetscher* (Berlin, 1893; repr. Graz: Akademische Druck- u. Verlagsanstalt, 1956), 803–804.

¹⁷ Cf. Barkai, "Jewish Treatises," 7.

¹⁸ Cf. Barkai, "Jewish Treatises," 7–8.

¹⁹ Cf. Barkai, "Jewish Treatises," 9.

²⁰ Cf. Palazzotto, "The Black Death and Medicine," 62.

²¹ Cf. Gerrit Bos, "R. Moshe Narboni, Philosopher and Physician: A Critical Analysis of Sefer Orah Hayyim," *Medieval Encounters* 2 no. 1 (1995): 219–251, 241–242.

the literature on the plague, ultimately goes back to the classical doctors Hippocrates (*Epidemics* I and III) and Galen; the theory was then adopted by medieval doctors, either directly or indirectly, through the commentary literature. In his *De differentiis febrium*, Galen develops Hippocrates' concept of the miasmatic corruption of the air and combines it with that of the pneuma²² and with his theory of the four bodily humors that dominated medieval medicine and formed the framework for most of the medical accounts of the Black Death.²³ The idea that the plague could also be caused by contagion can be found in the works of some Christian and Muslim medical authors, but it seems to be absent from the Jewish literature on the plague.²⁴ At the end of the day, however, most authors consider God to be the ultimate cause of the plague. Some do so by making the remote, astrological causes subservient to God. For instance, Isaac Ben Todros concludes that "the heavenly hosts do not themselves have strength, but are as an axe in the hands of the Hearer, and they have no ability to harm or to benefit except what is given them by the Creator".²⁵ A statement to the same intent is featured in Caslari²⁶ and in Abraham Hen, as we shall see below.

The means recommended in the different plague treatises as a prophylaxis against the plague are of a similar nature, as they go back to common sources, namely the works of Hippocrates and Galen, their medieval commentaries, and other derivative works, above all Ibn Sīnā's *K. al-qānūn fī l-ṭibb* (Canon). Since both the corruption of the air and the plague are generally thought to be caused by too much heat and moisture, the application of different sorts of fumigations and aromatics to improve the air quality and to protect the body is a central theme. The ingredients to be applied are of a cold and dry nature, according to the generally adopted theory of *contraria contrariis curantur*.²⁷ In addition to these ingredients to improve the air, we often find recommendations pertaining to eating and drinking, i. e. diet; work and rest; sleep and waking; natural excretion and retention (including bathing and coitus); and the affections of the soul. These six external "non-natural" elements

²² On the pneuma, a sort of very subtle and fine matter that was considered to be vital for the condition and functions of the body and soul, see Manfred Ullmann, *Islamic Medicine* (Edinburgh: Edinburgh University Press, 1978) 62–3. For a detailed discussion by a medieval doctor, see Maimonides, *On the Regimen of Health* 4.1–2 (forthcoming edition and translation by Gerrit Bos).

²³ Cf. Dols, *The Black Death in the Middle East*, 85ff.

²⁴ Cf. Barkai, "Jewish Treatises," 21.

²⁵ Trans. Barkai, "Jewish Treatises," 21.

²⁶ Cf. edition Kley, "Der Schwarze Tod im Mittelalter," 2.4.

²⁷ Cf. Dols, *The Black Death*, 98ff.

influencing one's health are part of the Galenic scheme of the *sex res non-naturales* that became a current motif in all the later treatises dealing with hygiene.²⁸ In case one actually fell ill with the plague, blood-letting was especially recommended, conforming to the theory that the disease was caused by a surplus of corrupt blood that had the same qualities as the corrupt air, namely, heat and moisture. To treat the external symptoms of the plague, the physicians advised the application of different salves, lotions, plasters and poultices, as well as certain surgical practices.²⁹

Abraham Bar Solomon Ḥen and his *Tractatulus de pestilentia*

Abraham Bar Solomon Ḥen is only known from his authorship of this treatise. We do not have any other biographical or bibliographical data. However, since the family name Ḥen is Hebrew for Gracian, it is possible that he was a member of the well-known Gracian family hailing from Barcelona and probably lived at least for some time in that city.³⁰ In fact, many of the non-Hebrew terms that frequently appear in the text make Catalonia the most probable region for localizing this author. We have thoroughly analyzed and explained the foreign terms in a glossary at the end of this article; see the introductory remarks to the glossary for further comments. The treatise itself survives in an incomplete copy in MS Leiden, Bibliotheek der Rijksuniversiteit Or. 4778 (Warner 40/7),³¹ fols. 123v–126v, and was possibly copied in 1484.³² The text of the treatise suffers from several corruptions, possibly the result of copyist(s). In the edition of the Hebrew text, we have emended these corruptions wherever we could. The treatise itself does not have a title; the term “*Tractatulus de pestilentia*” has been conveniently added by Steinschnei-

²⁸ Cf. M. Dols, *Medieval Islamic Medicine: Ibn Riḏwān's Treatise "On the Prevention of Bodily Ills in Egypt."* Translated, with an introduction; Arabic text edited by Adil. S. Gamal. (Berkeley: University of California Press, 1984), 14, esp. notes 65–66. The six non-naturals are especially prominent in the anonymous *Ha-Ma'amar be-qaddaḥat ha-dever*.

²⁹ Cf. Dols, *The Black Death in the Middle East*, 105ff; Palazzotto, “The Black Death and Medicine,” 115ff.

³⁰ See entry “Gracian (Ḥen), Zerahiah Ben Isaac Ben Shealtiel,” *Encyclopaedia Judaica*, vol. 7, cols. 842–843 (U. Cassuto).

³¹ Cf. M. Steinschneider, *Catalogus Codicum Hebraeorum Bibliothecae Academiae Lugduno-Baraviae* (Leiden: Lugduni-Batavorum apud Brill, 1858), 155–156; A. van der Heide, *Hebrew Manuscripts of Leiden University Library* (Leiden: Universitaire pers Leiden, 1977). “Warner 40/8” in Barkai, “Jewish Treatises” is incorrect.

³² According to Barkai, “Jewish Treatises,” the text starts on fol. 123v.

der and adopted by the current editors. Steinschneider suggests that the treatise was composed in 1349. He does not provide any argument to substantiate this supposition.

As for the reason for its composition, Abraham Ḥen informs us that because plagues inevitably do occur and since it is nearly impossible to cure them, the only thing one can do is to try to protect oneself against their actual occurrence by means of the kind of preventative regimen that he provides in the treatise. In order that people in general might find it easy to familiarize themselves with the contents of the treatise, he composed it in a concise way and arranged its contents in six chapters, to ease memorisation. Yet the author realized that actually only those who often think about the medical art (i. e., physicians) would take notice of it. Major sources explicitly mentioned by Abraham Ḥen are the works of Hippocrates, al-Rāzī (865–932)³³ and Ibn Sīnā (980–1037)³⁴. Among the works of Hippocrates, he certainly consulted the *Epidemics* and the *Aphorisms*, as these are quoted explicitly. In the case of al-Rāzī, it is probable that he used the relevant material from *K. al-Ḥāwī fī al-ṭibb*,³⁵ and for Ibn Sīnā he consulted *K. al-qānūn fī l-ṭibb*, which was a central work for medieval doctors discussing the plague, as noted above. In addition to these sources mentioned in the preface, he explicitly consulted Galen's commentary on Hippocrates' *Aphorisms*.³⁶ It seems that Abraham Ḥen's treatise on the plague had a very limited circulation, as it only survives in one incomplete manuscript and was not quoted in subsequent literature, as far as we know at the moment. Thus, it may well be that it was above all a personal aide-memoire.

The contents of the *Tractatus de pestilentia*

In the first chapter, Abraham Ḥen discusses the symptoms of the plague and the prognosis concerning its crisis. He describes the usefulness of the emunctories, i. e., the cervical, axillary and inguinal cavities to which the vital organs expel the destructive substances through agitated blood, so that these substances do not affect the major organs resulting in the death of the patient. This theory was, as Dols remarks, adopted from Arabic medicine and then had a long life in European medicine, as it

³³ On al-Rāzī, see Ullmann, *Die Medizin im Islam*, 128–136.

³⁴ On Ibn Sīnā, see Ullmann, *Die Medizin im Islam*, 152–156.

³⁵ *K. al-Ḥāwī fī al-ṭibb*, vols. 1–23 (Hyderabad: Da'irat al-Ma'arif al-'Uthmaniyah, 1952–1974) esp. vol. 15153–225.

³⁶ Cf. section 5.

may be found already in John of Burgundy's treatise on the plague mentioned above and as late as the investigation of the plague by Sydenham in the seventeenth century.³⁷ Fatal symptoms appearing in combination with boils are: delirium, emesis of red bile, a swelling of the stomach, cold of the extremities, syncope, black excrements, black blood bleeding from the nose, palpitations, blackness, or extreme thirst or bolismus. Yet another symptom, namely that of fever and its occurrence previous to the boils or subsequent to them, is treated extensively, where the author quotes from Hippocrates' *Aphorisms* and Galen's commentary on it. Abraham Ḥen concludes the chapter by warning against a positive prognosis derived from good symptoms, followed by a good crisis. Even then it is doubtful whether the patient will survive.

In the second chapter, Abraham Ḥen discusses the causes of the plague. Although he recognizes that most physicians distinguish two kinds of causes, namely, celestial and terrestrial, he only discusses the near cause, which he subdivides into two causes: corrupt air and a bad regimen.³⁸ The theory of two causes for the plague can be found in Ibn al-Nafīs³⁹ commentary on Ibn Sīnā's *K. al-qānūn fī l-ṭibb*: "The pestilence resulted from a corruption occurring in the substance of the air due to heavenly and terrestrial causes."⁴⁰ As Dols remarks, this sentence and the next one, which specifies the earthly and heavenly causes, are often quoted by the Muslim authors in their treatises on the plague.⁴¹ A similar statement can be found in Abraham Caslari's *Ma'amar be-qaddaḥot divriyyot*: *וסבות העפוש הם אם ארציות אם שמימיות* (the causes of the putrefaction [of the air causing pestilential fever] are either terrestrial or celestial).⁴² In addition to the mentioned external (non-natural) factors causing plague, Abraham Ḥen stresses the important role played by natural factors, i. e., coldness and dryness of the body, in resisting this disease.

The central subject of chapter three is that of a preservative regimen of health and hygiene,⁴³ whereby the subject matter is arranged according to the concept of the "six non-naturals" mentioned above. Such an

³⁷ Dols, *The Black Death in the Middle East*, 77–78.

³⁸ This conforms to his earlier statement in the preface that the distant cause of the disease is unknown.

³⁹ On Ibn al-Nafīs (d. 1288), see Ullmann, *Die Medizin im Islam*, 172–176.

⁴⁰ Trans. Dols, *The Black Death in the Middle East*, 88.

⁴¹ Dols, *The Black Death in the Middle East*, 89, n. 19.

⁴² Ed. Kley, "Der Schwarze Tod im Mittelalter," 2.2.

⁴³ Cf. the extensive discussion in Dols, *The Black Death in the Middle East*, 99–105; Palazzotto, "The Black Death and Medicine," 114ff; Kley, "Der Schwarze Tod im Mittelalter," 24–26.

arrangement can be found in other treatises on the plague as well, such as, for instance in that composed by Jacme d'Agramont.⁴⁴ As an introduction, Abraham Ḥen first of all discusses specific remedies to be taken by those who have a dry and cold disposition and thus do not need a preservative regimen to counteract the poisonous air. Some of the remedies recommended are Armenian bole, sigillate earth, theriac and Mithridate, and Rhazes' pills. Armenian bole, an argillaceous earth brought primarily from Persia and Armenia and used for both prevention and treatment of plague victims, was already recommended by Galen in *De simplicium medicamentorum temperamentis et facultatibus* 9:1.⁴⁵ Galen's recommendation was generally adopted in subsequent literature on the plague. Ibn Sīnā suggests its application on the buboes themselves; it is one of the components of the recipes for the so-called "smelling apples," which the College of Masters of the medical faculty of Paris recommended in their compendium.⁴⁶ Abraham Caslari⁴⁷ recommends its application as well, while the anonymous *Ha-Ma'amar be-qaddaḥat ha-dever* explicitly quotes the Galen passage in question.⁴⁸

Abraham Ḥen then addresses the first element from the "six non-naturals," namely the air, and suggests a variety of fumigations to improve the quality of hot, moist, or turbid air. For turbid air he advises to make bright fires from rosemary, juniper, rocket, and myrtle. To protect the body against the poisonous air, he recommends fomenting it with different ingredients, such as water and vinegar with citron leaves, quince leaves, and young shoots of roses and the like. The next element from the "six non-naturals" he discusses is that of food and drink. Referring to Ibn Sīnā, he states that one should avoid sweet things and things that produce obstructions and foods that are liable to putrefaction, such as moist foods. Food with sour ingredients is recommended as beneficial. As for bread, it should be well-leavened, well-baked, with little salt. Other food items discussed are vegetables, fruit, and wine. A good wine is that which is thin, white, acidulous, and greatly diluted. Abraham Ḥen then summarily discusses the remaining elements from the "six non naturals," namely evacuation and retention, movements of the body

⁴⁴ Cf. C.-E. A. Winslow and M. L. Duran-Reynals, "Jacme d'Agramont and the first of the plague tractates," *Bulletin of the History of Medicine* 22 (1948), 747–765, 760.

⁴⁵ *Claudii Galeni Opera Omnia*, ed. C. G. Kühn (20 vols. Leipzig 1821–1833, repr. Hildesheim, 1967) 12:192.

⁴⁶ For an extensive description of their use, see Dols, *The Black Death in the Middle East*, 103–104.

⁴⁷ Cf. Kley, "Der Schwarze Tod im Mittelalter," 25.

⁴⁸ See forthcoming edition, section 21.

and soul, and sleep and wakefulness. The bodies of those who suffer from repletion should be emptied; a regimen of rest and sexual abstinence should be adhered to; sleep should be avoided; and one should be in good spirits.

In the fourth chapter, Abraham Ḥen discusses a distant cause of the plague which in turn causes certain atmospheric disturbances, even though he remarks in the preface to the treatise that one cannot know the distant, celestial causes of the plague. Such a distant cause is the appearance of the stars β Librae and Ursae Maioris; consequently, the air is so dark and turbid that it might rain, but it does not rain; the summer is hot and moist; birds leave their nests and eggs; and many reptiles appear on the earth.

In chapter five, Abraham Ḥen discusses the subject of those symptoms that distinguish pestilential fever from other fevers. Such a distinction is vital for the correct diagnosis and ensuing treatment of patients suffering from these fevers. It is a central subject in Abraham Caslari's *Ma'amar be-qaddaḥot divriyyot*; the author remarks that he saw many patients die because of a wrong diagnosis.⁴⁹ A more appropriate place to treat this subject would have been the first chapter, where the author discusses those symptoms that appear in addition to buboes.

The final chapter of the treatise is devoted to the actual treatment of plague victims.⁵⁰ Unfortunately, the text is incomplete and breaks off after a discussion of the consumption of certain foods for those who suffer from weakness and lack of appetite.

II. Edition

Editorial conventions

Hebrew text:

MS = MS Leiden, Bibliotheek der Rijksuniversiteit Or. 4778 (Warner 40/7)

<...> = to be added

>...< = to be deleted

(?) = doubtful reading

English translation:

[...] = added by the translators

⁴⁹ Ed. Kley, "Der Schwarze Tod im Mittelalter," 0.2–0.4.

⁵⁰ Cf. Dols, *The Black Death in the Middle East*, 105–109; Palazzotto, "The Black Death and Medicine," 203 ff.

(1) אמ' 50 אברהם בר שלמה חן וזה''ה. שוט שוטף כי יעבור על יושבי חלד מעת לעת ומפקידה לפקידה ויך שרשי המין האנושי ופריו שרף מעופף באופן נסכל אנחנו סבתו הרחוקה. ראיתי אני להעלות על לוח מה שיש לאל האפשר לעמוד מנגד וביחוד בהקדמת השמירה שיקל מהסרת החולי בהגיעו כי קודם הדבר העצה תכון מהעצה בעת הדבר. וכמעט שראוי להיות אצל כל אדם בקביעות ידיעה⁵¹ למה שגזר הסובב צורך השתמש בו תמיד. לכן רשמתי בקצור כדי שתקל זכירתו על פה ובסדור היותר נכון לפי דעתי ולקטתי מדברי אבוקראט והראזי וכן סינא. וידעתי אני כי לא יסכלהו זה מי שיש לו מעט התבוננות במלאכת הרפואה רק בחרתי לי למזכרת ולמי שהוא פחות ממני בידיעה אם אפשר שימצא.

(2) וחלקתי לששה פרקים:

הפרק הא' בדברים העומדים מקום הרושם זה החולי המפורסם בשם דבריי והקדמת הידיעה בגבול.

הפרק הב' בסבתו הקרובה.

הפרק הג' בהקדמת השמירה מנפול בזה החולי לפי סדור הששה דברים הבלתי טבעיים.

הפרק הד' באותות המקדימים ידיעת התילד זה החולי באיזה מקום עיר או מחוז.

הפרק הה' באותות הסגוליים ומבדילים זאת הקדחת מקדחות אחרות.

הפרק הו' ברפואת זה החולי.

(3) הפרק הראשון המורסא הנקראת אלטאעון או קואים היא מורסא ארסיית מתילדת באחד משלשת מקומות הדחייה לאברים הראשיים נקראים אמונטורוש. ואותה המורסא אפשר שתמית אם היא מצבע אדום וכ''ש אם ממראה ירוק או שחור או מראה אחר כי אלו האותות מהמורסות יורו <על> ארס אשר בטבעו ישתוקק ללכת אל הלב. ויסבב עמה אותה המורסא הנקר' אנטראקש. ואם יקרה עמם בלבול השכל נקרא קומיקשטיאו או קי<א> אדומי או נפת הבטן נקר' טנשיאו וקור הקצוות או העלוף או צואה שחורה או רעיפת דם שחור או כמו דלוג בחזה או שחרות וצמא מופלג ר''ל אינטולליראבלה או בולישמוש: כל אלו האותות הבאים על אלו⁵² המורסות יגידו <ו> מות. וכן אם אלו המורסות יחסרו או יעלמו ולא יצאו לחוץ ולא יכאיבו הרבה והקדחת תחזק הוא אות מות. גם אם יחיה החולה ונשאלהו⁵³ ולא יענה אות רע והאנטראקש כל עוד היותו שחור והוא יותר רע. וזאת המורסא פעמים עם קדחת או בלטה אשר אותה הקדחת תמיד ברוב <...> ולא תעבור ביום הה' למה שהוא חולי חד מאד לכן תקרא חולי דבריי.

(4) ואמר אבוקראט בשני מאפדימיא שלו בפ''ג אם הטאעון יבא מסבת תחלה ואחריה⁵⁴ ימשך קדחת יום ואינה או מסוכנת אבל אם יבא אחר סבה מתחלת אינה קדחת יום ואז היא רעה. ואמר גאלינוס בד' מהפרקים כל קדחת עם מורסה רעה זולת קדחת יום. אך אם הקדחת תקדם לטאעון היא רעה בלא ספק כי אז המורסא היא מרוע החומר.

(5) לכן בזה החולי לא יבטח⁵⁵ בו הרופא באותותיו הטובים כמו שידמו שתניהם ושמריהם משובחים לפי שהם מהגבלה רעה לא יבואו מטוב הטבע רק מרוע החולי

⁵¹ Fol. 123b

⁵² Fol. 124a

⁵³ Fol. 124b

⁵⁴ ונשאלהו: emendation; MS: ונשאלהו

⁵⁵ ואחריה: emendation; MS: ואחריה

כי הטבע לא יוכל להתעסק לנצח החומר ונשאר נרדם והחולי מתחזק לנצח הטבע וגם כי נראו אותות יורו גבול טוב ימשך אחריהם מות. אכן גם כי ימצאו אותות טובים לא תאור(?) חיים כי אם בספוק. ועליך להבחין מאמ' אבוקר' יש הקדמת הידיעה בחיים או מות בחליים החדים לא תתאמת. עם היות שיחדתי פה אלו המקרים הבאים עם אלו המורסות וזאת הקדחת יש להם מקרים אחרים עוד נזכרו בספרי הרפואה המפורסמים.

(6) הפרק הב' בסבה עם היות שרוב הרופאים ייחדו לזה החולי שני סוגים מהסכות שמימיות וארציות⁵⁶ נוכל לומר בכללות כי הסכות הקרובות שתיים אויר נתאיך בעפוש והפסד חום ולחות יעפש הרוק האנושי בשאיפתו וכמו אויר רטוב גשמי במקומות עמוקים ר'ל קוירנוש או ששנקי(?) ומבואות אותו המקום צרים או לשכונת דברים מפסידים האויר כמו ממתי מלחמה ודומה. והסבה השנית רוע הנהגה ממוזנות מתוקים לחים מימיים כמו הפירות הלחים והמוזנות המוכנים להתעפש או לקיחת המזון ברב כמותו. יקרה זה החולי יותר למוכנים כמו הגופים המליאים <ו>מלחות רעות והחמים והלחים ובעלים(?) ומי שהרבה המשגל והרחיצה. אך הקרים ויבשים על המעט הבלתי מוכנים הם הגופים הנקיים ואשר התעמלו בשווי.

(7) ואמר אבוקראט בשביעי משי לאפדימאה כי כשהפרק יעלה ויתוסף ממדרגה נגד טבעו יחדש חליים דבריים ידע כי הדבר יתחדש באחרית הקיץ ובתחילת החורף.

(8) הפרק הג' בהקדמת השמירה ר'ל פרישירוסיאו הגופים ההפכים לאויר הדבריים כמו הקרים ויבשים לא יצטרכו להקדים השמירה במה שהוא הפכיי לאויר אלא במה שהוא לו כסגולה לנגד הארסיות כמו הבולארמיני הנקר' קאילס או ליטוס ארמיני והלקיחה עד שני דר' ביין מזוג בכל בקר. וכן קטיקא שגילטא וכמו האופיאטנש בטריאק ומיטרידאט והלקיחה מהם דר' ביין מזוג אך לא יאכל אחרי לקיחתם עד מלאת ח' שעות. ופילולש דראו והלקיחה מהם משקל לו' גרגריים > שעורה. ויתנהגו אלו בכריאותם בדברים קרים ויבשים.

(9) והחמים יוצרכו להקדים השמירה בדברים קרים ויבשים. והמליאים יקזו. והמליאים מליחות רעות יורקו. והמסותמים תוסר סתומתם. תתאמץ לנגב⁵⁷ הגופים כאשר תוכל כי הגוף הקר ויבש יותר נשמר מהדבר מזולתו. לכן הקר והיבש ראוי שישמר באותו המזג. האויר החם והלח הוא יותר מוכן להתעפש והקר והיבש לא. לכן האויר הצפוני נקרא שפטינטריאונל יסיר העפוש והדרומי נקרא מרידיאונאל⁵⁸ יסבבהו. ולפי שהששה דברים בלתי טבעיים הם השומרות הבריאות כשהיו בערך הראוי נסדר זאת ההנהגה בסדרים.

(10) מהאויר ינוגד בדברים קרים ויבשים המתקן לאויר החם <והיבש> הוא עשון לבונה ושיגואה וורינקש ודיללי ומירוה ומשטיק ואלואין וגירופלי וגומא >ו>דפני. הדברים בעלי רוח יסירו העיפוש המוסרח כמו צנדולש סיטרי⁵⁹ נינופאר תמריץ גלור(?). הדברים הקובצים ינגדו ליחות האויר כמו התמריץ והשפריר. הדברים הדקים ינגדו עובי האויר כזנגביל. אלו העשונים ראויים ליעשות ד' פעמים ביום בכקר בחצי היום בערב בחצי הלילה כי באלו העתים יתנועע האויר תנועה מתחלפת.

⁵⁶ יובטח: emendation; MS: יובטח

⁵⁷ Fol. 125a

⁵⁸ Fol. 125b

⁵⁹ מרידואונאל: emendation; MS: מרידואונאל

- (11) דע שהעשון היותר טוב ויאות לעשות ב' פעמים ביום הוא מדלילי כתיר וזרע נסטורצו וגומא לבונה ואצטורק כרגומי וזעפרן ובלקשי בישה נסיאנה וליגיואס אלואיש. כל אלה יכתשו ויומזגו במיות ונעשה עוגות כמות לוז ומאלו יוכל להריח. והזלופים⁶⁰ במים וחומץ עם עלי אתרוג ועלי תבוש וחלפי ורדים ודומ'.
- (12) אם האויר עכור יעשו מדורת אש בהיר מרומני וגניבריס ואורוגה ומורטא. האשאפיטידא לבדה ישמור האויר מהפסד. ראוי לעמוד במקומות הקרים והזהר מרוחות הדרומיות והיו החלונות פתוחים צפוניים. אמרו כי אם יושם המראקדי כנגד הלב דבק לעור ישמור מחולי ארסיי.
- (13) במה שיאכל וישתה. יורחקו הדברים המתוקים ומולידות סתומים והמזונות המוכנים⁶¹ לעפוש כנוז' באופן ראשון מד' בן סינא בפרק הקדחות העפוש וירגיל בתבוליו החמוצים. הלחם יהיה עם שאור הטב ואפוי הטב ובמעט מלח. יורחקו המזונות הלחים. המזונות המותרים הם עגל וכבש עולים וגדיים תרנגלים קטנים וכ"ש מדבריים ופירדיכש⁶² מזוות במי ורד ומיץ טרונגה ולימון נמרשת עם מיץ החמוצים.
- (14) והירקות הם אשפינקש ובוראגיש ובלידש וחזרת עם חומץ. והקטניות יורחקו זולת פולים. לדעת קצת ראוי להשמר מגבינה⁶³ ומכל דג זולת האדום הסלעיי המקושקש ושיהיה מטוגן בשמן מתוק עם מיץ תרונגה ומעט גירופלי. כל תבלין יורחקו זולת קנילא⁶⁴ וזעפראן ואשפיק מעט מעט מהן.
- (15) היין המתוק יורחק רק יורגל הרקיק הלבן הנוטה לחמיצות מזוג הרבה ושלא יהיה מבושל ולא מושקאט. הנקרא גריג הוא היותר נאות. והשמר מאד מתבשיל שעבר עליו הלילה. בכלל יאכלו מזונות קלי העכול וילקח תמיד גולב ובול ארמיני עם מים וחומץ מנוסה⁶⁵ כי לא נפל בדבר מי שהנהיג הבול ארמיני. ראוי שיהיה כמות המזון פחות מהמורגל.
- (16) הפרות יהיו הקובצים והקהים והחמוצים כמו פיריש מבושלות באש עם יין מזוג הרבה הנקרא זגושה וחבושים תפוחים חמוצים רמונים חמוצים ילקח בגולב ובול ארמיני עם מים וחומץ. ראוי שיהיה כמות המזון פחות מהמורגל.
- (17) בהרקה והעצר. ויוקזו המלאים <כוזב> וישמרו מרב מאכל ומשתה ויורקו הליחות לפי ההכנה.
- (18) בתנועות גופיו <ת> ונפשי <ת>. ההתעמלות הרב בימי החום הוא הכנה להתילד חליים רבים וכ"ש בימי הדבר ולכן ראוי המנוחה. יורחק המשגל לגמרי זולת לאשר יעצרו ממנו זמן רב ואחר התשוקה הנמרצת ראוי להתענג בששון ובשמחה⁶⁶ כי זאת העלה נושאה הרוח החיוב.
- (19) בשינה וביקיצה. תורחק השינה וכ"ש שנת היום וכ"ש אחר המאכל כל כך כי מנגבת הגופים.
- (20) הפרק הד' באותות התעוררות התילד זה החולי באיזה מקום שיזדמן. כשיראה כוכב וזבנאבוקא והכוכב המדלג ויהיה פעם חום ופעם קור שנית אם ביום

⁶⁰ סוטרי: emendation; MS: סיטרי

⁶¹ והזלוקים: emendation; MS: והזלופים

⁶² Fol. 126a

⁶³ ופירדיכש: emendation; MS: ופירדיכש

⁶⁴ וגבנה: emendation; MS: מגבינה

⁶⁵ קנילאו: emendation; MS: קנילא

⁶⁶ ינוסה: emendation; MS: מנוסה

אחד בעצמו ואם בימים רבים ויהיה האויר כהה ועכור שימטיר וגשם אין וכאשר יהיה הקיץ חם ולח וכאשר יעזבו העופות קניהם וביציהם ויראו על הארץ רמשים רבים אלו האותות באמת יורו דבר מעותד.

(21) הפרק ה' באותות המבדילים זאת הקדחת משאר הקדח <ו> שיהיה החם כח מחוץ וחזק מבפנים עם צמא ויובש הלשון ועם רוע סבל החולה וקושי הנשימה וכאב שכני הלב ובאשת הדברים היוצאים מהגוף בזיעה והנשימה והשתן והיציאה.

(22) הפרק ה' ברפואת זה החולי. וראשונה בהנהגת המזון⁶⁷ ראוי לזונם כי פעמים רבות ירפאו בלקיחת כמות מהמזון ויהיו לחזק הכת: טיבשאנה וחלב שקדים עם מעט חומץ והירקות הנזכרות עם חומץ ומי שעור מסוכך⁶⁸ עם חומץ. וצמוקים רחוצים בחומץ תם. ופתיתי לחם רחוצים ג' פעמים במים ויעורבו בו גרגרי רמון ממוצע ופיריש⁶⁹ אדומות צלויות במי בוסר ומי רמונים וטאפריש בחומץ וחלב חמוץ מוסר ממנו החמאה. ולאותם שיחסר תאותם תרנגלים ותרנגלות קטנות צלויות או מבושלים במיץ טורונגא ולמון. עוד יכלו להתבשל עם ד' זרעים קרים ועדשים מושלכות מהם המים הראשון מבושלות בחומץ ומעט שמן ומעט מלח. לא יעצר מהשתינה ויהיה מי שעור ואם באולי יתאוה <...>

III. Translation

[1] Says Abraham Ben Solomon Hen, may his memory be for life in the world to come: An⁷¹ overwhelming scourge passes (Is. 28:15,18) over the inhabitants of the world from time to time and from visitation to visitation and strikes at the roots of the human species and its offspring, a winged serpent (Is. 14:29), in a way that we do not know its distant cause. [As this is the case], I⁷² considered it proper to write down those things that we can do in order to stand aloof (resist), especially through a preventative regimen that is easier [to adhere to] than to cure the disease once it has arrived. For it is easier to follow advice before the plague happens than after it has happened. And nearly every person should have permanent knowledge regarding that which has been decreed by the agent, so that he can always use it. For this reason I have written this down in an abbreviated form and in the best arrangement, in my opinion, to ease its memorisation, and have selected this from the

⁶⁷ Fol. 126b

⁶⁸ במזון: מנוסה: emendation; MS: המזון

⁶⁹ מסוכך: emendation; MS: מסוכן

⁷⁰ ופיריש: emendation; MS: ופירוש

⁷¹ "An ... cause": Barkai translates, "A sudden scourge shall befall the inhabitants of this world from time to time, and shall strike at the roots of the human species, and its face is that of a flying seraph in a wheel, whose turning from afar nullifies us."

⁷² "I ... (resist)": Barkai translates, "I saw the need to write down how God has made it possible to survive."

words of Hippocrates, al-Rāzī and Ibn Sīnā. I know that someone who rarely thinks about the medical art will not consider [this treatise]. Yet I have chosen [to compose it] as an aide-memoire for myself and for those who are less knowledgeable than I am, if such persons exist.

[2] I have divided [this treatise] into six chapters:

Chapter One: On those things that are an indication for this disease known as pestilential, and on the prognosis concerning its crisis.

Chapter Two: On its proximate cause.

Chapter Three: On a preventative regimen so that one will not suffer from this disease, arranged according to the “six non-naturals.”

Chapter Four: On the signs which prognosticate in which place, city, or district this disease will arise.

Chapter Five: On the specific symptoms [by] which one can distinguish this fever from other fevers.

Chapter Six: On the healing of this disease.

[3] Chapter One:

The boil called “ṭā‘ūn”⁷³ or “QW’YM”⁷⁴ is a poisonous boil originating in one of three places where the major organs expel [superfluities], called “MWNTWRWS” (emunctories).⁷⁵ This boil can be fatal if it is red, even more so when it is of a green colour, a black colour, or another colour. For these symptoms consisting of [the mentioned] boils indicate poison, which by its nature yearns to go to the heart. It also brings about boils called “NṬR’QŠ” (anthrax) (malignant pustules). If it is accompanied by delirium called “QWMYQŠṬY’W” (mixing or mingling), or the emesis of red bile, or a swelling of the stomach called “ṬNSY’W” (stretching, tension), cold of the extremities, syncope, black excrements, black blood bleeding from the nose, jumping [sensation] in the chest (= palpitations), blackness, or extreme thirst, that is ’YNTWL-LYR’BLH (intolerable) or BWLYŠMWS (excessive hunger). All these

⁷³ Arabic طعون is the generic term for “plague,” but is also used for “plague boil” in the early Arabic translations of Hippocrates and Galen; cf. Dols, *The Black Death in the Middle East*, 315–316, 319.

⁷⁴ QW’YM is possibly a corruption of Arab. قوماط, cf. Ibn Sīnā, *K. al-qānūn fī al-ṭibb*, ed. Bulaq (1877, repr. Cairo n.d.) 3:122; Steinschneider suggests that it is Arab. قوايم (*Catalogus Codicum Hebraeorum*, 161).

⁷⁵ I.e., the cervical, axillary and inguinal cavities to which the vital organs expel the destructive substances through agitated blood; see Dols, *The Black Death in the Middle East*, 77.

symptoms that come next to these boils announce death. Similarly, if these boils diminish or disappear and do not protrude and are not very painful, but the fever increases, it is a sign of death. And if the patient is [still] alive but does not answer when questioned, it is a bad sign. And if the 'NṬR'QŠ (anthrax) are still black, it is [even] worse. Sometimes the boils come with or without fever; which fever is mostly [...] and does not pass the fifth day since it is a very acute disease; therefore it is called “pestilential disease.”

[4] Hippocrates said in *Epidemics* 2.3: If the boils come from an initial cause(?) [first] and are followed by ephemeral fever, it is not dangerous.⁷⁶ However, if they come after an initial cause(?) [first] and are not [followed by] ephemeral fever, they are bad. And Galen said in [his commentary on] *Aphorisms* 4: Every fever that [comes] with boils is bad, except for ephemeral fever.⁷⁷ But if the fever precedes the boils, it is bad without any doubt because in that case the boils are from bad matter.

[5] Therefore, in this disease a physician should not rely upon good symptoms, as, for instance the urine and excrements may appear to be laudable, since they (i. e. the symptoms) have a bad limitation [from the side of nature]. They do not hail from the goodness of nature but from the badness of the disease. For nature cannot occupy itself with overcoming the [bad] matter but remains asleep, and the disease becomes stronger so that it can overcome nature. Even if the symptoms seem to indicate a good crisis, they will be followed by death. Indeed, even if the symptoms are found to be good, [their indication of] life is doubtful. One should consider Hippocrates' statement: [The suggestion that one can] predict life or death in acute diseases has not been verified.⁷⁸ While I have specified [some of the] symptoms which accompany these boils and this fever, there are yet other symptoms that have been mentioned in the well-known medical books.

⁷⁶ Cf. Hippocrates, *Epidemics* 2.3.5: “Fever following swollen glands are a bad thing unless they last one day.” (Trans. W. D. Smith; Loeb Classical Library, Hippocrates 7; Cambridge Mass., 1994).

⁷⁷ Cf. KXVIIIB, p. 733; actually the quotation is Galen quoting Hippocrates, *Aphorisms* 4.55: “Fever following buboes are all bad except ephemerals.” (Trans. W. H. S. Jones, LCL, Hippocrates 4; repr. Cambridge, Mass., 1979)

⁷⁸ Cf. Hippocrates, *Aphorisms* 2.19: “In the case of acute diseases to predict either death or recovery is not quite safe.” (Trans. Jones)

[6] Chapter Two:

On the causes. While most physicians specified two kinds of causes for this disease, [namely] celestial and terrestrial,⁷⁹ we can say in general that the proximate causes are two: air that is qualified by putrefaction and corruption of heat and moisture and that corrupts the human sputum when it is inhaled, and air that is moist and [thick] in low places, that is QWYRNWŠ (caves) or ŠŠNQY(?), or narrow passages to such a place, or [air that is corrupt] because of the presence of things that corrupt the air such as war casualties and the like. The second [proximate] cause is a bad regimen of sweet, moist, watery foods, such as moist fruits and foods that are liable to corrupt, or the consumption of a large quantity of food. This disease occurs more often to those who are susceptible to it, [like] those who have bodies that are full with bad superfluities and hot and moist and [...] and those who have frequent sexual intercourse and wash themselves frequently. [But those who have] cold and dry bodies [suffer] less from this disease. [Those whose] bodies are clean and who do moderate bodily exercise are not susceptible [to this disease].

[7] Hippocrates said in *Epidemics* 6, 7 that when the season increases [in heat] one degree contrary to its nature it produces pestilential diseases. One can know [that this is so] since the plague occurs in the end of the summer and the beginning of the winter.⁸⁰

[8] Chapter Three:

On the prophylaxis, that is PRYŠYRWSY'W (preservation) of the bodies [whose temperament] is contrary to the pestilential air. For instance, [those with] bodies that are cold and dry do not need a prophylaxis that counteracts the [pestilential] air, but one that acts as a specific remedy against the poisonous quality [of the air], such as BWL'RMVNY (Armenian bole) (argil) called Q'YLS or LṬWS 'RMVNY (Armenian stone). Of this one should take every morning up to two drams mixed with wine. Likewise QṬYQ' ŠGYLṬ' (sigillate earth), and 'WPY'ṬNŠ (opiates) with theriac⁸¹ and Mithridate.⁸² One should take one dram of these mixed in wine, but one should not eat thereafter until eight hours have passed. And PYLWLŠ DR'Z (Rhaze's

⁷⁹ Cf. Introduction.

⁸⁰ This quotation does not appear in the mentioned source. It is possible that it comes from Galen's commentary to the *Epidemics*.

⁸¹ A compound initially invented against snake bites and later used as a preventative panacea: cf. Ullmann, *Die Medizin im Islam*, 321.

⁸² An antidote allegedly composed by Mithridates VI Eupator, king of Pontus (reg. 120–63BC); cf. Ullmann, *Die Medizin im Islam*, 321.

pills⁸³): Take an amount with a weight of seven barley grains. When they are healthy they should adhere to a diet of cold and dry things (foods).

[9] Those with a hot [constitution] should adhere to a preventative regimen consisting of cold and dry things. Those who are full [with blood] should be bled; those who are full with bad humors should be emptied, and the constipated should be cured from their constipation. One should try to keep the body dry whenever possible, because a cold and dry body is better protected against the plague than [a body that is not cold and dry]. Therefore someone who is dry and cold should preserve that constitution. Hot and moist air is more susceptible to corruption than cold and dry air. Therefore the northern [wind], called “ŠPTYNTRY’WNL” (northern) stops the putrefaction, while the southern [wind], called “MRYDY’WN’L” (southern) causes it. Since the six non-naturals preserve health if they are [observed] in the proper measure, I will arrange this regimen accordingly.

[10] On the air. Hot [pestilential] air should be counteracted by cold and dry ingredients. Ingredients which correct the hot [pestilential] air are frankincense, ŠYGW’H (?), WRYNQŠ (origanum?), DYLLY (bdellium), MYRWWH (myrrh), MŠTYQ (mastic), ’LW’YN (aloe), GYRWPLY (clove), GWM’ (gum) [Arabic], DPNY (laurel). Flatulent ingredients, such as ZNDWLS (sandalwood), SYTRY (cedar), NYNWP’R (nenuphar), TMRYZ (tamarisk), and GLWR (?), annul stinking putrefaction. Astringent ingredients, such as TMRYZ (tamarisk) and ŠPRYR (cypress), counteract moistness of the air. Refining ingredients, such as zingiber, counteract the thickness of the air. One should apply these fumigations four times a day, in the morning, at midday, in the evening, and at midnight, because at these times the air makes different [sorts] of movement.

[11] Know that the fumigation that is better and that should be applied twice a day is that consisting of DYLLY (bdellium), gum tragacanth, seed of NSTWRŠW (cress), GWM’ (gum) [Arabic], frankincense, ’ZTWRQ (resin from *Styrax officinalis*), KRGWY (curcuma), saffron, BLQŠY BYŠH, NSY’NH (murex) and LYGYW’S ’LW’YŠ (aloe wood). All these [ingredients] should be pulverized, mixed in water and

⁸³ For the composition of these pills, see the tractate on the plague entitled “Quaedam exhortatio contra morbum pestilentialem sive epidemialem,” in *Pestschriften aus den ersten 150 Jahren nach der Epidemie des “schwarzen Todes” 1348. III. Aus Niederdeutschland, Frankreich und England*, ed. K. Sudhoff (Archiv für Geschichte der Medizin 5 [1912]), 36–86, 79.

made into pastilles with the weight of a hazelnut. These can be used as an errhine. [One should also apply] fomentations with water and vinegar with citron leaves, quince leaves, and young shoots of roses and the like.

[12] If the air is turbid, one should make a bright fire from RWMNY (rosemary), GYNBRYŠ (juniper), 'WRWGH (rocket), and MWRT' (myrtle). 'Š'PYTYD' (asafetida) alone protects the air against putrefaction. One should stay in cold places and beware of southern winds. The windows [of one's house] should be open towards the North. It is said that the MR'QDY (emerald), if it is put on the skin opposite the heart, protects against poisonous afflictions.

[13] On food and drink. One should avoid sweet things and things that produce obstructions and foods that are liable to putrefaction as mentioned in Ibn Sīnā, [*K. al-Qānūn*], Book 4, Lecture 1, in the chapter on pestilential fevers, and take food with sour spices.⁸⁴ The bread should be well-leavened, well-baked, with little salt. One should avoid moist foods. Foods that are allowed are calf, lambs, kids, chickens, especially when wild, and PYRDYKŠ (partridge), sprinkled with rose water, TRWNGH (orange), or lemon juice, [and] soft boiled with juice of sour ingredients.

[14] Vegetables [that are allowed] are 'ŠPYNQŠ (spinach), BWR'GYŠ (borage), BLYDŠ (beet), and lettuce with vinegar. Pulses should be avoided, except for beans (*Vicia faba L.*). According to some [doctors] one should abstain from cheese and all fishes, except for red scaly [fish deriving from sources which are] rocky, and roasted in sweet oil with TRWNGH (orange) juice and a little bit of GYRWPLY (clove).⁸⁵ All spices should be avoided except for a little bit of QNYL' (cinnamon), saffron, and 'ŠPYQ (lavender).

[15] One should avoid sweet wine and only take thin white wine which tends to be sour and has been greatly diluted. It should not be boiled and not be MWŠQ'T (muscat) [wine]. The [wine] called "GRYG" (Greek) is the most appropriate. Be very careful not to take a dish that has been left over for the night. In general, one should eat foods that are easy to digest and always take GWLB (julep) and BWL 'RMYNY (Armenian bole) with water and vinegar. It [is a remedy that] has been

⁸⁴ In *K. al-Qānūn*, vol. 3, 67, Ibn Sīnā remarks that one should take a small amount of sour food.

⁸⁵ Cf. Gentile da Foligno, "Consilium magistri gentilis super pestilentiam," in *Pestschriften*, ed. Sudhoff, 332–339, 339, ll. 57–61; Paris Faculty, *Compendium de epidimia*, trans. Palazzotto, "The Black Death and Medicine," 132.

tested [and proved], for no one who took BWL 'RMYNY (Armenian bole) has fallen ill from the plague. The amount of food [which one takes] should be less than usual.

[16] The fruits [one takes] should be astringent, acrid, and sour, such as PYRYŠ (pears) cooked on a fire with wine that has been greatly diluted and that is called “ZNGWŠH” (?), quinces, sour apples, and sour pomegranates. Take this with GWLB (julep) and BWL 'RMYNYŠ (Armenian bole) with water and vinegar. The amount of food [which one takes] should be less than usual.

[17] On evacuation and retention. Those who are full should be bled. They should beware of a large quantity of food and drink; the superfluities [in their body] should be evacuated according to their disposition.

[18] On movements of the body and soul. Frequent physical exercise in the summer predisposes [the body] to the occurrence of many diseases, especially during the time of the plague. For this reason rest is appropriate. Sexual intercourse should be avoided totally, except for those who abstained from it for a long time and who have a strong libido. One should have joy and merriment, for then the [vital] spirit can endure this disease.

[19] On sleep and wakefulness. Sleep should be avoided, so much the more during the day, and so much the more after the meal; all this because it dries the body.

[20] Chapter Four: On the signs indicating the awakening and genesis of this disease wherever it occurs. When the star [called] “ZWBN'BWQ” (= “Zuben Elgenubi”)⁸⁶ and the star [called] “Ha-Medalleḡ”⁸⁷ become visible, and when it is hot and then again cold either on one and the same day or on many days, and when the air is so dark and turbid that it might rain, but it does not rain, and when the summer is hot and moist, and when the birds leave their nests and eggs, and when many reptiles can be seen on the earth, the things indeed indicate that a plague is ready [to happen].

⁸⁶ I.e. β Librae; see P. Kunitzsch, *Arabische Sternnamen in Europa* (Wiesbaden: Harrassowitz, 1959) no. 208.

⁸⁷ Hebrew *Ha-Medalleḡ* is a literal translation of Arabic *al-qafza*. This term stands for 1. *al-qafza al-ūlā*; i. e. ξ Ursae Maoris; 2. *al-qafza al-thāniya*; i. e. λμ Ursae Maioris; 3. *al-qafza al-thālitha*; i. e. κ Ursae Maoris; cf. Kunitzsch, *Arabische Sternnamen*, nos. 56, 188, 189.

[21] Chapter Five: On the symptoms that distinguish this fever from the other fevers. [The patient feels] a heat which is strong on the outside and inside [and] which is accompanied by thirst, dryness of the tongue, the [feeling] that he cannot endure it, difficulty of breathing, pain in the parts adjacent to the heart, a foul smell of the things that leave the body through sweating, breathing, micturition, and defecation.

[22] Chapter Six: On the healing of this disease. First of all one should prescribe [to those suffering from it] a diet, for they are often cured by taking a certain quantity of food. The following [foods] strengthen [the vital] faculty: ṬYBŠ'NH (ptisan) and fat of almonds with a small quantity of vinegar; the vegetables mentioned [above] with vinegar, and barley water mixed with vinegar; raisins washed in pure vinegar; bread crumbs washed in water three times and mixed with pomegranate seeds, a moderate quantity; red PYRYŠ (pears) simmered in the juice of unripe, sour grapes and of pomegranates; Ṭ'PRYŠ (capers) with vinegar and sour [butter] milk without the butter. And those who lack appetite [should] take young cocks and hens, roasted or boiled with ṬWRWNG' (orange) or lemon juice. One may also boil them in four cooling seeds (of citron or lemon) and lentils with vinegar and a little bit of oil and salt, once the initial water in which they have cooked has been thrown away. It does not stop micturition, and if it is barley water (?). And if perhaps he desires [...].

IV. Supplement

Glossary of foreign terms in Abraham Ḥen's *On the plague*

Introductory remarks

As we have pointed out in previous articles,⁸⁸ the Romance words that appear in Hebrew medical texts in the Middle Ages can often be ambiguously interpreted as belonging to various languages, mainly due to the lack of vowels. Thus, an item like BWR'GYŠ can be seen as the

⁸⁸ Cf. Bos, Gerrit, and Guido Mensching "Macer Floridus, A Middle Hebrew Fragment with Romance Elements," *Jewish Quarterly Review* 91 (2000): 17–51; "Shem Tov Ben Isaac, Glossary of Botanical Terms, Nrs 1–18," *Jewish Quarterly Review* 92 (2001): 1–20; "Hebrew Medical Synonym Literature: Romance and Latin Terms and their Identification," *Aleph: Historical Studies in Science & Judaism* 5 (2005): 11–53; and "A 15th Century medico-botanical synonym list (Ibero-Romance-Arabic) in Hebrew characters" in *Panacea* 7 (December 2006) no. 24 (www.medtrad.org/panacea/IndiceGeneral/n24_tribunahistorica-bos.mensching.pdf).

plural of the Old French *bourage* or the Occitan or Catalan *borratge*, all meaning “borage.” Likewise, QNYL’ can be read as Spanish *canela*, Occ./Cat. *canella*, and even as Latin or Italian *cannella*, “cinnamon.” This difficulty of interpretation becomes even more complicated because the Romance languages borrowed lexical material, in particular phytonyms, from each other. Thus, e. g. ŠPYQ is *espic*, “lavender,” originally Catalan and Occitan, but the word also passed from the latter language into Old French. Vice versa, GYRWPLY is Old French *girofle*, “clove,” which has been borrowed by Old Occitan, Old Catalan, and Old Spanish.⁸⁹ As becomes evident from the above, the Occitan varieties spoken in Southern France were very similar to Catalan in the Middle Ages, so that the two languages cannot easily be distinguished when they occur in Hebrew transcription. In addition, both languages amply borrowed terms from each other in the field of medicine. However, there are a few very clear pieces of evidence in the text that point toward Catalan. Thus, the forms ṬRWNGH, TRWNGH, and ṬWRWNG’ have to be read as *toronja* or *taronja*, an Arabism meaning “orange” that is typical for the languages of the Iberian Peninsula and only sporadically passed on to Southern France, maybe not before modern times. More specifically, MWRT’ is *murta*, “myrtle,” which is Catalan (but also Spanish), but not typically Occitan, where the corresponding plant name is *nerta*, documented in Hebrew medical texts of Southern French origin as NYRT’ and the like. Another word restricted to Catalan is ŠPRYR, i. e. *ciprer* for “cypress,” which was *cipres* in Old Occitan, Old French, and Old Spanish.⁹⁰ Finally, it is important to note that in Catalan as in Occitan, the Latin feminine ending *-a* has been preserved (in contrast to French), but whereas Occitan forms the plural with *-as*, Catalan used the ending *-es* already in the Middle Ages. On some occasions in our text, the plural ending is clearly marked by Yod-Šin, e. g. in Ṭ’PRYŠ and PYRYŠ, forms belonging to *tàpera*, “caper” and *pera*, “pear,” which can only be interpreted as the Catalan plural forms *tàperes* and *peres*.

In what follows, we will explain the foreign terms as far as they could be identified.⁹¹ We concentrate on Catalan, but include references to other languages (though not in a systematic way) in order to further illustrate the above discussion. Apart from standard dictionaries and other Hebrew-Romance texts, we also consulted the *Regiment de preser-*

⁸⁹ See below, and for Old Spanish, Sin. 257.

⁹⁰ See below. For Old Spanish, Sin. 222.

⁹¹ Thanks to Frank Savelsberg for his help with this glossary and in particular for his advice concerning some of the Old Catalan terms.

vació de pestilència by Jacme d'Agramont (see above),⁹² where some of the Catalan terms can be retrieved.⁹³

Glossary

אופיאטנש: 'WPY'ṬNŠ – This form is corrupt, but reading the Nun as a Waw would give the Medieval Latin *opiatas* for “Soporifer, ab *Opio*, cui haec virtus tribuitur” (DuC 6:48a), which is an adjective and would thus not match the context. The meaning suggested in the text would rather correspond to Medieval Latin *opiata* (NGML, O 543) or *opiatum* (FEW 7:374b), “opiate,” i. e., a soft electuary originally containing opium. The feminine word is documented in Romance languages, e. g., old French (*opiate*, FEW loc. cit.), Old Spanish (*opiata*, DETEMA 1143b), and also Old Catalan (*opiata*), for which the DCVB (8:11b) documents the plural *opiates* in a medieval text. The form *opiatun* is documented for Old Spanish in the DETEMA (1144a), but it is considered there as a spelling error for *opiato*, an adjective.

אורוגה: 'WRWGH – O.Cat. *oruga* or O.Occ. *auruga*, “rocket,” i. e., *Eruca sativa* L., which existed besides the more common *eruga* (< Lat. ERUCA; DCVB 5:146a-b; FEW 3:242a).

אינטוליראבלה: 'YNṬWLLYR'BLH – This might be the neuter form of Latin *intolerabilis* (*intolerabile*): “that cannot be borne, intolerable” (LS 988), but more likely it is a Romance adjective, e. g., the O.Cat. or O.Occ. *intol(l)erable* for “insupportable” (DCVB 6:706a). The positive form *tollerable* is documented for O.Occ. in a medical context: “Veses ... cors del malaute tollerable, cauterisa aquel en mieg loc del cap” (“you see the body of the sick in the condition to bear it, cauterize that in the middle of his head,” Trad. d'Albucasis, fol. 3, quoted in RL 4:369a).

אלואין: 'LW'YN – Only in O.Occ. do we find a form *aloen* – with *n* – (RM 167; RL 1:57b), next to *aloe* (CB 143; RL 1:57b). The latter form is

⁹² Joan Veny, “*Regiment de preservació de pestilència*” de Jacme d'Agramont (*s. XIV*). *Introducció, transcripció i estudi lingüístic* (Tarragona, Diputació, 1971). This edition can now be consulted electronically, together with other studies and material concerning the text, at <http://www.lluïsvives.com/servlet/ServeObras/12920522027817162321435/p0000002.htm/>.

⁹³ We did not scrutinize other texts which might, however, be of interest for future research. One example that also includes some of the Catalan vocabulary present in Abraham Hen's text is the *Patit tractat sobre lo regiment en temps de hepidèmie* (Joan Veny, “Patit tractat sobre lo regiment en temps de hepidèmie (segle XIV): edició i estudi lingüístic,” in *Homenatge a Antoni Comas* [Barcelona, Universitat de Barcelona, 1985], 545–567).

also documented for O.Cat. (DECLC 1:223a), for O.Sp. (see Sin 227 and DETEMA 1:83a–84a), for O.Fr. and M.Fr. (see FEW 1:75b).

אמונטוריש: 'MWNTWRWŠ – A corrupt form related to the Medieval Latin adjective *emunctorius* with the anatomical meaning “excreting” (MLWB 3–8:1258) or, rather, the noun derived thereof, *emunctorium* (MLWB, loc. cit.), i. e. emunctory, an organ or duct that gives off waste from the body. Most probably, the Waw is a transmission error for Yod, and thus the form that is present in the text should be interpreted as the O.Cat. adaptation of the Latin noun, in its plural form *emunctoris* for “organs through which one evacuates humours” (DCVB 4:818a); also cf. O.Sp. *emuntorios* (DETEMA 590). It has to be taken into account that the letter *c* in the nexus *-ct-* was not pronounced (also cf. the modern Catalan form *emuntori*, DCVB, loc. cit.).

אנטראקש: 'NTR'QŠ – Latin *anthrax* for “virulent ulcer” (LS 131; Sin. Barth. 11: “Antrax dicitur apostema venenosum”). The Latin word existed as a learned loan-word in Medieval Romance (e. g. O.Sp. *ántrax*, cf. DETEMA 1:116b-c, O.Fr. *antrax*, cf. FEW 24:649b; for Catalan, the DCVB (1:725b) only quotes the modern form *àntrax*, cf.), but cf. the form *àntrechs* (1490) in DECLC (1:332).

אצטורק: 'ZṬWRQ – The vernacular term is the O.Fr. or O.Cat. *estorac(h)* for *Styrax officinalis* L. (DCVB 5:573b). Also cf. SHŠ, Ḥet 10,11.

אשאפיטידא: 'ŠPYTYD' – Medieval Latin *asafetida* (Sin. Barth. 11b: “gummi est gravis odoris”) or a Romance learned word, documented, for example, in O.Occ. as *assafetida* (CB 318) and in O.Cat. and O.Sp. as *asafetida* (DECLC 1:443b, Sin 61,13). All forms belong to the late Latin phytonym *asa* or *assa foetida* (DECLC 1:443b), which designates the plant *Ferula asa foetida* L. Cf. SHŠ, Ḥet 2.

אשפינקש: 'ŠPYNQŠ – The word for spinach, from Arabic اسفاناخ, is *espinac* in Old and Modern Catalan (DCVB 5:431a–b, DECLC (3:648 s. v. *espinacs*), but was usually *espinare* in Old Occitan and *espinace* in Old and Middle French, among others (FEW 19,11–12). As in other cases, Catalan (here, the plural *espinacs*) is the most probable reading here. In the *Regiment* by d'Agramont (V. 2.7), among the vegetables that should be avoided, we find the forma *espinachs*, which is just a spelling variant of *espinacs*.

אשפיק: 'ŠPYQ – O.Occ. and O.Cat. *espīc* ‘lavender’ (FEW 12,174ab, DCVB (5:424b); the word passed into Old French from Occitan. According to FEW (12,175a), this term derives from the Latin *spica nardi*,

cf. O.Cat./O.Cat. *espicanardi* (DCVB 5,424b, DAO 7,539), O.Cat. *espicanard* (DCVB 5,425a), **espicanardi* (ŠPYQ NRDY, SHŠ, Šin 10), which meant “Indian nard.” But when the trade with the Orient slowed down, the nard was substituted by lavender, and (still according to FEW loc. cit.) the name was transferred to lavender, but in the masculine form.

קאילס 'הנקר' הבורארמיני: BWL'RMVNY called Q'YLS – B'L'RMVNY corresponds to O.Fr. *bol armeni* or O.Cat. *bolarmeni* (see numerous variants such as *bolarmini*, *bolermi*, among others, in DCVB 2:555b), also the variant(s) *bol(l) armini* in DECLC 1, 57b. In contrast, in the SHŠ (Tet 1 and 2), we find BWL'RMVNYQ, corresponding to the O.Cat. *bol armenic* (FEW 25:271b). The form Q'YLS could not be identified.

ישארמיני: BWL'RMVNYŠ – Plural form of the previous term.

ישארמיני: BWLYŠMWS – Medieval Latin *bolismus* for “excessive hunger” (MLWB 1:1608, MLLM 101a; DuC 1:692c–693a: “*Bolismus, passio quae vocatur, sicut ipso nomine declaratur, magna est fames: fit autem, ut sermo ipse ostendit, de nimio calore et imbecillitate stomachi,*” Alexander Iatrosophista, de *Passionibus*, anonymo interprete, cum glossis saec. XIII.).

ישארמיני: BWR'GYŠ – A Romance plural form for “borage,” *Borago officinalis*, that is, e. g., *bourage* in O. French, *borratge* in O.Cat. and *borratge* or *borage* in O.Cat. (DCVB 2:600b, FEW 1,442a).

בלידש: BLYDŠ – In the context of different vegetables in the part of the text where this item appears, it should best be interpreted as the plural of O.Cat./O.Cat. *bleda* ‘beet,’ *Beta vulgaris* (DECLC 1,839b, SHŠ Taw 4 and Het 26), which is *bledes* and *bledas*, respectively. Note that *bleda* was often confused with O.Cat./O.Cat. *blet* ‘blite’ (DCVB 2:525b–526a, FEW 1,410b, DAO 6:407), but see the diverging spelling in SHŠ Yod 2 (BLYDZ, BLYTŠ), reflecting the plural *blets*. This form also appears in the *Regiment* by d’Agramont (V.2.7), among the vegetables that should be avoided.

בלידש: BLQŠY BYŠH NSY'NH – The term is a corrupt spelling of a variant that belongs to Medieval Latin *blatta Bisancia*, designating (part of) the murex, imported from Byzantium and burnt to produce a smoke with medical properties. In medieval medical texts, the first element often appears as *blacta* or *blacca* (e. g., in the synonym list *Alphita*, cf. Sin. 86, fn. 49 and 51), so that, for the form that appears in our text, we can suppose a reading **blacce Bisancie* (genitive singular

or nominative plural). In SHŠ (Zadeh 5), the spelling BLQTY BY-Š'NZY is used. Also cf. *blacta bizancia* in an O Occ. text (RPA 523).

גולב: GWLB – O.Cat. or O Occ. *jolep* or *julep* for “julep” DCVB 6:792b; RL 2:595b; PSW 4:262b–263a), O.Fr. *julep* (FEW 19:59b: *julep*) “calming potion composed of distilled water and syrup.”

גומא: GWM' – O.Cat. or O Occ. *goma* for “gum” (DCVB 6:333b; DAO 557,1–1). The *Sinonoma Bartholomei* points out: “Gummi quando simpliciter de arabico intelligitur” (Sin. Barth. 23a).

גינבריס: GYNBRYs – Plural of O Occ./O.Cat. *ginebre*, *Juniperus communis* (PSW 4:120b–121a; DECLC 4:496b–498b). Cf. SHŠ Alef 12 (GNBRY, GYNYBRY). The Catalan singular, *ginebre*, is used in the *Regiment* by d'Agramont (V.1.2) in a similar context as in our text, i. e., for burning and fumigating.

גירופלי: GYRWPLY – Old French *girofle* or *gerofle*, “clove,” which had passed on to Old Occitan and Old Catalan as a loanword according to FEW 2,1,446b; also cf. DCVB (6:301b–302a). In Catalan, it is documented since 1249 (cf. DECLC 4:513b), and appears in the *Regiment* by ch. 1 d'Agramont (I.1). For Occitan, see, among others, SHŠ Beit 1: G'YRWPLY.

גריג: GRYG – The vernacular term corresponds to the O.Cat. or O Occ. *grec* for “Greek” (DCVB 6:397b; RL 2:506b). Here, it is used in the sense of *vi grec*, literally “Greek wine”; cf. DCVB 10:776a–777b, where it is defined as a variety of grape or wine which seems to be weak at first sight but has much effect afterwards. The term *vi grec* also features in the *Regiment* by d'Agramont and is explained in the glossary of the edition as a sweet white high-degree wine.

דיללי: DYLLY – Genitive singular of the Latin *bdellium* (MLWB 1,1398, NPRA 34), “resine of some Commiphora species”; see Sin. 234 for further references. The form *delli* is used in a medical text of Catalan origin: see Arnaldi de Villanova, *Opera medica omnia*, ed. by M. R. Vaughn, P. Gil-Sotres, F. Salmón, J. Arrizabalaga, vol. XVII. Barcelona: 2004, p. 612.

דפני: DPNY – Latin *daphne* for “laurel,” *Laurus nobilis* L. (NPRA 86).

ורינקש: WRYNQŠ – This term could not be identified, but is maybe a corrupt spelling for *orenga* (DCVB 8:39a), *Origanum vulgare*, a word restricted to Catalan.

זנגושה: ZNGWŠH – This term could not be identified.

שׂאפרי׳: Ṭ'PRYŠ – This is *tàperes*, plural of O.Cat. *tàpera*, “caper,” cf. *Regiment* by d’Agramont (V.2.3). This form (with initial [t] instead of the etymological initial [k]) seems to be restricted to Occitan (FEW 2,1,285a) and Catalan (DCVB 2:953a), but the plural ending *-es* suggested by the Hebrew spelling excludes the former, which would have *-as*. According to DECLC 8:295a–296b, the Eastern Catalan varieties have *caparra*.

נהשא׳: ṬYBŠ'NH – Latin or Romance (*p*)*tisana* (from Greek *πιτσίσανη*), reflecting the spelling *tipsana*, which was quite usual in medieval texts (cf. its occurrence in the synonym list *Alphita*, see Sin. 154, fn. 24, or, e. g. in an Old Spanish text, see DETEMA 1555c). In the *Alphita* it is explained as “succus hordei,” which corresponds to the definition given in the FEW (9:503a–b).

אושי׳: ṬNŠY'W – Latin *tensio* “stretching, tension” (LS 1855), “the process of drawing tight, constriction, spasm” (OLD 1921c).

נהגה (ṬRWNGH) תרונגה / (TRWNGH) טורונגה (ṬWRWNG') – The word at issue here is typical of the Ibero-Romance languages (including Catalan), which took it from Arabic *ترنج* (*turunj*): Old and Modern Spanish *toronja*, Portuguese idem, Catalan *taronja*, with variants such as *toronja* or *turonja*, see DCVB (10:160b), FEW 19,195a, DETEMA 1569c. In the *Regiment* by d’Agramont (V.1.1), we find the Catalan plural form *toronges*. The dictionaries describe it as an orange. The word only sporadically passed on to Southern France (cf. Modern Béarnais, i. e., a Gascon (Occitan) variety, *touroungue*, with the meaning “gros citron, cédrat” (FEW, l. c.)).

מיגומ׳: KRGWMY – This form is not clear. It might be a non-documented Romance form of Latin *curcuma*, with Western-Romance lenition. According to the FEW (19,100a), the Arabism was introduced in Latin and Romance through the herbalists and pharmacists; cf. O.Sp. (DETEMA 448,a) and M.French *curcuma*, M. French *curcume* (FEW, l. c.).

ישלוא׳: LYGW'S 'LW'YŠ – Latin, *lignum aloes* for “aloe wood”, *Aquillaria agallocha* Roxb. (NPRA 11, Sin. Barth. 28: “Lignum aloes, i. lignum amarum”). The Latin term was also used in O.Cat. and O. Occ. (DCVB 1:539b; DAO 1184,1–2). The first element of this term is corrupt in our text.

יניארמי׳: LṬWS 'RMYNY – This is a mixed Greek and Romance compound term, **lithos armeni* (Greek λίθος) corresponding to the La-

tin *lapis armenicus*, which appears in the synonym list Alphita (cf. Sin. 124,12 and fn. 36). According to Creutz's interpretation of this Alphita entry (Creutz n° 560), it would be the same as "lapis lazuli." But it seems that "[l]apis armenus, also known as Armenian stone or lapis stellatus, in natural history, is a variety of precious stone, resembling lapis lazuli, except that it is softer, and instead of veins of pyrite, is intermixed with green. 'The Armenian stone' is so nearly identical to lapis lazuli that it has often not been distinguished from it" (Wikipedia, s. v. lapis armenus). The second element of the word, 'RMYNY, could be Old French or Old Catalan (see above, B'L'RMYNY). Interestingly, the same Greek-Romance compound term appears in the Hebrew version of the Alphita, of Southern French origin (MS Parma 3043, cat. Richler 1532, 265r–266v, discussed in Bos/Mensching, "The literature", 201–208): LṬWS 'MYNYŠ, i. e., a black stone (fol. 266a).

מורטא: MWRT' – O.Cat. or O.Sp. *murta* (DCVB 7,679, DECLC 5,851, DCECH 4,88b; DETEMA 1087b); for Catalan, cf. its appearance in the *Regiment* by d'Agramont (V.2.1). As we have pointed out in previous articles, this item is one of the few definite ones for separating Catalan and Occitan, since, in the latter language, this plant is called *nera* (FEW 6–3:316b–317b, cf. NYRT' or NYRṬH in SHŠ Alef 5). For further discussion, see Bos and Mensching, "Shem Tov Ben Isaac," 29 and Bos and Mensching, "The Literature," 194.

מושקאט: MWSQ'Ṭ – Muscat wine, so called because its smell resembles the one of musc. Old and Middle French (*vin*) *muscat*, Catalan (*vi moscat*) (FEW 19,132b, DCVB).

מירוה: MYRWWH – Probably a corrupt spelling for Lat. *myrrha*, "myrrh" or a Romance form thereof (e. g. O.Cat./O.Cat. *mir(r)a*, see DECLC 5:704a, FEW 6,316a; also cf. MYR' in SHŠ Mem 8). This hypothesis is confirmed by the fact that Cat. *mirra* appears in the *Regiment* by d'Agramont (V.2.1, among others) in the same context: "[...] que facen foch [...] de romer ho de ginebre e poden fer perfum d'ensens e de mirra [...]" ([...] that they make fire of rosemary or of juniper and they can make a scent of frankincense and of [...]).

מראקדי: MR'QDY, emerald – O.Cat. or O.Cat. *marac(h)de* for "emerald" (DCVB 7:227b; DAO 316,1–1 and 1–2).

מרידיאונאל: MRYDY'WN'L – Cat. *meridional*, "Southern"; see *vent meridional*, "Southern wind" in DCVB (7:374b), also cf. O.Fr. *meridional* (adj.) FEW (6–2:33b), *meridional* (TL 5,1521a), O.Sp. *viento meridional* (DETEMA 1037c).

משטיק: MŠTYQ – O.Cat. or O.Occ. *mastic* or *mastec* for “résine de lentisque” (i. e., resin of the lentisk; DAO 554,1–1; DCVB 7:290a–b). Cf. SHŠ Nun 2, where the same spelling is documented, besides MŠTYQ.

נינופאר: NYNWP'R – Latin, O.Cat. or O.Occ. *nenu(f)far* (DCVB 7:736b; DAO 1055,1–1; Sin. Barth. 31: “Nenufar est flos ungulae caballinae aquaticae, vel est lilium quod crescit in aquis et habet folia lata supernatantia aquam”).

נסטורצו: NŠTWRSW – Related to the Latin *nasturtium*, “cress,” *Lepidium sativum*, this item might represent the Latin term without the final *-m* (which was often not written in Hebrew-Romance texts, see Bos and Mensching, “*Macer Floridus*,” 24–25, and “A 15th Century medico-botanical synonym list,” 263). The form that we find here would be better matched by *nasturço*, an Old Spanish adaptation of the Latin word (see Sin. 132,6), the Catalan adaptation being *nasturçi*, which would leave the final Waw unexplained. The more usual hereditary forms such as, e. g., Middle French *nasitort*, *naritort*, *nostois* (FEW 7,29–30), O. Occitan *nazitor(t)* (ibidem, cf. NŠTWRS in SHŠ Šin 12), or Catalan *morritort* (DECLC 5,883a), are even more deviant from what we find here.

סיטרי: SYTRY – This term might either be read as Middle French (*pome*) *citre* “lemon” (FEW 2,1,720–722) or Old Catalan/Occitan/French *cedre*, “cedar (wood)” (DCVB (3:94b, DAO 648,1–2, FEW 2–1: 564b); the latter meaning would fit better into the context. It has to be noted that the letter *Ṭet* was quite often used for representing a Romance *d*.

פילולש דראז: PYLWLŠ DR'Z – The first element of this term is the O.Cat. *pil.lola* (DCVB 8:582b–583a) or the O.Occ. *pillula* (RL 3:541b and PSW 6:320b) for “pill.” The first letter of the second element seems to correspond to the preposition *de* “of,” so that the whole term could be read as **pil.lolas de Raz*, “Rhazes’s pills.” For the composition of these pills, see the treatise on the plague entitled “*Quaedam exhortatio bona contra morbum pestilentialem sive epidemialem*” (1383?) in Sudhoff, *Pestschriften aus den ersten 150 Jahren nach der Epidemie des “schwarzen Todes” 1348* (Archiv für Geschichte der Medizin, Bd. 5 (1912), 36–87, p. 79, and the anonymous Hebrew plague treatise entitled “*On pestilential fever*” in MS Berlin, Staatsbibliothek Preussischer Kulturbesitz 232 (4 836) (edition forthcoming).

פירדיכש: PYRDYKŠ – Latin *perdix*, “partridge” (ThLL 10–1:1259).

פיריש: PYRYŠ – This is the plural of O.Cat. *pera*, “pear” (DECLC 6:441a-b). An O.Cat. reading (RL 3:514a, DAO 3:278–279) is not possible here because of the plural ending, see above for Ṭ’PRYŠ. The Occitan form, *peras*, is reflected in SHŠ Qof 3: PYR’Š.

פרישירוסיא: PRYŠYRWSY’W – Medieval Latin *praeservatio*, a usual term in the Latin pest literature, or Catalan *preservació*, i. e., the prophylaxis or prevention, in contrast to *cura*, which is the actual therapy. The Catalan term is amply documented in the *Regiment* by d’Agramont (see also the explanation in the glossary of the edition).

צנדולש: ZNDWLŠ – The vernacular term seems to be the O.Cat. *sàndils*, “sandalwood” (DCVB 9:723a) or might be a corrupt spelling of the Latin *sandalus* (Sin. Barth. 38). In O.Cat., we only find the form *sandrill* (DAO 1182,1–1).

קאילס: see בול ארמיני

קוירנוש: QWYRNWŠ – This word might correspond to the O.Cat. adjective *cavernòs* (“belonging to or containing caverns”, DCVB 3:89a), but probably it is corrupt for *cavernes*, i. e., Old or Middle French (FEW 2–1:556b–557a) or (Old) Catalan (DCVB, loc. cit.) for ‘caves.’ Cat. *cavernes* features in d’Agramont’s *Regiment* (I. 1), although in another context.

קומיקשטיאו: QWMYQŠṬY’W – Latin *commixtio* “mixing, mingling” LS 380; (w. ref. to elements or humours) “complexion,” “temperament” (DML 1:396a)

קטיקא שגילטא: QṬYQ’ ŠGYLT’ – The first element might be a corrupt form of Latin *terra*, so that the whole term could be read as Lat. *terra sigillata*; cf. SHŠ Ṭet 1 (O.Cat. or O.Cat. ṬYR’ ŠGYL’DH).

קנילא: QNYL’ – Lat. *cannella*, O.Cat. *canel(l)a* (RL 1:310a) or *canelha* (CB 216), Old Catalan *can(y)el(l)a* (DECLC 2:497a; AdV 490), “cinamon”; cf. SHŠ Dalet 1 (QNYLH) and Qof 8 (QNYL’). For O.Cat., also cf. *canella* in the *Regiment* by d’Agramont (I. 1).

רומני: RWMNY – O.Cat. *romani*, “rosemary,” *Rosmarinus officinalis*, documented since 1376 (DCVB (9:552b)). The *Regiment* by d’Agramont (V. 1.2) shows another Catalan word for rosemary, *romer*, in similar contexts as in our text, i. e., for burning and fumigation (see above with respect to GYNBRYs).

שיגואה: ŠYGW’H – This term could not be identified definitely. It might be seen as a variant belonging to the Latin *cicuta*, “hemlock,”

but as such, if it not an error, it could only be interpreted as O.Fr. *cegue*, *segue* or M.Fr. *chigue* (FEW:2,2,668a). This would be the only item in this text that is exclusively French and is thus not very probable (note that the modern Occitan forms of the type *siguo* were adapted from French according to FEW, loc. cit.). The original Occitan and Catalan forms are *cicuda* (Occ., FEW, 1. c.) and *ceguta*, *ceguda* (Cat., DECLC 2:657b). In addition, the plant hemlock would not make much sense in this part of the text.

שפטינטריאונל: ŠPṬYNTRY'WNL – Catalan *septentrional*, “northern,” cf. *vent septentrional*, “northern wind” (DCVB 9:849b, see its occurrence in the *Regiment* by d’Agramont II. 1.1); also cf. O.Fr. *septentrional* (TL 9,503a), O.Sp. *viento septentrional* (DETEMA 1463a).

שפריר: ŠPRYR – O.Cat. *xiprer*, *ciprer*, *siprer*, *Cupressus sempervirens* (DCVB 10:946a); also cf. Arnaldi de Villanova, 611, *çiprer* (al. *siprer*). According to FEW (2–2:1613a), the O.Fr. and O.Cat. form was *cipres*. This is also the etymological form in Catalan (cf. the *Regiment* by d’Agramont V.2.1), whereas the form that we find here has been adapted to the model of other names of trees ending with *-er* (e. g. *pomer*, “apple tree”); cf. DCVB, loc. cit.

ששנקי: ŠŠNQY – This term could not be identified.

תמריצ: TMRYZ – Latin *tamarix* or the O.Cat. *tamaris*, “tamarisk” (NPRA 255; FEW 13:71a; DAO 779,1–1). For O.Cat., only the form *tamariu* is documented (DCVB 10:125b).

List of Abbreviations

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| CB | Corradini Bozzi, M. S. <i>Ricettari medico-farmaceutici medievali nella Francia meridionale</i> (Florence: L. S. Olschki, 1997) |
| Creutz | Creutz, Rudolf. <i>Das mittelalterliche medizinisch-botanische Vokabularium “Alphita”</i> (Berlin, 1940) |
| DAO | Baldinger, Kurt. <i>Dictionnaire onomasiologique de l’ancien Occitan</i> (Tübingen: M. Niemeyer, 1975 seqq.) |
| DCVB | Alcover, Antoni Maria. <i>Diccionari català-valencià-balear</i> , 2nd ed. (Palma de Mallorca, 1980–1985) |
| DECLC | Coromines, Joan. <i>Diccionari etimològic i complementari de la llengua catalana</i> (Barcelona: Curial Edicions Calalanes, 1980–1991) |
| DETEMA | Herrera, María Teresa, María Nieves Sánchez, and María Purificación Zábía. <i>Diccionario español de textos médicos antiguos</i> (Madrid: Arco Libros, 1996) |
| DML | <i>Dictionary of Medieval Latin from British Sources</i> (Oxford: Oxford University Press, 1975 seqq.) |

- DuC Du Cange, Charles Du Fresne. *Glossarium Mediae et infimae latinitatis* (Niort, 1883–1887; repr. Graz, Akademische Druck- u. Verlagsanstalt, 1954)
- FEW Wartburg, W. von. *Französisches Etymologisches Wörterbuch* (Bonn: Basilea, 1922 seqq.)
- LS Liddell, H. G. and R. Scott. *A Greek English Lexicon. Revised and augmented throughout by H. S. Jones a. o., with a supplement* (Oxford: Clarendon Press, 1968; repr. Oxford, 1989)
- MLWB Lehmann, Paul. *Mittellateinisches Wörterbuch bis zum ausgehenden 13. Jahrhundert* (Munich: Beck, 1967 seqq.)
- NGML Blatt, Franz. *Novum Glossarium Mediae Latinitatis ab anno DCCC usque ad annum MCC* (Copenhagen: E. Munksgaard, 1957 seqq.)
- NPRA André, Jacques. *Les noms des plantes dans la Rome antique* (Paris: Belles Lettres, 1985)
- PSW Levy, Emil. *Provenzalisches Supplement-Wörterbuch: Berichtigungen und Ergänzungen zu Raynouards Lexique roman* (Leipzig: O. R. Reissland, 1894–1924)
- RL Raynouard, M. (François-Just-Marie). *Lexique roman: Ou dictionnaire de la langue des troubadours comparée avec les autres langues de l'Europe latine* (Heidelberg, 1838–44)
- RPA Brunel, C. "Recettes pharmaceutique d'Avignon en ancien provençal," in *Romania* 87 (1966): 505–542
- SHŠ Bos, Gerrit, Guido Mensching, Martina Hussein, and Frank Savelsberg. *Medical synonym lists from Medieval Provence (Hebrew, Arabic, Romance): Shem Tov Ben Isaac, Sefer ha-Shimmush, Book 29. Critical edition, translation and annotation. Part 1: List 1 (Hebrew-Arabic-Romance)* (Leiden: Brill, in press)
- Sin. Mensching, Guido. *La Sinonima delos nombres delas medecinas griegas e latynos e arauigos* (Madrid: Arco Libros, 1994)
- Sin. Barth. Mowat. J. L. G., ed. *Sinonima Bartholomei* (Anecdota Oxoniensa Medieval and Modern Series, 1.1; Oxford: Clarendon, 1882)
- ThLL *Thesaurus Linguae Latinae* (Leipzig: In aedibus B. G. Teubneri, 1900 seqq.)