

## From the Sarton papers: Paul Kraus and arabic alchemy

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George Sarton was at the center of activities in the historiography of Arabic science in the middle decades of the twentieth century. One of his correspondents was Paul Kraus (1904-1944), a talented Arabist whose work on Jābir ibn Ḥayyān influenced scholars in many areas of early Islamic studies. Kraus established the apocryphal nature of Jabir's writings as well as the connections of the Jabirian alchemical corpus to early Isma'ili ideas. Forced from Germany by the Nazi Civil Service Law of 1933, Kraus moved first to Paris where he interacted creatively with Louis Massignon and then to Cairo, which brought him into collaboration with Max Meyerhof, another key historian of Arabic science. The dramatic nature of Kraus's life, which ended in his suicide, reveals the high affective ties that characterized Sarton's circle of Arabists.

*George Sarton estuvo en el centro de las actividades relacionadas con la historiografía de la ciencia árabe a mediados del siglo XX. Uno de sus corresponsales fue Paul Kraus (1904-1944), un competente arabista cuyo trabajo sobre Yābir b. Ḥayyān influyó en los estudiosos en muchas áreas en las primeras etapas de los estudios islámicos. Kraus estableció la naturaleza apócrifa de los escritos de Yābir, así como las conexiones del corpus alquímico yabiriano con las ideas de las primeras corrientes ismailíes. Obligado por la ley nazi del Servicio Civil de 1933, Kraus se trasladó a París donde estableció una fructífera relación con Luis Massignon, y después a El Cairo, lo que le permitió colaborar con Max Meyerhof, otro destacado historiador de la ciencia árabe. La naturaleza dramática de la vida de Kraus, que concluyó con su suicidio, revela los intensos vínculos afectivos que caracterizaron al círculo de arabistas entorno a Sarton.*

Paul Kraus (1904-1944) was a many-talented historian of medieval Arabic science who wrote an influential work on Jābir ibn Ḥayyān (the Latin «Geber») and the medieval alchemical tradition, two volumes of which had appeared shortly before he committed suicide in Cairo, where he lived and worked, in 1944. In a perceptive essay which appeared recently in a volume devoted to biographies of Jewish scholars who made significant contributions to Islamic history, Joel L. Kraemer (1999) describes Kraus's life and work with great erudition and sensitivity. Here I want not to duplicate Kraemer's admirable narrative, but rather to revisit Kraus' scholarly biography through the eyes of George Sarton, based on the mine of information contained in Sarton's correspondence files.

Sarton (1884-1955) was a mathematician by training, a historian of science by profession, and an Arabist by inclination. He learned Arabic in Beirut, because he felt that Arabic had been an international scientific language which, during the middle ages, had been the vehicle of one of

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the great scientific movements in the history of civilization. In the 1920s and 30s, when he was composing his monumental *Introduction to the History of Science*, he was at the center of an international circle of historians of Arab science by virtue of his extraordinary role as a communicator and because he no doubt felt a particular bond with this province of medieval science. He was also, of course, editor of *Isis*, and wrote most of the notices for the annual Current Bibliography of the History of Science himself. His correspondents were constantly sending him off-prints and publication notices, as well as addenda and errata to published volumes of the *Introduction*, which he included in the current bibliographies. He acted as a kind of clearing house for information on Arabic science over a period of more than two decades, as reflected in his correspondence. Not unexpectedly, therefore, the letters that Sarton exchanged with other devotees of Arabic science display a high level of intertextuality: scholars discussed each other's work, privately, with Sarton, at the same time as they were submitting articles to *Isis*, writing letters for publication in the same journal, and keeping Sarton updated on their own research concerns. The result is that the research program of Western Arabist History of Science, if not conceived through correspondence with Sarton, was tested (both as to its objectives and results) and refined through it.<sup>1</sup>

A number of aspects of this emerging research program are clear. Although Arabic science and particularly medicine had been studied by nineteenth-century western scholars, those of the early twentieth began to interest themselves in the origins of Arabic science in that of late Antiquity, and in the movement of translation of Greek science into Syriac and Arabic, particularly in the ninth century.<sup>2</sup> Second, these historians of science tended to stay away from purely philosophical issues surrounding the Arab reception of Aristotelianism and to focus more on the development of discrete realms of science, such as astronomy, alchemy, and medicine, concentrating on leading practitioners of various fields. Sarton both encouraged this approach, and reflected it in the biographical organization of the *Introduction*, wherein each half-century period was named after the scientist who, in Sarton's eyes, best represented the scientific *Zeitgeist* of the times. Inasmuch as important figures tended to have multifocal interests, however, there was a small core of scientists that attracted the attention of all workers: al-Bīrūnī and al-Rāzī, for example, also attracted the interest of scholars working on Jābir. Finally, the relationship of early Arab science and the religious ferment of early Islam was the immediate context of the assimilation of exogenous scientific ideas.

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<sup>1</sup> On Sarton, see Glick (1985, 1999); Thackray and Merton (1972).

<sup>2</sup> See Meyerhof, (1937), 17-22.

### **Jābir: Ruska, Kraus and Stapleton**

In a series of influential publications during the 1920s, Julius Ruska (1867-1949) who had been working on al-Rāzī's *Sirr al-Asrār* («Secret of Secrets») since 1921, set the agenda for research into Arabic alchemy, or at least the central core revolving around Jābir ibn Hayyān. The traditional view on Jābir was that he had lived and written in the late eighth century, that is, before the great epoch of translation from Greek under the ʿAbbāsīd caliph al-Maʾmūn, and had been in the service of the Shiʿite Imām, Jaʿfar al-Ṣādiq (the last imām recognized by both Twelver Shiʿites and Ismāʿīlīs). In influential studies of Jaʿfar and Khālīd ibn Yazīd, an Umayyad prince identified in early accounts as the first Arab to translate classical texts from Greek, Ruska dismissed the roles of both as legend, claimed most of the Jabirian corpus to be «forgeries» and concluded that «this chemistry did not come from Egypt and did not reach Jābir through the medium of the Syrians, much less through that of the Imām Jaʿfar, but it is a native growth of a slow development, and essentially a product of the Iranian spirit fertilized by Hellenist philosophy.»<sup>3</sup> Thus scholarship had to address what Ruska called the «Jābir-Problem», which was to identify the authors of works attributed to Jābir and their motives for writing.<sup>4</sup> Building on Ruska's indictment of the authenticity of the historical Jābir, Ruska and Kraus together developed a hypothesis dating most of the Jābir corpus to the late ninth century, rather than the eighth, and to associate its ideological content with the emerging Ismāʿīlī movement.<sup>5</sup> Sarton's 1927 account of Jābir in the *Introduction* shows his reluctance to abandon the historicity of Jābir (after whom he names the respective epoch), while noting that «Ruska shows that the Jābir question can not be solved until we have critical editions of the Arabic texts ascribed to him».<sup>6</sup>

Kraus first appears in the Sarton Papers in March 1930, in a letter from Ruska, who mentions an unnamed «assistant»:

<sup>3</sup> Cited by Kraus, 1938: 17. See Ruska (1937a; English version of a 1929 article), 35-36, where he dismisses Khālīd and Jaʿfar, and states categorically that there was no interest in Greek science before the ʿAbbāsīds and therefore no translation of Greek alchemical works before the second half of the eighth century. Ruska's study of Jaʿfar (1924a) was briefly reviewed by Sarton, *Isis*, 7 (1925), 120-121. Sarton states that Ruska «has now shown that there is no reason whatever to consider Jaʿfar as the teacher of Jābir.» He also notes that the thrust of Ruska's approach is the contrary of that of Eric Holmyard. In the «Current Bibliography» of the same volume (pp. 183-184) Sarton comments on the companion volume (Ruska, 1924b), relaying Ruska's conclusion that no alchemical writing can be attributed to Khālīd and the legend of Khālīd's alchemy «developed gradually as Arabic alchemists felt the need of ancestors.» On Khālīd, see n. 37, below.

<sup>4</sup> See Ruska (1937b).

<sup>5</sup> The hypothesis was adumbrated in a joint declaration by Ruska and Kraus (1930).

<sup>6</sup> Sarton, 1927: 532-533. On the other hand, he shows no reluctance whatever at endorsing Ruska's conclusion that both the translation and alchemical activities attributed to Khālīd ibn Yazīd were «pure legend» (*ibid.*, p. 495).

«Finally I am able to report on some scientific results. Previously I have only mentioned this Holmyard. I would like to send you something a little more detailed and at the same time announce a work for the summer which will deal with the topic. It has to do with nothing less than a complete overturn of everything about Jābir which we believed to have been proven in the last few years. The evidence comes from Holmyard's new texts<sup>7</sup> and from the manuscripts of my Institute [for the History of Medicine and Natural Sciences]. The discovery is credited to my assistant. The Jābir literature dates to the beginning of the tenth century! Right now I should say no more; the reasoning is incontestable. The third annual report will contain a preliminary announcement».<sup>8</sup>

But Ruska soon reconsidered sending an article of his own to *Isis* stating a month later that he would prefer to leave the article on Jābir to Kraus.<sup>9</sup> A few months later, Max Meyerhof, a correspondent of Sarton since 1912, wrote to confirm «the discovery of Ruska's assistant Dr. Paul Kraus: Jābir b. Ḥayyān is apocryphal, and all the many works ascribed to him have been manufactured in the X<sup>th</sup> century for Ismaelian (or Karmatian) propaganda.»<sup>10</sup> Kraus then wrote the article summarizing his hypothesis and Ruska sent it to Sarton in July 1930:

«With this letter I am sending you my review of volume one of the *Flora of the Jews*<sup>11</sup> and more importantly Dr. Kraus' article concerning the Jābir problem. It contains completely new material which I believe you will especially welcome. Now that this wall is breached, the way is paved for a true understanding of the Jabirian writings. We have received similar explanations from authoritative Orientalists on all sides and now one speaks only of Jābir's burial in Vienna when Dr. Kraus gave his lecture at the Orientalist congress. This has removed a nightmare from my shoulders.

You were certainly aware that I was on the right track because the *Seventy Books and Poison Book*<sup>12</sup> on which we have been working the past few years offered little material to explain the literary connections. It is a peculiar twist of fate indeed that the very texts published by Holmyard brought about the downfall of his own theories.

<sup>7</sup> Holmyard (1928).

<sup>8</sup> Ruska to Sarton, March 25, 1930. Kraus became Ruska's assistant in Berlin in 1929, succeeding Martin Plessner. The «third annual report» is the one cited in n. 6, above. See *Isis*, 15 (1931), 164-165 (*Jahresberichte*) and 399, where Sarton says that Kraus' argument is «very plausible.»

<sup>9</sup> Ruska to Sarton, April 30, 1930. He added: «I do this especially since you may offer an honorarium which would be a nice complement to his small income.»

<sup>10</sup> Meyerhof to Sarton, May 30, 1930.

<sup>11</sup> Löw (1926-28), reviewed by Ruska in *Isis*, 15 (1931), 181-182.

<sup>12</sup> These were the first Jābir manuscripts supplied to Ruska by Meyerhof (Ruska, 1937b, 310). See Kraus, *Jābir*, I, 40-61: «Les LXX Livres» (described by Kraus, p. 43, as a «systematic exposé of Jabirian alchemy»), and *Kitāb al-sumūn wa daf' maḍārrihā* (*ibid.*, pp. 156-159), a book which Kraus demonstrates to have based on wholly Greek sources.

*Postscript:* Concerning submission of the review of Löw and Dr. Kraus' article, I received your letter dated July 6. Since you don't mention the receipt of my annual report, I must assume you haven't received it and thus am sending a second copy. Dr. Kraus' article assumes familiarity with our first mutual publication.<sup>13</sup> In his transcription of Arabic words he has followed *Isis* standards exactly. It would very much please me if you would mention our solution to the Jābir problem in a review of the annual report.<sup>14</sup>

Kraus' article was published in *Isis* in 1931.<sup>15</sup> When the finished product arrived, however, Kraus and Ruska were unhappy because their corrections to proof were not made.<sup>16</sup>

With the passage of the infamous Nazi Civil Law of 1933, Kraus moved to Paris where he continued to refine his interpretation of Jābir, working closely with the Arabist Louis Massignon (1883-1962). Kraus's dating of the Jabirian corpus rested not on supposedly biographical details about Jābir, but rather on the association of certain consistent themes in the Jābir corpus with the ambience of radical religious expression in the multi-cultural environment of ninth-century Iraq. In the fervid religious crucible that produced radical Shi'ism, particularly the Ismā'īlī branch, elements of both neo-Pythagorean and gnostic thought were conjoined to produce a distinctive synthesis of elements. Both schools of thought were influenced by ancient Greek philosophy, such as the four elements and qualities, and were attracted to practical elements of ancient science.<sup>17</sup> One such interest was arithmology, wherein numbers,

<sup>13</sup> Ruska and Kraus (1930).

<sup>14</sup> Ruska to Sarton, July 26, 1930. My translation.

<sup>15</sup> Paul Kraus, «Studien zu Jābir ibn Ḥayyān», *Isis*, 15 (1931), 7-30.

<sup>16</sup> Ruska to Sarton, March 18, 1931: «A few days ago we received the new issue of *Isis* and the offprints of Dr. Kraus' work. Mr. Kraus is most unhappy that the printer completely ignored our careful corrections which were necessary due to the misunderstandings of the typesetter. These include not only many typographical errors but more importantly the completely senseless use of bold type which was nowhere to be found in the manuscript and which subsequently remained uncorrected. The reader will ask himself in vain why, e.g., on page 28, a whole row of sentence fragments are in bold type. If it would be possible to include in the next issue a short note detailing the mistakes, both of us would be most grateful.» My translation. Sarton gave his side of the story, prompting Ruska (April 10, 1931) to apologize for the sloppy condition of Kraus' original manuscript and that, in the future, Kraus promises to submit clean copy.

<sup>17</sup> Kraus proposed that the Jabirian number sequence 1, 3, 5, 8, where each number stood for one of the four qualities, was derived from the *Timaeus*. The chain of transmission has since been worked out in greater detail by Wilson (1988). The Arabs picked up the sequence from a body of treatises circulating in Late Antiquity under the names of Socrates and Plato. Kraus thought that these were Arab «forgeries» (*Jābir*, 48-53), but Wilson (1988: 9-10) makes a convincing case for earlier Greek «forgeries», assimilated by Arabs in the first two Islamic centuries, with Pythagoras dropping out of the Jabirian neo-Pythagorean tradition (*ibid.*, 13 n. 44). The frequent use of the term «forgery» in this literature to denote the many pseudonymous works of late antiquity and the early middle ages (i.e., works ascribed to Aristotle, Hermes, Jābir, Geber, and so forth) is an inadvertent derogation of a positive phenomenon. «Forgeries» were works that went a bit further than what was regarded as legi-

written as letters, were manipulated to produce transformative results, whether in medicine, in alchemy, or in social or political analysis or predictions. As Massignon observed, this particular combination of ideas not only influenced the formation of Jewish Kabbalah but also hastened «the development of algebra, chemistry, and medicine.»<sup>18</sup> Muslim and Jewish mystics of the ninth century were fascinated by the so-called «mother letters» (Arabic, *ummahāt*; Hebrew, *immot*). These were three letters of the Hebrew alphabet, *alef*, *mem*, and *shin*, so prominent in the mystical system of the Book of the Creation (*Sefer Yasira*) which Massignon recognized as related to the similar gnostic triad of the Shi'ites, *ain*, *mim*, *sin*. Kraus agreed, suggesting that in the Jewish version, the Arabic *cain* (standing for *Ali*) had been shifted to *alef*, for Aaron.<sup>19</sup> The details need not detain us; the point is that the peculiar vogue for esoteric arithmological and letter symbolism so characteristic of ninth-century radical Shi'ism lends credence to the contemporaneity of the Jabirian corpus in which the same symbols appear. Indeed, Eamon (1994: 43) goes so far as to state that the alchemical corpus attributed to Jābir is so «infused with Ismā'īlī beliefs as to constitute an essentially alchemical exposition of Ismā'īlī religious doctrines», a conclusion that reflects Kraus' thesis.<sup>20</sup>

In the *Supplement to the Encyclopaedia of Islam* published in 1936, Kraus summarized his views on Jābir in the mid-1930s: the corpus was «compiled at the end of the third and beginning of the fourth [Islamic] century» and was the work of multiple authors. The corpus must be viewed

timely and contained material that was original, daring, or avant-garde. The pseudonymous works mentioned were conceptually linked, advancing methods of establishing esoteric truths that later fed into both quantitative approaches to science and (in the case of alchemy) an experimental tradition; see Eamon (1994). According to Corbin (1993, 130), however, Kraus exaggerated the connection between Jabirian balance theory and quantitative science.

<sup>18</sup> Massignon, 1982, I, 197. Massignon in an extended discussion of philosophical gnosticism (pp. 195-204) cites Kraus repeatedly; it is clear that this intricate web of influences and ideas was worked out in close collaboration between the two Arabists. See also, Massignon, 1997, 53: «Jābir used isolated letters of the alphabet to represent, in fixed systems of notation (alchemical, algebraic, syllogistic, and medical), the permanent natural functions of things.» Massignon was on the same wave length as Kraus before the latter moved to Paris. In a discussion of Arab alchemy at the fourth annual meeting of the International Academy of the History of Science (Paris, May 1932), Massignon mentions both the Iranian Shi'ite connections of Jabirian alchemy and says that he has attempted to apply Kraus's theory of impure and noble metals to the structure of Persian miniatures, in which gold is represented as a luminous phenomenon, suggestive of Manichean cosmology; «L'Alchimie arabe», *Archeion*, 14 (1932), 466-467.

<sup>19</sup> Kraus's hypothesized that the Hebrew *immot* were a borrowing from Shi'ite mysticism, modified only by the substitution of *alef* for *ain*; *Jābir*, II, 267; Massignon, 1982, I: 200-202. See the recent revisitation of the *Sefer Yasira*, in the light of Kraus and Massignon's attribution to it of a ninth century date, by Wasserstrom, 1993: 2-7 («The Kraus Hypothesis»).

<sup>20</sup> Corbin (1993: 129-130) uses the Ismā'īlī connection to reclaim the historicity of Jābir, a disciple of Ismā'īl's father, Ja'far, without precluding the addition of later Ismā'īlī materials to an original corpus.

as «a problem in religious history», associated with the Gnostic syncretism of radical Shīʿites, particularly the Karmatians.<sup>21</sup>

In his Paris period, Kraus was also collaborating with Shlomo Pines on al-Rāzī's metaphysics and his critique of religious thought.<sup>22</sup> Al-Rāzī had already been within his field of vision because his alchemical production had been studied by Ruska.<sup>23</sup> Kraus, of course, remained in communication with Ruska, as the latter reported to Sarton in the summer of 1935: «I hear from Kraus that he is slowly coming along with his work. Hopefully he has not worked in vain. What he has to say about Jābir's environment and his sources will mean a revolution in these strongly-held ideas.»<sup>24</sup>

Between 1934 and 1937 Sarton was the pivot of a debate between Ruska and the English Arabist, Henry Ernest Stapleton (1878-1962). Stapleton and his compatriot Eric Holmyard had both opposed Ruska's line on Jābir in the 1920s, arguing for Jābir's historicity.<sup>25</sup> Stapleton had been director of public education in Bengal, using his free time in India to search for new medieval Arabic scientific documents.<sup>26</sup> In 1933 he published an alchemical manuscript that he had found in Lucknow, containing an important alchemical treatise by the tenth-century Muhammad b. Umayl, titled *al-Māʾ al-Waraqī waʾl-Arḍan-Najmīyah* («Silky Water and

<sup>21</sup> Kraus, «Djābir b. Haiyān al-Azdī al-Kūfī», EI<sup>1</sup>, *Supplement*, pp. 52-54. In his Bibliography, Kraus refers readers to Sarton, 1927, I, 532. Sarton cycled the data of his informants through the *Introduction* and *Isis*, whence it recycled in the critical apparatus of the same authors.

<sup>22</sup> P. Kraus and S. Pines, «al-Rāzī», EI<sup>1</sup>, VI, 1134-1136. Kraus had edited al-Bīrūnī's *Risāla fi fihrist Kutub Muhammad b. Zachariah al-Rāzī* (Paris, 1931; Fr. Trans., 1936), of which Ruska had published a partial German translation in *Isis*, 5 (1922). Sarton's discussion of Rāzī (1927, 609-610) is cited in the EI<sup>1</sup> bibliography. It is important to grasp the function of Sarton's *Introduction* and critical bibliographical notes in consolidating scholarly consensus on issues in debate. Once in Cairo, Kraus (1939) published a critical edition of Arabic (and some Persian) texts of al-Rāzī; see a summary of the contents by Meyerhof (1941).

<sup>23</sup> Ruska had been working on Rāzī's *Sirr al-Asrār* since 1921 and, according to Kraus (1938: 13-14), «was most impressed by the systematic and sound scientific nature of the work... There was no doubt about it that this did not represent Rāzī's own work but alchemical tradition and experience of many centuries.» Al-Rāzī, like Jābir, was another of Sarton's emblematic figures, lending his name to the period of his activity as covered in the *Introduction*.

<sup>24</sup> Ruska to Sarton, July 8, 1935.

<sup>25</sup> See Holmyard's intervention in the discussion of Arabic alchemy at the Paris meeting of the International Academy in 1932, where he uses al-Rāzī to legitimate Jābir: «Al-Rāzī nomme Jābir et cite son oeuvre. Comme al-Rāzī est mort en 1925, Jābir doit avoir vécu avant le dixième siècle. Jābir ne peut représenter un personnage fictif. Ses travaux portent tous la marque d'un suel auteur que dut être un personnage important», *Archeion*, 14 (1932), 467. But Kraus and Pines, in their article on al-Rāzī written after Kraus's arrival in Paris, assert that «Rāzī does not seem to have been acquainted with the alchemical writings attributed to Jābir b. Haiyān» EI<sup>1</sup>, VI, 1135. The problem with all attempts to resuscitate the historicity of Jābir after 1930 is that Kraus and Ruska had successfully shifted the focus from details of Jābir's biography to the embedding of Jabirian ideas in Ismāʿīlī esotericism.

<sup>26</sup> On Stapleton's life and research, particularly in India, see McKie (1963).

Starry Earth).<sup>27</sup> Ibn Umayl was a 10<sup>th</sup> century alchemical writer who provided Stapleton with clues to the relationship between early Arab alchemy (including Jābir) and Hermes, Khālīd b. Yazīd, and the *Turba Philosophorum*, another anonymous collection of alchemical lore was originally composed in Arabic (as *Muṣṣaf al-jamaʿa*, around 900 AD).<sup>28</sup>

In 1932 he informed Sarton that Ruska had sent him his book on the *Turba Philosophorum*, in which, according to Stapleton, he had failed to solve the problems of its origins. Ruska had concluded that the *Turba* had nothing to do with ancient Greek sources, its roots lying in a more localized and recent milieu of Oriental Hellenism, but was unable to pinpoint the process by which these early Arab alchemical doctrines might have emerged.<sup>29</sup> Stapleton's doubts had deepened by 1934, when he wrote Sarton about Ruska's

«curious unwillingness to assign any real credit for alchemical work to the early Arabs, or to almost anybody else except unknown Iranians. My own reading of the early history of alchemy in Arab times is that Jābir (an Arab of the Arabs, whose acknowledged master was Ḥarbī of Yaman)<sup>30</sup> was the official alchemist of the Imām as-Ṣādiq—occupying precisely the same position in the Imām's court as Stephanus had in that of Heraclius, and that Jābir not only took from the Greeks of Alexandria all their knowledge of alchemy and mineralogy, but considerably supplemented it by original work of his own. Less than a century later came al-Rāzī<sup>31</sup> who, in turn, supplemented Jābir's *corpus alchemicum* by knowledge drawn from the pagan Harrānians<sup>32</sup> (which probably implies a synthesis with Babylonian and Indian knowledge, as well as some further Greco-Alexandrian learning which, by that time, had filtered to Harrān — *vide* Max Meyerhof's paper on 'la fin de l'Ecole d'Alexandrie' in the Jan.-March number of *Archeion* for 1933)».<sup>33</sup>

<sup>27</sup> Stapleton, 'Alī, and Hussain (1933). See also Stapleton's announcement of the discovery (1932b).

<sup>28</sup> See G. Strohmaier, «Ibn Umayl», *EI*<sup>2</sup>, III, 61-62. Ruska (1936) also worked on Ibn Umayl.

<sup>29</sup> Stapleton to Sarton, March 12, 1932. On Ruska and the *Turba*, see Kraus, 1938, 18-19; *Isis* Current Bibliography, 14: 536-537; Halleux, 1979, 68. Ruska (1937a, 34) related the *Turba* to a lost Arabic neo-Pythagorean encyclopedia.

<sup>30</sup> Ḥarbī the Ḥimyarite, a 463 year-old shaykh identified by Jābir as one of his teachers (Kraus, *Jābir*, II, 261 n. 2).

<sup>31</sup> Al-Rāzī (the Latin Rhazes, 854—925 or 935), alchemist, physician, and philosopher. Ruska, Kraus and Meyerhof all edited works of al-Rāzī; see L. E. Goodman, «al-Rāzī», *EI*<sup>2</sup>, VIII, 474-477.

<sup>32</sup> Harrān: a northern Mesopotamian city, inhabited by «Sabians», was a center of translation of Greek works into Arabic in the early ʿAbbāsīd period, associated with Thābit ibn Qurra. The Harrānians claimed that their religion came directly from Hermes, which explains why Arab alchemists were fixated on Harrān as a place on the fast track to esoteric wisdom. See O'Leary, 1948, 172-173.

<sup>33</sup> Stapleton to Sarton, March 27, 1934. Meyerhof (1933) analyzes the Arabic sources detailing the removal by Nestorian Christian scholars of the Hellenist school of philosophy from Alexandria, first to Antioch around 718, then to Harrān and Marw, and finally to Baghdad in the late 9<sup>th</sup> century in the person of Al-Farabī's teacher, Yūḥannā ibn Hailān.



Stapleton adds that he is currently working on Ibn Umail's references to Hermes<sup>34</sup> and calls Sarton's attention to what Ibn Khaldūn has to say on alchemy.<sup>35</sup> Several years later, after a trip to Hyderabad, where he did some research in the Āṣāfiyah Library, he wrote Sarton that he had been studying new material provided by Kraus in the first volume» of his work on Jābir.<sup>36</sup>

«In particular, his extract from the *K. ar-Raḥīb* [Book of the Monk] completes the chain of information I had been gathering on Khālīd [ibn Yazīd]<sup>37</sup> and it's now clear:

(1) that Khālīd (who was born in 672 AD) derived some of his alchemical knowledge from a monk named Maryanus...

(2) Al-Ṭabarī, the *K. al-Aghānī*, and the *Fihrist* all agree that Khālīd was interested in alchemy.<sup>38</sup> He himself also claims—in the poem to Yazīd previously referred to—<sup>39</sup> to have succeeded in its practice.

(3) Khālīd was the first to cause alchemical works (in Greek and Coptic) to be translated into Arabic by some Greek philosophers living in Cairo (*Fihrist*).<sup>40</sup>

(4) Khālīd probably survived until at least 720 AD and lived in Damascus (*vide* poem already mentioned).

<sup>34</sup> Stapleton (1949).

<sup>35</sup> Ibn Khaldūn (1958, III, 227-246, 267-280) provides a detailed history, analysis, and refutation of alchemy. He regarded alchemy as sorcery and Jābir as «the chief sorcerer of Islam» (*ibid.*, III, 157).

<sup>36</sup> Kraus, 1935. See Stapleton's report on the alchemical manuscripts in Hyderabad (1932a). Of the 155 alchemical treatises in this collection, twenty-two were ascribed to Jābir, two to Khālīd b. Yazīd, and six to b. Umail.

<sup>37</sup> Khālīd b. Yazīd (ca. 668-ca. 683) was a son of the Umayyad caliph Yazīd I who was said to have been an alchemist. According to M. Ullmann, «He is said to have ordered Egyptian scholars to translate Greek and Coptic on alchemy, medicine and astronomy into Arabic, and to have learned Arabic from a Byzantine monk by the name of Maryanos (the name Stephanos is also mentioned. All this however is not historical.» «Khālīd b. Yazīd b. Mu'awiya», *EI*<sup>2</sup>, IV, 929-930. Ibn Khaldūn doubted that Khālīd could have known alchemy because he was a Bedouin: «Thus, he was not familiar with the sciences and crafts in general. How, then, could he have known an unusual craft based upon knowledge of the natures and tempers of composite things, when the physical and medical works of scholars who did research on those subjects had not yet appeared and had not yet been translated?» Ibn Khaldūn (1958, III: 230) supposed there was another individual of the same name, which gave rise to the confusion. In the *Kitāb al-Raḥīb*, Jābir recounts the alchemical lore imparted to him by the Monk, a student of Maryanos and contemporary of Khālīd b. Yazīd. See Kraus' translation (1935, 528-532; English version in Rosenthal, 1992, 248-251).

<sup>38</sup> Al-Ṭabarī (839-923) wrote a universal history titled *Mukhtasar Ta'rikh al-Rusul wa'l-Mulūk wa'l-Khulafā'*. The *Kitāb al-Aghānī* is a collection of poems and songs compiled and annotated with biographical and historical details by Abū'l-Faraj al-Isfahānī (897-967). The *Kitāb al-Fihrist* («Book of the Index»), a compilation by Ibn al-Nadīm, was intended to be a complete list of books written in Arabic, completed in 987-98.

<sup>39</sup> A short poem addressed by Khālīd to his cousin Yazīd II on the occasion of the latter's accession to the caliphate in 720.

<sup>40</sup> See Dodge, 1970, I: 850-851.

(5) Jābir, whose alchemical master was Ḥarīb, the Donkey-Eared Logician, also learnt from another monk, who is said in the *K. ar-Rāḥib* to have been the pupil of Maryanos, the teacher of Khālid.

(6) That the Imām Jaʿfar as-Ṣādiq (through his being a cousin, by marriage, of Khālid) was almost certainly acquainted with Khālid's alchemical writings, and, if so, probably utilised this knowledge as an additional 'background' to his Imāmate.

(7) That... Jābir appears to have been the [personal] alchemist of Jaʿfar as-Ṣādiq, and certainly wrote under his direction (*vide* prefaces to various of Jābir's treatises).

Finally, at the beginning of what is probably an authentic copy of the *K. ar-Rahma* of Jābir (in the Āṣāfiyah Library and which I hope to induce Dr. Kraus to edit) it is stated that this treatise was found under Jābir's pillow when he died in 200 AH in Tūs. This is remarkable, not only in giving a date for Jābir's death but also in explaining why Jābir is referred to as at-Tūsī—not because he was born there, but because he took refuge in this place when the Barmecides were extirpated by Harun...

I'm afraid all this may annoy Dr. Ruska: but facts are facts, and if for nothing else but the clearing up of the details of the transference of the alchemical knowledge current in Pre-Islamic times in Alexandria (and Northern Mesopotamia) to the Arabs through Khālid and Jābir, my exploratory trip to India will have been amply justified.

The more I think, however, of the amount of work that has still to be done, the more idiotic I feel at ever having ventured to begin this inquiry at all. Dr. Kraus is the obvious man to do the work and if he could be financed, I would most gladly hand over the entire business to him». <sup>41</sup>

Sarton thought enough of the information in Stapleton's letter to publish it in full in *Isis*. <sup>42</sup> Stapleton's slant on the origin's of Jābir's ideas and of the problem of how Greek knowledge might have been transmitted into Arabic before the onset of the translation movement is significant. Kraus was later to follow Ruska's intuitions that first, many authors were responsible for the Jābir corpus, the *K. al-Rahma* being the only Jabirian work of possible authenticity and, second, that the corpus is datable not to the eighth century, but to the late ninth. <sup>43</sup>

<sup>41</sup> I have followed the original letter, Stapleton to Sarton, April 19, 1936. The printed version (Stapleton, 1936) differs somewhat.

<sup>42</sup> Stapleton (1936). Sarton's primary interest in publishing the letter may have been for the light it shed on alchemical manuscripts, rather than on his interest in supporting the historicity of Jābir.

<sup>43</sup> As Haq (1994, 8-10) has observed, if one moves the date of the corpus ahead to the ninth century, after the translation movement was in full swing, then the need to explain the provenance of Jābir's Greek ideas disappears. Likewise if there are many authors, there is no need to explain inconsistencies in the corpus. Kraus' theory was widely accepted

Stapleton persisted in his conviction that Kraus was the ideal candidate to work on the *Asafiah K. al-Rahma*, but he did not know Kraus personally.

«All I know about Dr. Kraus (except for his published work) is derived from a letter a couple of years ago from a quondam secretary of mine. Out of curiosity, when she happened to be in Paris, she looked him up, and reported that he was evidently of quite outstanding mentality, but apparently without means of any sort. She did not think he was a Jew».<sup>44</sup>

He suggested that perhaps Sarton could make the contact with Kraus the next time he was in Paris or, alternatively, that Kraus might be induced to visit Stapleton at the latter's house on the isle of Jersey.

By July of 1936, Stapleton was in direct communication with Kraus, but still differed with him on the historicity issue:

«I don't believe his thesis that the Jābir corpus was a forgery of the 9<sup>th</sup> century. Quite apart from the numerous quotations from Jābir's writings in ibn Umail, why should the forgers choose –of all people– Ja'far as-Ṣādiq –the man who «unfroked» the eponymous Abraham of the Ismā'īlī sect– as Jābir's master? (It's certain from Ṭabarī that Jābir translated Greek and Syriac books into Arabic ca. 700 AD, which Ja'far must have been acquainted with.) Moreover, every religion is born of other religions, and the Ismā'īlī doctrines were not entirely invented by Abdullāh b. Maimūn.<sup>45</sup> Even Kraus admits a strong Gnostic–Neo-Platonic basis».<sup>46</sup>

Stapleton reported to Sarton the following winter that it struck him as unfair that Kraus had been drawn into the dispute; so Stapleton wrote him, stating his objections to the forgery theory—first espoused in 1930—and asking him if he still believed it.<sup>47</sup> Kraus must have forwarded Stapleton's letter to Ruska who, infuriated, wrote Sarton that he was «stunned that Mr. Stapleton believes he can ignore all of my critical works on the Jābir problem and that he appears not to have the faintest notion that he can expect nothing better from Mr. Kraus as he could from me. The volume on Jābir that Kraus published [in *Textes choisis*, 1935] does not support the old legend.»<sup>48</sup> Indeed Ruska had sent Sarton

because it solves so many problems. He goes on to say that if the eighth century date is the correct one (as he believes) then one can not avoid dealing with an interesting and obscure period of cultural transition, and a cluster of ideas and movements that have not been well understood and lists as questions awaiting further study as the Harranians, Hermetic ideas, pseudo-Greek works, channels of Oriental influence, and the development of proto-Shi'ite ideas.

<sup>44</sup> Stapleton to Sarton, May 15, 1936.

<sup>45</sup> Early Ismā'īlī leader said, in standard Sunni accounts of the movement, to have been the originator of the group's doctrines; S. M. Stern, «Abd Allāh b. Maymūn», *EI*<sup>2</sup>, I, 48.

<sup>46</sup> Stapleton to Sarton, May 15, 1936.

<sup>47</sup> Stapleton to Sarton, February 25, 1937.

<sup>48</sup> Ruska to Sarton, December 21, 1936. My translation.

a detailed refutation of Stapleton's letter defending the historicity of Jābir, which he assumed would duly appear in *Isis*:

«Mr. H. E. Stapleton, in a letter sent to the editor of *Isis* reporting the discovery of new alchemy manuscripts in Indian libraries...touched upon a problem involving the names of Khālid, Marianus, Ja'far and Jābir, a problem which has confounded historians of alchemy. He has compiled a list of «facts» intended to refute all of my ideas...

Here I can only reiterate briefly the findings which I obtained through extensive research. I have provided evidence:

- (1) That everything said about Marianus is a late legend.
- (2) That everything reported concerning Khālid's engagement with alchemy is an invention of later alchemists.
- (3) That the Imām Ja'far had as little to do with alchemy as the caliph 'Alī, Muhammad, Moses, and Adam, all of whom were reputed to have been great alchemists.<sup>49</sup>
- (4) That it is a grotesque misconception that the Imām Ja'far could have been a royal alchemist like Kaiser Rudolf II and other princely personages of the 17<sup>th</sup> century.<sup>50</sup>

In 1931, Dr. Kraus presented incontrovertible evidence that the whole Jābir literature is a creation of the Ismā'īlīyya sect. It doesn't make sense to take the fairy tales of the alchemists as 'facts' and to ignore the painstaking research of the past decade and a half as if it were the invention of only one scholar who lacks a conception of what 'facts' are». <sup>51</sup>

Sarton forwarded Ruska's new complaint to Stapleton, writing at the bottom, «I think we'll all agree it is better not to publish Ruska's first note. The non-publication of the first note suppresses the controversy. [P.S.] Please return this letter.»

Ruska wrote in April 1937, «Since I haven't heard anything else concerning the Stapleton matter, I assume that it won't be pursued further in *Isis*. It won't be long until Dr. Kraus, who has been appointed to a post in Cairo for three years, will publish his research, and then Mr. Stapleton will not be able to ignore it any longer». <sup>52</sup> Sarton, concerned over conflict among colleagues whose friendship and collaboration he

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<sup>49</sup> Alchemy was thought to embody the original, perfect science that God had imparted to Adam and which was subsequently lost. The aim of alchemy was to discover the relationship between the manifest meaning of Scripture, which changes with historical circumstance, and the inner, eternal, hidden meaning (see Eamon, 1994, 40, 43).

<sup>50</sup> On Rudolf II, see Holzer (1974) and Evans (1984).

<sup>51</sup> Undated typescript in Sarton Papers, Ruska file. My translation.

<sup>52</sup> Ruska to Sarton, April 20, 1937.

valued, wrote Meyerhof about his concern around the same time.<sup>53</sup> Meyerhof replied that he had given Sarton's letter:

«[...] to Kraus who is considering the matter and will answer you directly. Stapleton has written to him and to Ruska denying their ideas about Jābir ibn Ḥayyān who he replaces into the VIII<sup>th</sup> century; he wishes also to reestablish the scientific authority of Prince Khālīd ibn Yazīd and the scientific aims of the Umayyads. I wonder how he will be able to furnish proofs against the «dumbfounding» arguments of R. and K.!»<sup>54</sup>

The matter under consideration was an invitation from Sarton to Kraus to write a biographical article on Ruska for the October 1938 issue of *Osiris*. No doubt this was Sarton's way to calm the waters. On the same day as Meyerhof's reply, Kraus too wrote Sarton that he would «have been quite willing to prepare the article you want, if I had not seen just now the exhaustive biography and bibliography prepared by Winderlich (1937). Under these circumstances I should prefer to write an appreciation of Ruska's scientific work only.»<sup>55</sup>

«You can imagine how I was cheered», Ruska wrote Sarton, «by Paul Kraus' detailed assessment of my history of chemistry work. No one knows it better than he. When my wish that Kraus publish his major work on Jābir is fulfilled, my own preparatory work will not be forgotten.»<sup>56</sup>

By this time Kraus had already left Paris, having married his second wife Bettina Strauss and moved to Cairo in 1936.

### ***Kraus in Cairo***

Although Kraus had a competing offer from Hebrew University, he went instead to Cairo, where Massignon had recommended him to the dean of the Egyptian University, Taha Hussain (1889-1973).<sup>57</sup> Cairo was a natural destination for a Jewish Arabist exile, for it was the home of Max Meyerhof whose interests coincided with those of himself and Ruska. Meyerhof and Ruska had corresponded from 1912, when both were working on al-Bīrūnī's pharmacology. Meyerhof visited Ruska in Heidelberg in 1924 and had supplied him with copies and photostats of Arabic alche-

<sup>53</sup> The letter is not preserved in the Sarton Papers.

<sup>54</sup> Meyerhof to Sarton, May 24, 1937.

<sup>55</sup> Kraus to Sarton, May 25, 1937. Kraus soon departed for a European trip and wrote to Sarton again from Cambridge (August 29, 1937) to say he would complete the article on Ruska upon his return to Cairo and that he did not know Winderlich's address.

<sup>56</sup> Ruska to Sarton, February 15, 1939. My translation.

<sup>57</sup> Hussein was dean, first at the Egyptian University in Cairo, later at the new University in Alexandria. On his relationship with Kraus, see Kraemer, 1999, 195, 203.

mical manuscripts from Cairo.<sup>58</sup> Kraus was still in Paris in late October 1936, when Meyerhof informed Sarton that he had «been engaged on the staff of the Faculty of Arts at the Egyptian University. I am very glad. If I only had more time I could collaborate with him for some very interesting themes of early Islamic science.»<sup>59</sup> Meyerhof was a clinical ophthalmologist by profession, but clearly the notice of Kraus' imminent arrival set him thinking about possible collaborative projects.

The Kraus-Meyerhof collaboration was in full swing by at least 1940, for in January 1941, Meyerhof advised Sarton that he had moved, as a result of which he had been obliged to abandon 95% of his library:

«Most of my Greek medical and philosophical authors and of my Arabic philosophers are in the house of Dr. Paul Kraus, who is working very hard. The translation of his Jābir ibn Hayyān, the Arabic Commentary of Galen on Plato's *Timaeus*<sup>60</sup> and other important publications are in the press. I made a detailed analysis of his edition of Rāzī's philosophical works in the Indian *Islamic Culture*».<sup>61</sup>

Several months later Meyerhof informed Sarton of the prospect of a collaboration with Kraus on the *Kitāb al-Ṣaydana* of al-Bīrūnī:

«Yesterday, Dr. Kraus suggested we might edit in collaboration the wonderful drug-book of al-Bīrūnī; but as the unique Arabic MS. is defective and full of mistakes, we have to wait for a copy of the Persian translation, perhaps from an Indian library».<sup>62</sup>

In the early 1940s, Meyerhof was collaborating both with Kraus and another exile from Germany Joseph Schacht, the great historian of Islamic Law. In July 1942, Meyerhof writes that he is still working on the drug book, noting that «Dr. Paul Kraus, who is superior to Schacht as an exact philologist (in *all* the Semitica), is not such an excellent jurist, but I hope that he can restore, with the help of my translation, the very defective text of the book.»<sup>63</sup>

<sup>58</sup> Kraus, 1938, 8-10; Ruska, 1937b, 310.

<sup>59</sup> Meyerhof to Sarton, Oct. 25, 1936.

<sup>60</sup> Kraus and Walzer (1951).

<sup>61</sup> Meyerhof to Sarton, January 27, 1941. See Meyerhof (1941).

<sup>62</sup> Meyerhof to Sarton, March 15, 1941. Al-Bīrūnī's pharmacology was a long-standing interest of Meyerhof; see Meyerhof, 1932. He reiterated to Sarton in a letter dated May 27, 1941, that «Dr. Kraus has persuaded me to undertake the translation of the remarkable drug book of al-Beruni (*sic*)», adding that Kraus would do the philological part of the research. Kraus (1936) had previously edited Bīrūnī's bibliography of the works of al-Rāzī.

<sup>63</sup> Meyerhof to Sarton, July 13, 1942. Joseph Schacht (1902-1969), Arabist and historian of Islamic Law, had been professor of Arabic in Cairo through most of the 1930s, when he collaborated with Meyerhof on a number of projects.

By 1943, the wartime disruption of the sea lanes began to interfere severely with the mail and the two scholars had difficulty maintaining contact. Meyerhof explains:

«Your letter of Feb. 15 reached me yesterday. All your air-mailed letters reached me within 6 or 8 weeks and their duplicates two or three months later. On the other hand, it seems to me that my answers did not reach you all of them, and as to my parcels of printed matters to you, to New York, to Sigerist,<sup>64</sup> to a friend in Costa Rica, to Monteiro<sup>65</sup> at Rio and to Mieli<sup>66</sup> in Argentina, nothing seems to have reached destination. So I stopped sending you separate prints. This is also the reason why Dr. Kraus did not send you his *Jābir* part II; if in the next months the U-boat pest in the south Atlantic is more effectively checked we will resume our sendings. Kraus is waiting, moreover, for the first part of his *Jābir* to appear, which he expects within two months. He will address himself then to the U.S.A. Legation.<sup>67</sup>

Kraus has for the moment abandoned our common work on al-Bīrūnī, because he made important discoveries concerning the phonetics of the old Semitic languages. He gave his first sample concerning Assyrian (the Tell al-Amarna tables) in last autumn, and now his discoveries concerning the old parts of the Bible. I enclose a review of a public lecture which he gave a few days ago.<sup>68</sup> You will receive his separate prints later on. He has still *in petto* discoveries about old Arabic and ancient Egyptian, leading perhaps to the vocalisation of the texts. He spent two weeks in Jerusalem and was very well received and approved by the Semitists of the Hebrew University.<sup>69</sup> I hope that his theories will be confirmed and will open him a brilliant career in another land than this, as his situa-

<sup>64</sup> Henry Sigerist (1891-1957), German-born historian of medicine. In a letter to Sarton in November (?) 1944 (see below, n. 84), Meyerhof recounts that Sigerist had just visited him in Cairo: «He is still the same charming man as which [*sic*] I knew him, 17 years ago, at the Congress of History of Medicine at Leyden.»

<sup>65</sup> Arlindo Camillo Monteiro, Portuguese historian of science then living in Rio de Janeiro.

<sup>66</sup> Aldo Mieli (1879-1960), Italian historian of medieval science, editor of *Archeion*, moved to Argentina as a refugee from Fascist Italy.

<sup>67</sup> Part 2 of Kraus' *Jābir* appeared before part 1. In repeated letters to Meyerhof, Sarton expressed his bibliographer's anxiety over not receiving what he knew would be an important publication: Alexander Koyré, whom Kraus had met in Paris and who had been in Cairo, had apologized to Sarton for not bringing *Jābir* because it was too heavy for air travel (Sept. 10, 1942); Meyerhof should ask Kraus why his book had not yet reached Sarton. «It is in his own interest that I make these inquiries, for his book should be known not hidden» (Feb. 15, 1943).

<sup>68</sup> J. L. (1943).

<sup>69</sup> Meyerhof was misinformed. The lecture, delivered in Jerusalem in September 1943, not only was not well received, it was viewed as scandalous. (Kraemer, 1999, 200-202) reviews Kraus' ideas about the metrics of the Hebrew Bible. Kraus opposed the received view of Wellhausen and others that Biblical texts were late literary compilations; a comparative analysis of Semitic metrics, he thought, showed the texts to be roughly contemporaneous to the periods traditionally assigned them. Massignon had parallel views of Arabic metrics and approved of Kraus' hypothesis (*ibid.*, 197).

tion here is in no way satisfactory. I suppose that you are in touch with Prof. Schacht in England, who has just lost his friend Prof. Mittwoch.<sup>70</sup> The latter has left unfinished an important publication of Aramaic documents concerning a mission of a Persian Prince to Egypt during the reign of one Darius». <sup>71</sup>

Meyerhof's next report on Kraus arrived several months later:

«Paul Kraus continues his research work on Semitic Phonetics; we are expecting his results in the next winter... My translation of al-Bīrūnī's *Kitāb as-Ṣaydana* is finished, but the Persian MS. from India was a great deception, as it is a very much abridged translation of B.'s work, not reflecting his extraordinary knowledge of natural history and languages. It only gives us an idea which drugs he had treated in the leaves which are missing from the unique Brussa MS. As to Kraus' ideas on the phonetics of ancient Hebrew, his opinion that the Bible is nearly entirely in verses, which give a lead to the ancient vocalisation of Hebrew, has been anticipated by genial intuition by Goethe, in his introduction to the *West-Oestlicher Diwan*. That is to say, he only had the feeling that the entire Old Testament was written enthusiastically, in verses. Except for the legal parts of it». <sup>72</sup>

In June 1943, Meyerhof notes that Kraus still has part of his library and will finish the Bīrūnī project in case the ailing Meyerhof did not live long enough. In the early fall, Meyerhof reports that Kraus has been on an extended visit to Palestine and was afraid that he would be transferred from the University of Cairo to the new King Farouq I University in Alexandria. Meanwhile Meyerhof had received a copy of the only Indian manuscript of the Persian translation of the *Kitāb al-Ṣaydana*.<sup>73</sup> Back in Cairo, Kraus was working hard on his study of ancient Hebrew, neglecting the Bīrūnī project, but finishing his study of al-Jāhīz. Meyerhof finished the translation in March but Kraus was still «far behind» in his editing of the text. In August, Kraus had again gone to Palestine.<sup>74</sup> In June 1944 Kraus left his apartment with Cecil and Albert Hourani, on wartime duty in Cairo, and returned to Palestine where he married his third wife, Dorothee Metlitzki.<sup>75</sup> In the fall, as the result of political shake-up, Taha Hussein's position at the University became precarious and a few days before he himself was forced to resign, he summoned

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<sup>70</sup> Eugen Mittwoch (1876-1942), German Jewish Hebraist and Arabist (Kraemer, 1999, 212 n. 16).

<sup>71</sup> Meyerhof to Sarton, March 28, 1943.

<sup>72</sup> Meyerhof to Sarton, October 25, 1943.

<sup>73</sup> Meyerhof to Sarton, June 21 and September 4, 1943.

<sup>74</sup> Meyerhof to Sarton, February 2, March 31, August 12, 1944.

<sup>75</sup> Later Professor of English at Yale University, author of *The Matter of Araby in Medieval England* (New Haven, 1977).



Kraus to his office on October 12 and told him he was dismissed. Kraus returned to his apartment and hanged himself.

Sarton learned of Kraus' death a few days after the event, not from Meyerhof but in a letter from Columbia University Arabist, Arthur Jeffery, who reported that:

«The Yiddish papers in this city carried a cable from Cairo yesterday [October 17] saying that Paul Kraus had hanged himself in his bathroom in Cairo.<sup>76</sup> Have you heard anything about it?... A letter from Miss Padwick from Jerusalem during the summer said that he had been very despondent when she met him there, partly because of conditions in Egypt, partly because no one seemed enthusiastic about his new metrical theory of the O[ld] T[estament].<sup>77</sup> It is almost axiomatic among O. T. scholars that when a man turns to metrical theories his mind must be giving way—and now this happens».<sup>78</sup>

Meyerhof's chilling report reached Sarton weeks later:

«I wrote this to inform you of another heavy blow which I have received, causing to me a much greater consternation than the loss of my leg. Dr. Paul Kraus, hitherto lecturer for Semitic languages at the two Universities of Egypt, suddenly committed suicide on Oct. 12, at noon. Nobody knows any reason for this distressing step, as he seemed to be quite normal, still on the morning of that day,<sup>79</sup> was re-married (for the third time) three months before, in Jerusalem, to a lady who is a lecturer of English at the University there, had no financial trouble, and was fully occupied with his great problems. I think that I wrote to you that he believed to have discovered Arabic texts dating to 1000 years before the prophet, to have discovered metric Assyrian texts allowing another vocalisation, a new vocalisation of ancient Hebrew, and perhaps of Egyptian. He left no letter, nothing to hint at any reason for his unhappy decision; he hanged himself in his bathroom, next to the room of two

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<sup>76</sup> Jeffery most likely supplied the news clip from the J.M.J. [Jewish Morning Journal: *Der Morgen Zshurnal*] for October 17 which Sarton later placed in Kraus' file: «Paul Kraus, Yiddisher gelernter fun Prague, bageht selbstmord in Cairo.» The file also contains an obituary from the New York *Aufbau*, Nov. 3, 1944. Jeffery had unsuccessfully endeavored to get funding for an appointment for Kraus in 1941; Alvin Johnson to Jeffery, September 5, 1941 (copy in Kraus Folder, Sarton Papers).

<sup>77</sup> Constance E. Padwick (1886-1996) was a missionary and close friend of Kraus who solaced him in the wake of Bettina's death, in childbirth, in 1942. By the summer of 1944, she understood Kraus' psyche well. See Kraemer, 1999: 197.

<sup>78</sup> Jeffery to Sarton, October 18, 1944. Sarton, in a letter to Meyerhof on November 7, 1944, wrote «The news of Paul Kraus' death was a great shock to me», and goes on to wonder what will become of his wife and child. This letter crossed with Meyerhof's to Sarton of October 24 announcing the death of Kraus.

<sup>79</sup> Meyerhof was uninformed. On the morning of the day he committed suicide, Kraus learned that he had been dismissed from his teaching position at King Farouq I University in Alexandria (see Kraemer, 1999, 203).

British officers who shared his flat.<sup>80</sup> I had lent him the whole collection of *Isis*, all the great Arabic dictionaries, the full collections of Aristotle's, Galen's and Hippocrates' works and some other 3000 volumes. Moreover, he has the incomplete texts of two great editions which I had planned in collaboration with him, especially the *Kitāb as-Ṣaydana* of al-Bīrūnī, the translation of which I had finished, but whose mainly Persian, Sanskrit and Central Asian terms asked for a careful philological elucidation. His flat is now under seal, seized by the Egyptian government, as they will not recognize the right of Czechoslovak Minister here to meddle with the belongings of a subject of a State which is occupied by the Germans. I have also some valuable MSS. in his home and am in sorrow for these my belongings. Anyhow, that is of minor importance, but the disparition (*sic*) of a first rate scholar, extremely gifted in philology, mathematics and natural sciences, is an enormous loss for science. He was full of ideas and of an inspiring enthusiasm. He was only 40 years old and could have created immortal works. If I can, I shall send you a collection of his books and separate prints which must still be in his flat. My own editions are hampered by the fact that many texts and unfinished translations are in his sealed flat, and I do not know how long it will take to get them free. For *Isis* I tell you that he was born in Prague, in 1904, studied in Berlin, began by Assyriology, became in 1929 an assistant to Ruska, in 1933 to Massignon in Paris, and was nominated in 1936 a lecturer at the Cairo University. He was much liked by his students, as well as by his superiors, especially Dr. Taha Hussein.<sup>81</sup>

It turned out that Sarton was better informed on the total shape of the tragedy than was Meyerhof, as he himself explained:

«The death of Paul Kraus is a great blow to our studies, and I was especially sorry to hear that you were the victim in that your books and MSS are now under seal and unavailable to you. [Arthur W.] Jeffery allowed me to read a letter written by Miss Constance Padwick of Jerusalem who knew Kraus well, admired, and loved him. It would seem that during his last stay in Palestine, Kraus was made to realize that his Biblical theories could not be true, except to some limited extent. This annoyed him immensely. He was highly sensitive, very ambitious, and subject to alternations of great enthusiasm and horrible depression. The disappointment due to the inaccuracy of his Biblical theory coincided with a moment of depression and intensified the latter beyond endurance. On his last day he had an interview with Taha Hussein: he expected to obtain a leave of absence, but Taha wanted him to go to Alexandria; Kraus did not want

<sup>80</sup> Cecil Hourani (1984, 43-45) discovered Kraus' body.

<sup>81</sup> Meyerhof to Sarton, October 24, 1944.

at all to go to Alexandria where his research work would be more difficult than in Cairo. You know the rest».<sup>82</sup>

The fate of his books and manuscripts continue a matter of concern for Meyerhof:

«I am glad to learn that Kraus sent you before his death, some of his publications from Jerusalem, where the restrictions on the exportation of printed matters are no so severe as here. He was not appointed to Jerusalem, but used to work there at the Library in every [vacation]. This time he got married to a charming young lady, lecturer in English at the Hebrew University, but only had a [two and a half] months life with his young wife, who had, moreover, to undergo an operation for appendicitis. She is now here in order to settle the succession for herself and Kraus' daughter from his second marriage.<sup>83</sup> She is unable to give us any hint on Kraus' reason for his very sudden suicide. My manuscripts are still in Kraus' flat, and the continuation of my work is for the moment impossible. The great translation of al-Bīrūnī's *K. al-Ṣaydana*, which I finished since two years, is waiting for an Orientalist who can correct the corrupted Central Asiatic names – if that is possible. I would not like to publish my translation without giving in the same time the text. My commentary is very voluminous, much more than that of the Glossary of Maimonides».<sup>84</sup>

The two volumes of Kraus' *Jābir* were reviewed by Meyerhof in *Isis*. News of his Kraus' death had reached Sarton while he was proofreading the number, to which he added a short obituary note before the lengthy review in which Meyerhof detailed the picture of Pythagorean arithmology passed through the prism of Hellenistic syncretism that lent such a distinctive flavor to Jābir's «science».<sup>85</sup>

The fate of Kraus' library quickly became a matter of international scholarly concern. Jeffery, after commenting on the critical state of Meyerhof's health, told Sarton:

<sup>82</sup> Sarton to Meyerhof, December 18, 1944. Sarton had just received Meyerhof's letter dated October 24.

<sup>83</sup> Jenny Strauss Clay. Her mother Bettina, also a historian of Arabic science, was Kraus' second wife. Jenny was later adopted by her uncle, the political theorist Leo Strauss who wrote Sarton from the New School (May 1, 1946) requesting a copy of Meyerhof's review of Kraus' *Jābir*: «The reason is that I want to keep everything related to Paul Kraus for his little daughter, whom we expect to have with us in the very near future.» On Strauss and Kraus, see Kraemer, 1999: 208-209. Kraemer expresses surprise that Leo Strauss waited two years after Kraus' death to inquire about the fate of his papers, citing Strauss' letter to Charles Kuentz dated May 1, 1946. This was the same day that Strauss wrote to Sarton, suggesting a concerted effort to track down his literary remains.

<sup>84</sup> Meyerhof to Sarton, September 9, 1944, which Sarton has corrected «November? Or December.» The reference to Maimonides is Meyerhof (1940).

<sup>85</sup> *Isis*, 35 (1944), 213-217. Obituary note on p. 213.

«The good news is that Kraus' library has been saved. This student of mine, Miss Dreyfuss, had a cable from her father's secretary to the effect that the Egyptian Government was selling off all Kraus' belongings in order to pay his debts. She cabled back instructing the secretary to attend the auction and buy all the books no matter what the competition might be. Apparently there was no competition except from a couple of book dealers who thought they were going to have a cheap lot. So the secretary was able to get the entire library for a comparatively small sum».<sup>86</sup>

Subsequently the papers were housed at the Institut Français d'Archeologie Orientale in Cairo, where they were provisionally catalogued by Henry Corbin in 1948. They were purchased in 1997 and given as gift to Cairo University.<sup>87</sup>

Kraus' death was profoundly disturbing to his colleagues and mentors who were unable to make sense of it. Perhaps the most poignant evocation of it, written almost fifteen years later, was by Massignon, in a reflection of Gérard de Nerval, who had met a similar fate:

Il reste une dernière question: le suicide de Gérard. Quel sens lui donner? Le suicide est très éloigné de la mentalité musulmane, qui conserve, quand Dieu lui retire un de ses dons, mémoire sereine de la générosité du Donateur. J'évoquerai pourtant... un autre suicide, d'un très cher collègue et ami, le Dr Paul Kraus (le Caire, 1944); nous avons aimé ensemble la pensée mystique d'un martyr musulman, Hallâj; achevant son article, le dernier, écrit sur Hallâj «pour me tenir parole», il concluait: «La voix de Hallâj, c'est le cri de menace à celui qui va se noyer: «gare, gare à toi, ne vas pas te mouiller dans l'abîme»; — mais c'est aussi l'appel que séduit le martyr, la coquetterie de la Beauté: qui entraîne ainsi Ses Élus: à Sa rencontre».<sup>88</sup>

The three-way exchange on Kraus' death, the mediated polemic between Stapleton and Ruska, and other such intricate pathways of scholarly information document and illuminate the affective ties that typically arise among a tightly-knit scholarly affinity group such as Sarton's circle of Arabist correspondents. Sarton, as Meyerhof told him, was «in nearly everything 'our spiritual leader'».<sup>89</sup> It may well be that the Arabist historians of science felt isolated from mainstream Arabism, more hea-

<sup>86</sup> Arthur Jeffery to Sarton, no date.

<sup>87</sup> Kraemer (1999, 208-210) does not mention the auction in an otherwise detailed account. See also Lory (1989), 155-162: «Annexe I: Les doctrines chiites de Jabir d'après le Nachlass de P. Kraus.»

<sup>88</sup> Massignon (1958), 59; also in Massignon (1963), I, 166.

<sup>89</sup> Meyerhof to Sarton, March 28, 1939. The tone is similar to the frequent assertions of Millás Vallicrosa to the effect that the Spanish Arabists regarded him as having set the course for their own scholarly research program. See Glick (1990), letter 20 (1931), p. 46, where Millás subscribes explicitly to the ideals of Sarton's «New Humanism.»

vily weighted towards philological and literary topics. Sarton's bonding to this group perhaps reflected his own sense of alienation from mainstream Western Arabism: «The Semiticists» of the United States, he explained to Meyerhof, «form a closed society to which I do not belong. From their point of view to be a full Semitic scholar, one must know all the Semitic languages and their comparative grammar».<sup>90</sup>

Kraus' file in the Sarton Papers is quite modest—a few short letters, a resumé and some newspaper clippings. Yet, within the context of Sarton's affinity group, he was a connector: he had been trained by Ruska, one of Sarton's inner circle; his forced peripateticism brought him into contact with other Arabists whose work Sarton followed—Pines and Massignon, Meyerhof soon after. The breadth of his interests and depth of his linguistic skills assured that he made profound and fruitful scholarly contacts with members of this circle.

The Sarton papers offer a unusually good window for appraising the development of research programs and sites, in this case, a collective research program in the history of medieval Arabic science. Here we have seen the program emerging through the simultaneously expressed viewpoints of interacting scholars. The program in which Kraus was the key player survived his death to the extent that his views became historiographical orthodoxy. But the virtual simultaneity of the deaths of Kraus (1944), Meyerhof (1945) and Ruska (1949)—and, a decade later, Holmyard (1959) and Stapleton (1962) had the effect of closing a distinctive moment in the historical enterprise of medieval science.

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<sup>90</sup> Sarton to Meyerhof, July 24, 1944. The remark was stimulated by G. E. von Grunebaum's winning a chair of Arabic at the University of Chicago, over Giorgio Levi della Vida, «a much better man», Sarton said. Although he wrongly identified von Grunebaum's primary interest as poetry, he clearly favored the Italian as closer to his own interests.

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