

## Book Review

Ahmad Y. Al-Hassan: *Studies in Al-Kimiya': Critical Issues in Latin and Arabic Alchemy and Chemistry*, Hildesheim: Georg Olms, 2009, 320 pp., ISBN 978-3-487-14273-9

by Gabriele Ferrario

The appearance of a monograph dealing with the history of Arabic alchemy in the Middle Ages is a very welcome event. Both international conferences and the publication of an increasing number of scholarly articles on medieval Arabic alchemy and related fields testify to a renewed interest in this subject. Nevertheless, while the history of sciences like astronomy, mathematics, optics, and the like have benefited from the work of active groups of scholars who have diligently published editions of manuscripts in order to make them available to the larger community of historians of science, this was not always the case in the field of Arabic alchemy. Still nowadays the production of reliable editions (and possibly of translations) of texts remains one of the major *desiderata*. There is thus no reason to wonder why the publication of a book that – as stated in the cover notes – “is based on extensive research into Arabic manuscripts [...]” is awaited with great expectation; the fame of its author, Ahmad Y. Al-Hassan, as founder, first director, and Professor Emeritus of the Institute for the History of Arabic Sciences (IHAS – Alep) and as former Minister of Petroleum, Electricity, and Mineral Resources of Syria fosters the interest in this work.

The explicit aim of Al-Hassan's *Studies in Al-Kimiya'* is to rectify some generally accepted narratives of the history of science and technology that, in the author's words, were written “without concrete evidence, and are based mainly on conjecture and nationalistic feelings”. Therefore, the reader should not expect from the book a chronological account of the history of Arabic alchemy and early chemistry, but rather a series of essays that deal with the aspects of these disciplines which are here defined as “critical issues”. The lack of an overall structure that could have connected the chapters is probably amplified by the fact that the majority of the material presented here has already appeared on the author's website, or in printed publications, in the form of independent essays that were not revised for this publication.

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Repetition of the same data or concepts in different chapters, sometimes in the very same words (for instance, when dealing with of Al-Rammāḥ, pp. 255 and 261), and the presence of inconsistencies in footnotes and in bibliographic style at the end of some of the chapters could have been avoided through more scrupulous editing.

The book opens with a brief chapter in which the author presents some considerations on the origins of the Arabic words for “alchemy” (*al-kīmiyā'* or *'ilm al-san'a*) and lists the most famous Arabic authors in the field without adding much to what is commonly known from the accounts of the classical Arabic bio-bibliographical works of Al-Nadim and Haġġī Ḥalifa. This information has been well summarized in recent accounts of Arabic alchemy such as Anawati's contribution published in the *Histoire des sciences arabes* (Paris 1997).

The succeeding chapters show a higher level of scholarly research and present an extremely rich picture of the degree of practical chemical knowledge available in the Islamic countries during the Middle Ages: Al-Hassan defines the very varied set of medieval technical skills as “industrial chemistry” and devotes the fourth chapter to a detailed overview of them. Some of the most famous Arabic alchemists devoted entire treatises or significant parts of their works to the actual transformations of matter as experienced in the chemical laboratory. Furthermore, the same degree of technology is found in medieval works describing the production of perfumes and essences, of soap, of oil derived products, of gemstones, the industry of pigments, inks and dyes, the preparation of explosives for military and recreational scopes, the treatment of paper and leather for the production of volumes, and so on.

The following two chapters are devoted to a detailed analysis of the mainly operative contents of two treatises by Ġābir ibn Ḥayyān, who is universally considered the most famous and prolific medieval Arabic alchemist. Basing his observations on two manuscript copies of the *Kitāb al-Hawaṣṣ al-Kabīr* (“The Great Book of Properties”), Al-Hassan shows the limits of a traditional – and unsubstantiated – opinion according to which the *corpus* of works attributed to Ġābir is limited to the most speculative, symbolic, and theoretical aspects of the alchemical art. On the contrary, the content of the *Kitāb al-Hawaṣṣ* – that is here presented and exemplified through the translation of a selected group of recipes – is eminently operational: we find in it clear descriptions of the desalination of water, of the preparation of steel blades, of the use of chemical formulas for women's make-up and hair removal, and of other chemical operations for the production of useful substances or tools.

Similarly, in his exposition of the contents and the chemical relevance of Ġābir's *Kitāb al-Durra al-Maknūna* (“The Hidden Pearl”) to which the sixth chapter is devoted, the author examines recipes of industrial chem-

istry related to glass and its coloring, and to the manufacturing of artificial pearls. The most significant feature of this chapter is the source of the recipes presented: Al-Hassan was able to detect and study a previously unknown complete manuscript of the treatise (Paris BN, Ar. 6915) which was considered lost apart from a few short quotations in other works by Ġābir. The chapter presents a good overview on the knowledge and the practice of the glaziers before the advent of Islam and underlines the high degree of development of these kinds of practical chemistry in Islamic societies, pointing out their influence on similar productions in the Latin West.

The remaining chapters take the form of short essays on particular aspects of the chemical work in which the author sees the deployment of a remarkable degree of industrial chemistry, like in the distillation of wine for the production of spirits and the use of different kinds of steel and various techniques for the making of the famous Damascus steel blades. Furthermore, he analyzes the various Arabic names of potassium nitrate, showing that the late appearance of the word *bārūd* ("salt peter", "gunpowder") in the 13th century does not mean in any sense that potassium nitrate and nitric acid were ignored by Arabic craftmen: Al-Hassan conducts his lexical analysis on various passages extracted from medieval Arabic texts of alchemy and technology, and completes this picture with a further chapter on the Arabic and Latin sources that testify to the early use of gunpowder in the military field.

The second and the third chapters of the book are by far the most problematic, since the aim of studying the "critical issues" in the history of Arabic and Latin medieval science tends to assume here the tone of an open and fiery polemic against other scholars. While the discovery of a manuscript containing the formerly unknown Arabic text of the dialogue between the hermit Maryanus and the Umayyad prince Ḥālid ibn Yazīd gives Al-Hassan clear proof of the Arabic origin of the *Liber de compositione alchimiae* (against Ruska's assumption that it was composed by a 14th century Italian author), the author's arguments against Berthelot's, Ruska's, and Newman's assumptions of a pseudoepigraphical attribution of the *Summa Perfectionis* to Ġābir ibn Hayyān are more questionable. This is not the proper place to discuss in detail Al-Hassan's strong claims regarding the genuine paternity of the *Summa*, but we should at least notice that the tone of the polemics tends to exceed the desirable boundaries of an academic disagreement, however severe it might be (Al-Hassan defines Newman's extremely knowledgeable work as conjectures "without foundation", "unsubstantiated", and as an attempt "to divorce Latin alchemy from its Arabic origins" through a "maze of bewildering assumptions").

Unfortunately, the good features of Al-Hassan's vast and challenging work (among which I would like to mention the very useful lexical tables of correspondences between Arabic and Latin technical terms that are in the appendices to some of the chapters) are obfuscated by an impressive lack of editorial care: no consistency is shown in the transliteration of Arabic names and words, to the point that the same name appears with different and sometimes confusing spellings on the same page. The readability of the book is undermined by the presence of many typographical errors, including the repetition of the same words in sentences, the presence of many double spaces, mistakes in the numbering of footnotes (e.g. p. 79, where note 138 is inserted between 125 and 127), in the titling of Latin works (the famous Avicennan epistle *Ad Hasen Regem de Re Recta* becomes *De Re Tecta*, p. 92), in the spelling of names (the Italian Cennino Cennini – whose name is correctly spelled in the footnote – becomes Cinnino Cinnini, p. 156), by other frequent inaccuracies (e.g. alkali salt is said to be composed of "about 80% of potassium carbonate with 29% of sodium carbonate" totaling a good 109%, p. 133), and by a problematic English style. Some more substantial notes should be added to these formal observations. On p. 32, Al-Hassan, while listing proofs of the early dating of the *De Compositio alchimiae*, says that the presence of the words *mawlā* and *mawālī* – originally employed to describe the relationship between an Arab patron and a non Arab Muslim freeman – ceased to be used in the Abbasid period. This claim is historically misleading, since the later use of these words, at least all through the Fatimid caliphate, until the 13th century is abundantly testified for instance by the fragments of letters and official documents found in the Cairo Genizah. In the chapter on Gunpowder (p. 267), the author lists what he describes as four Arabic treatises that mention the use of a portable cannon. Nevertheless, it appears that the four titles listed are actually four copies or rewritings of one single treatise and not autonomous works (as described in Alikberov and Rezvan in their 1995 article). Although dealing extensively with Ğābir ibn Ḥayyān's *corpus* of writings, Al-Hassan seems to avoid mentioning one of the most debated issues in the history of Arabic alchemy: whether Ğābir was a historically identifiable author or just a name under which the works produced by a school of alchemists were transmitted. There is no mention of one of the milestones of Arabic practical alchemy which could have fitted perfectly in Al-Hassan's analysis, the pseudo-Al-Rāzī Arabic practical alchemical treatise that gained a wide fame in the Latin West as the *Liber de aluminibus et salibus*.

It is a real shame that a book dealing with such a vast and articulate matter, which could prompt interesting and challenging questions in the history of Arabic and Latin chemistry, is flawed by so many mistakes and

editorial inaccuracies. No doubt Al-Hassan's arguments could have the fiery strength to raise a vivid scholarly debate, but unfortunately the apparent lack of care in the preparation of this monograph makes it look more like a provisional record of interesting research and thoughts than like a finished and well meditated scholarly work.

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