

# Alchemy and medieval universities. Some proposals for research

by Chiara Crisciani

It is a well-known fact that alchemy was not part of university syllabuses during the Middle Ages. The fluid forms of institutionalisation in the teaching of alchemy, which for example may define a tradition of court alchemy, were of a later date, and are still subject to interpretation (although Frederick II's court should be considered as a case apart). There are no accounts, either, of presumed initiation "sects", or schools for alchemists, which might shed light on informal networks of scholars interested in alchemy and working in universities, even if the few references found occasionally to the work carried out by "filii Hermetis" deserve attention. The transmission of alchemical knowledge, therefore, seems to have taken place through networks that cannot be regarded as constituting even weak forms of institutionalisation at the university level.

A radical cause for the exclusion of alchemy from university curricula[1] is to be found in the very nature of alchemic knowledge, which was essentially operative, and for two reasons. On the one hand, it was only by "operating" that alchemists acquired knowledge. "Understanding through effect", though, did not mean privileging "*experientia*" alone; even less did it mean the lack of theoretical elaboration on the part of alchemists. Rather, as M.Pereira has shown[2], it meant "developing a philosophy rooted in the contact with matter and its activity"; which in turn implied a change in what was meant by theory itself. On the other hand, the alchemist's intervention was intended not so much to "restore" as to "perfect" matter and, to a certain extent, "to create" it. As William Newman has pointed out, what alchemists meant by "operating" was motivated by something we would now regard as a "technological dream"; something implying, within the medieval frame of mind, a considerable amount of hubris[3]. This explains at least in part why we do not find for alchemy in the Middle Ages the structure typical of scholastic medicine. Medical knowledge was subdivided into several, co-ordinated epistemological levels, such as "medicina theoria", "practica", "ars", and what we would now call everyday practice. These levels of medical teaching were embodied in texts, and they constituted different sections of the university curriculum. They orientated medical practice, of course, which however was not part of university teaching. As has rightly been pointed out, practical medicine was placed on the "threshold of tolerance" of medieval universities[4].

The fundamental diversity of alchemic knowledge due to this surplus of "opus", when compared to other university disciplines, and the frequent condemnations by religious authorities that alchemy was subjected to during the Middle Ages, explain why historians of medieval Latin alchemy have often assumed a clear-cut contrast, an almost drastic contraposition, between scholastic culture and alchemy. The latter was easily seen as marginal or marginalized, and in any case eccentric within the broad context of scholastic culture.

Although not devoid of foundation, these reconstructions can be misleading[5]. For one thing, they are too general. It is certainly incorrect, for example, to regard "alchemy" and "scholasticism" as two monolithic, independent domains of knowledge during the 13th and 14th centuries. Also, reconstructions of this kind are often too selective, because they emphasise some evidence and aspects to the detriment of others. Above all, such reconstructions appear partial in the light of more recent studies, that have suggested less clear-cut comparative assessments of alchemy and scholastic culture.

The demand for a more balanced historical assessment of the relationship between alchemy and scholastic culture was elicited first by Robert Halleux in 1979[6]. Halleux emphasised the textual and doctrinal wealth of Latin alchemy, its division into different corpora of texts and diverse currents, as well as its non linear, indeed dynamic evolution. More recent studies carried out in different directions have contributed to the restoring of texts, the attribution of authors, the reconstruction of bodies of manuscripts, the establishment of detailed comparisons in a field for which we now possess a much more detailed map than before.

Perhaps the single, most important result of the work carried out over the last decade has been to show how substantial, from a doctrinal point of view, some of the most important Latin alchemic texts produced in the 14th century were. The authors of these texts expounded in the manner of philosophers, as they saw themselves, detailed and varied conceptions concerning the structure of matter, the transformations the alchemist aimed to cause in nature, and the role of their chosen "ars". In these same writings, one finds a considerable development of alchemic theory. They display, moreover, a confident mastery of both medical and Aristotelian naturalistic doctrines, as well as purposeful adaptations of these doctrines to the specific needs of alchemic knowledge. These texts, therefore, are not the products of scientific isolation. They are not written by authors confined in a narrow tradition. They are, rather, examples of intense, documented contacts between alchemy and contemporary research in fields like medicine and Aristotelian natural philosophy. The commitment to secrecy and occultism, to be sure, was maintained in these texts, but in ways that did not interfere with the authors' desire to expound, convey and transmit a philosophy of nature, as well as some specific doctrines and practical instructions; the whole conceived within a consistent and comprehensible framework.

At present, the challenge facing scholars trying to trace the circulation of alchemy in medieval universities is to develop a model describing an ambiguous situation of presence and absence. While the fact that alchemy was not taught in universities is indisputably proven, scholars must also cope with evidence showing that a considerable amount of exchanges, loans, and contacts went on between what was transmitted by universities in their institutional capacity, and what was being circulated informally by networks of scholars active in and around universities. In this connection, it is worth underlining at least what follows.

Alchemists made abundant use of doctrines taught at universities. The humoral theories, the doctrines of radical moisture, and the various kinds of doctrines concerning digestion, degree measurement, embryology, and mixtures found in alchemic texts, were certainly not

widely divulged outside universities. Judging by the way these doctrines were utilised by alchemists, they must have assimilated them thoroughly in a university context.

Conversely, the acquaintance with alchemic doctrines displayed by university "doctors", though not rich in details, was widespread. Academics of medieval universities, moreover, did not display towards alchemists the kind of contemptuous criticism they poured on other practitioners who, with their repetitive and fortuitous experiments, gave disgraceful proof of their irregular training.

Finally, it must not be forgotten that, as far as I am aware, universities never engaged in a judicial act for or against alchemy. This "silence" cannot be ascribed to ignorance or disregard for the development of alchemic doctrines, as the "quaestio de alchimia" and the position taken by university physicians in it clearly prevent us from doing. Condemnations, in any case, were somewhat independent of universities: they were judicial acts, and were issued by the Holy Orders, which, although not university institutions, had strong ties with universities. This leads to another, connected hint for research.

The relationship between alchemy and scholastic institutions other than universities must also be investigated. Two complementary strategies present themselves as appropriate in this connection. The first is to consider the indisputably peculiar features that characterised alchemic knowledge and its transmission in the Middle Ages. To this purpose, research should be carried out on the language used in the teaching of Latin alchemy, as well as on the models and ideals proposed in the literature for the formation of the alchemist. The literary genres and imagery adopted in the transmission of alchemic knowledge should be investigated in order to detect similarities, differences and adaptations with respect to other, institutionally established disciplines. The second, connected strategy, to be developed within the framework of institutional history, should be to investigate in depth the interaction between alchemy and medieval institutions other than universities. Three research priorities suggest themselves in this connection:

1) A systematic, comparative investigation should be carried out on alchemy and medicine in the 13th and 14th centuries. Among the issues to be focused on for such an investigation, I would recommend the following: the analogies detectable in the epistemological structure of the two disciplines, often pointed out by alchemists, physicians and natural philosophers alike; the discussions on the role of practice in medicine, and on the forms of transmission of operative skills, as compared to similar discussions in alchemy; the medical competence that some alchemists displayed, as well as the interest in alchemic doctrines shown by several doctors, including some of fame. Through such an investigation, we should aim at a better understanding of the doctrines shared by alchemists and physicians, including those active within universities.

2) A specific survey of the university tradition concerning the book of *Meteorologics* recommends itself as especially rewarding in this context. Although scholastic comments to books III and IV of *Meteorologics* were not necessarily alchemic exercises, alchemic doctrines often were based on *Meteorologics*, a well known work quoted in alchemic texts both as a source, occasionally explicit, of specific theories, and as background knowledge of

the natural philosophy on which alchemic doctrines depended. Several university comments on *Meteorologics*, moreover, underlined the function that book IV, linked in turn to the *De Generatione*, had in connecting together branches of knowledge like mineralogy, medicine and alchemy. Several such comments also alluded to doctrines and operations typical of the "alchimici" and "artifices", presented as useful additions for the perspicuity of the comment itself. Certainly, we should refrain from concluding[7] that, because of this connection between alchemy and *Meteorologics* - a text that was unquestionably part of the university curricula - alchemy may be regarded as a discipline taught in medieval universities. It seems, rather, plausible to regard the tradition of *Meteorologics* as one of those cases of exchange, previously referred to, which deserve further study.

3) An analysis of the relationships between Holy Orders, their Studia, and alchemy also recommends itself as appropriate and rewarding. As already mentioned, the only condemnations that affected the transmission of alchemic knowledge, by prohibiting the teaching, study and possession of books and equipment connected with alchemy, were the resolutions - increasingly frequent in the 13th and 14th centuries - issued by Orders' Capitula. On the other hand, it is well known that important texts belonging to Latin alchemy were written by friars. Also, the names of many, less well-known friars, monks, and ecclesiastics (which should be reviewed) are quoted in alchemic manuscripts as authors of specific recipes, prescriptions and doctrines. This is clearly yet another proof that an interest in alchemy was widespread in these circles; a circumstance that helps to explain the frequent prohibitions, as well as the fact that the prohibitions (it would seem) must have been less than effective. Finally, the connections between alchemy and some currents of Franciscanism - stirred by the search for an overall renewal, as a result of prophetic aspirations - deserve to be further investigated. The alchemic themes present in the works of Roger Bacon, in texts attributed to Arnald of Villanova, and in some of the conclusions reached by John of Rupescissa, have already been pointed out and discussed by historians. The presence of alchemic themes in the literature produced by authors close to Franciscanism should be further investigated.

The results achieved during the last five years by scholars focusing mainly on the relationships between alchemy and medicine are remarkable. I think that the two other lines of research mentioned above, perhaps also because of their problematic character, promise to be just as useful, stimulating and rewarding when pursued in depth.

## Notes

[1]On these same topics, see C. Crisciani, *Aspetti della trasmissione del sapere nell'alchimia latina: un'immagine di formazione; uno stile di commento*, "Micrologus", 3 (1995), pp. 149-184.

[2]M. Pereira, *L'oro dei filosofi. Saggio sulle idee di un alchimista del Trecento*. Spoleto: CISAM, 1992.

[3]See W. Newman in the introduction to his edition of *The "Summa perfectionis" of Pseudo-Geber. Edition with Commentary and English Translation*. Leiden: Brill, 1991.

[4] See J. Agrimi - C. Crisciani, *Edocere medicos. Medicina scolastica nei secoli XIII-XV*. Milano-Napoli: Guerini, 1988; J.-P. Baud, *Le procés de l'alchimie. Introduction à la légalité scientifique*. Strasbourg: Cerdic, 1983.

[5] See A. Boureau, "Micrologus", 3 (1995a), pp. 347-353.

[6] R. Halleux, *Les textes alchimiques*. Turnhout: Brepols, 1979.