Allen G. Debus. *The French Paracelsians: The Chemical Challenge to Medical and Scientific Tradition in Early Modern France*. Cambridge: Cambridge University Press, 1991. Pp. 247.

A specialist of the Paracelsian tradition, Allen G. Debus has followed it throughout Europe in works such as *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries* (1977) and *Man and Nature in the Renaissance* (1987), as well as papers concerning Spain, Portugal and even the Ottoman Empire. His latest work examines the history of Paracelsianism in France, where it played a particularly complex and prolonged part in the evolution of chemistry. At the beginning of the sixteenth century, Arabic medical texts were being replaced by Galenic translations, humanism's contribution to medicine, along with the *Corpus Hermeticum*, which stressed the relatedness of macrocosm and microcosm in the unity of the universe, a view also held by Paracelsus (1493-1541) himself. By the middle of the century a strong disagreement erupted between the followers of Paracelsus, who considered themselves as innovators, and the French medical establishment, notably the Faculty of Medicine of the University of Paris, which held fast to the Galenic tradition. Debus examines the entire mass of textual evidence, which stems from many French and Swiss cities in addition to Paris, and spreads well into the eighteenth century.

Two complementary aspects of the history of Paracelsianism are discussed by Debus in conjunction with each other: the scientific aspect which shows an important phase of the indirect, indeed tortuous process whereby chemistry became a medical science, and finally a science in its own right; and the political and institutional struggles which constantly opposes the Paracelsians to established authority in matters of medical theory as well as practice.

This double inquiry means that throughout the book the author presents to the reader valuable information about many Paracelsian thinkers and practitioners with their intellectual commonalities, but also their individual stories of obstinate resistance in the name of their own vision of the truth. But he also relates the paradoxical story of an intellectual movement, the consequences of which, in the end, contributed to the scientific revolution, although initially it was, if anything, "counter-revolutionary;" and it is this story which in our view constitutes the kernel of originality of this book.

The Galenists and the Paracelsians disagreed, first of all, about the nature of the cosmos; the former continued to rely on the Aristotelian system, and more particularly on the four elements in nature (corresponding to the four humours in human body). The Paracelsians saw God as the Creator of both the macrocosm and the microcosm; knowledge of the organic is therefore linked to that of the inorganic. The same principles underlie all reality — they are sulphur, mercury and salt — and alchemy is the science which gives access to these. On a more practical level, the Galenists continued to prescribe medicinal plants; the Paracelsians practised distillation, attempted to obtain transmutation of metals, and prescribed metals and minerals as remedies, including *aurum potable* and antimony, which was considered poisonous by the French authorities.

The controversies were endless because there was little, if any, common ground between the two sets of beliefs. Each side claimed dramatic cures; each accused the other side of killing patients. On the Paracelsian side, knowledge of chemical phenomena that were potentially useful to medicine was slowly gaining ground; but it was almost always accompanied, and therefore impeded, by the complete displays of Paracelsian dogma, including belief in physiognomy and chiromancy. Such was, among many others, the case of Roch Le Bailliff, sieur de la Rivière, who pointed to cures by chemists of such diseases as leprosy, dropsy, paralysis, and gout. He became “médecin ordinaire” to Henry III, tried his hand at describing the plague, and human anatomy. The Faculty of Medicine of Paris managed to halt his medical practice and his lectures. During his trial he did not adhere to chemical problems but took every opportunity to defend the Paracelsian philosophy. Others, such as Claude Dariot (1533-1594), denied that there was any fundamental conflict between thought of Paracelsus and that of Hippocrates and Galen; and concentrated (in his *Treatise on the Preparation of Medicines*) on describing practical chemical techniques and actual chemical procedures for the Paracelsian preparations. But he too claimed that the medical benefits of chemistry were inseparable from the principles of alchemy.

And so, the dialogue of the deaf is extended into the seventeenth century, when alchemical treatises continue to be translated and published in abundance. Marin Mersenne (1588-1648) attempts to break the deadlock in a Cartesian way, by affirming the mathematical basis of all natural phenomena, and therefore the necessity to understand the proportions among all components of chemical bodies. This would amount to stripping alchemy of its “religious overtones and mystical analogies” (p. 73); also, to extending the mathematical treatment to all substances. It was Guy de la Brosse, founder of the Jardin des Plantes research institution, who most cogently advocated the pharmaceutical use of both metallic and botanical substances. Chemistry became widely taught, but was still excluded from the curriculum of the Paris Faculty of Medicine. The cure of Louis XIV (1658) with *vin émétique* led to the acceptance of antimony as a remedy. At this point, chemistry still had an instrumental status within medicine. Its next conquest, pioneered by Jean Baptiste van Helmont (1579-1644) was that of physiology: the human body itself is the locus of transmutations and its processes are subject to quantification. But van Helmont also held views (e.g. about the existence of a universal medicine) which in the end identified him with the Paracelsian philosophy.

Increasingly, however, chemistry would be taught as an experimental science, along with (or despite) lip service to the Paracelsian world view; it would gradually establish itself as a system for explaining physiological processes, first in contradistinction to medical mechanism, though at times, as in the work of Vieussens (1635-1715) on blood, in combination with it. The Paracelsian tradition would survive during the Age of Enlightenment as a separate phenomenon, less and less related to the specifically chemical developments to which, as Debus well demonstrates, it had given rise along the way.

EVA KUSHNER, *University of Toronto*