

BOOK REVIEW

Raffaella Seligardi: *Lavoisier in Italia. La comunità scientifica italiana e la rivoluzione chimica*. Firenze: Olschki, 2002, 410 pp.

Chemical revolution is the most studied topic in the history of chemistry. Throughout the research of Marcelin Berthelot, Aldo Mieli and Henry Guerlac, images of chemical revolution have changed and the recent bicentenary commemorations have introduced new approaches, historical actors and problems in the agenda of historians. An increasing number of historians have focussed their research on scarcely known personages and local contexts which have been neglected in the past. Several international research programs have provided new opportunities for writing what Bernadette Bensaude-Vincent called “a geographical history of eighteenth century chemistry”. The book by Raffaella Seligardi – an outcome of her *Dottorato di Ricerca* – is an excellent contribution to this research program, which will offer in the near future a renovated image of chemical revolution.

Seligardi’s approach is in tune with the new trends about the transmission of science. The title recalls “Darwin in Italia” (1983), the famous study written by her Ph.D. advisor, Giuliano Pancaldi, in which the problems related to the study of scientific centres and peripheries were already discussed. Seligardi prefers – as well as Kostas Gavroglu and others – the word “appropriation” instead of “diffusion” when talking about the transmission of chemical revolution. In that way, Seligardi highlights the active role played by different Italian chemists in late eighteenth-century chemistry. With this approach, her book is in consonance with the former research of Italian historians such as Aldo Mieli and Icilio Guareschi or the more recent studies by Ferdinando Abbri and Marco Beretta who have discussed the substantial contributions of Italian chemists to the chemical revolution. However, Seligardi’s conception of



the chemical revolution is largely founded on the works of American historians such as Carleton E. Perrin and Frederic L. Holmes. Following Holmes, Seligardi affirms that chemistry was an independent discipline before the chemical revolution and she offers new evidences in her book, particularly in one of the chapters, which is focussed on eighteenth century chemistry practices in Bologna. In tune with Perrin's ideas, she defends a "gradualist image" of the revolution and she remarks that Lavoisier's system developed out of a Stahlian framework. The new system did not suddenly appear in any "Eureka" moment from Lavoisier's laboratory. The new concepts and methods changed at the same time that Lavoisier and other chemists were compelled to face new experimental challenges and conceptual problems in their investigative program. Then, if Lavoisier's new ideas never ceased to change in his lifetime, there was never anything such as a "chemical revolution package" to be imported (or rejected) by Italian chemists – a package that diffusionist historians unsuccessfully wanted to find and follow from the centre to peripheries. Thus, Seligardi describes the contrasting and shifting reactions of Italian chemists and she discusses how the novelties were perceived and appropriated in different institutional frameworks, professional communities and personal research agendas.

The book is divided into two parts. The first chapters are focussed on four different local contexts (Venice, Pavia, Turin and Bologna – South Italy is not covered in the study), while the second part deals with some scientific journals, publications and investigative programs related to Italian chemists during the late eighteenth century. The first context (The Republic of Venice) was the most favourable to new chemical ideas thanks to the activity of young pharmacists such as Vincenzo Dandolo, who translated into Italian Lavoisier's *Traité élémentaire de chimie*. Seligardi argues that young chemists, who were outside the academic world, formed a group of backers of new ideas – a conclusion which is akin to Karl Hufbauer's analysis of the German chemical community. The chapter on the University of Pavia deals with two outstanding Italian scientists – Luigi Brugnatelli and Alessandro Volta – whose different scientific interests partially explains their reactions. Finally, Seligardi analyses the Academy of Turin, whose members were mostly interested in tech-

nological applications of chemistry – as reflected in their motto “Veritas et Utilitas”. The Academy of Turin employed French as the official language, their members published in French journals and they usually read French journals, such as *Journal de Physique* or *Annales de Chimie*, and French books, which were sent to the Academy by Lavoisier, Fourcroy or Berthollet. Moreover, many French scientists (Laplace, Monge, Morveau, Berthollet) were external members of the Academy of Turin. The links between French and Italian chemists became even stronger when Napoleon annexed the Piedmont to the French Empire at the beginning of the nineteenth century. In spite of this apparently advantageous context, new French chemical ideas faced strong resistance in the Academy of Turin, and Seligardi explains this paradoxical situation by paying attention to the different professional communities, the consequences of the utilitarian approach and the different images of experiment. Piedmontine academicians gathered a large amount of experimental data but proposed very little theoretical interpretation whereas Lavoisier and his followers founded their system in a small number of crucial and complex experiments. This conclusion recalls Jan Golinski’s analysis about the differences between French (Lavoisier) and British (Priestley) conceptions on chemical experimentation at the end of the XVIIIth century, which Golinski regards as a clue to understanding scientific controversies during the chemical revolution.

The next chapter is one of the most important parts of the book: the study of a substantial group of scientific manuscripts that Seligardi employs to reconstruct chemical practices and laboratories in late eighteenth century Bologna. The chapters include a very interesting analysis of Luigi Galvani’s ideas on new chemistry, which have been also studied by Seligardi in other publications. Seligardi also studies the practices of teaching of chemistry through the notebooks of Sebastino Canterzani, who taught “general and particular” physics in Bologna, including several lectures on pneumatic chemistry. She concludes that pneumatic chemistry was more easily introduced in these lectures on physics than in the research activities of the Bolognese chemical community, whose investigative programs were related to other eighteenth century topics such as the chemistry of salts or vegetal chemistry. Seligardi affirms

that the arrival of the French army and bureaucracy in 1802, and the consequent reforms of scientific institutions and universities, eventually supported the introduction of the new chemistry.

The second part of the book is focussed on the contribution of Italian chemists to scientific journals, which Seligardi regards as a privileged historical source in order to study the chemical revolution. She particularly pays attention to the large number of papers which were published by the Italian chemists in the *Observations de la physique* as well as in several Italian journals, among them those edited by Brugnatelli: the “*Biblioteca Fisica d’Europa*” and the “*Giornale fisico medico*”. The following two chapters each analyse a scientific controversy: the debates about the combustion of phosphor and the different experiences on scintillation in vacuum conditions, which turned into a debate about the composition of water and its synthesis by means of inflammable air (hydrogen) and dephlogisticated air (oxygen). Finally, another important chapter of the book deals with the reception of the chemical revolution by several Italian professional communities: pharmacists, physicians and mineralogists. Seligardi contrasts the attitude towards the chemical revolution of the physician Nicola Andria – who regarded chemistry as a solid base and useful resource for medicine – with those of the pharmacist Paulo Sangiorgio and the mineralogist Ermenegildo Pini, who were reluctant to accept the interference of chemistry with their disciplines. Pharmacists and mineralogists were more interested in therapeutic and external characteristics of substances than in their chemical composition. Thus, their professional interests explain why they did not enthusiastically embrace a new terminology founded on elementary analysis.

With her book, Raffaella Seligardi enlarges our image of the chemical revolution with new personages, institutions and debates. New sources, mostly Italian papers and manuscripts, are analysed in the light of recent research on the history of chemistry, and Seligardi offers comparative remarks in many parts of her book. Therefore, her study offers a fresh look at new and old questions related to the chemical revolution: eighteenth century chemistry research programs, the role of experiments and instruments, the disciplinary status of chemistry and its changing relations with other disciplines and the strategies of teaching chemistry. As a result, Seligardi’s

study undermines the traditional image of scientific centres and peripheries and encourages further research on other unexplored local contexts during the chemical revolution.

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