

last article on *radiosthésie* and rationalists shows how even water divination and the use of the pendulum failed to find scientific support in the 1930s or to establish its own scientific credentials for lack of coherent causalities. The book as a whole argues that science constructed itself against paranormal and occult occurrences but that this process which really established the incompatibility of science and occultism took nearly forty years to set rigid boundaries.

The focus of many articles in this book tends to be on the stars of the medium world: Eusapia Palladino, Alexis Didier, Léonie, and on events such as the meeting of Robert Houdin, the music hall illusionist and great denouncer of tricksters, and Richet's ghost hunting. The background flurry of spiritualist activities and scientific encounters is alluded to only through these great names and stories. This demonstrates how complex these matters are and how much more research could be undertaken in this field.

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Nick Hopwood, *Embryos in wax: models from the Ziegler studio, with a reprint of "Embryological wax models" by Friedrich Ziegler*, Whipple Museum of the History of Science, University of Cambridge, and Institute of the History of Medicine, University of Bern, 2002, pp. x, 206, 32 pp. colour illus., 100 halftones, £13.50 (paperback 0-906271-18-5).

Although wax-models played a significant part in the making of natural knowledge, only recently have historians started to devote systematic attention to them. Nick Hopwood's *Embryos in wax* reconstructs the story of wax-models of embryos from the end of the eighteenth-century to the days in which new experimental agendas and the wider political events of the twentieth century resulted in the quiet withdrawal of the models to museums and institute stores. Documenting the models of the Ziegler studio, and discussing a variety of aspects associated with their making and use, this very

well-crafted work sheds light on a practice and a set of objects that for more than half a century lay at the very heart of embryology. Reproducing Friedrich Ziegler's last catalogue of the models as well as a rich and lavish selection of photographs and colour plates, this study brings together fine scholarship and unexplored source material. At the same time, it also allows readers to navigate with great ease across both verbal and non-verbal domains.

From the end of the eighteenth century those who engaged in the modelling of embryos could build on the achievements of anatomical ceroplastics. Yet, the representation of embryos gave rise to new problems. Models of embryos were supposed to track the early stages of life. As embryology moved from miniature representation of children to the investigation of progressive development, wax-modellers were charged with the task of visualizing processes that took place over time and out of sight. *Embryos in wax* reconstructs how models contributed to the conceptualization of embryos as isolated objects of investigation that were defined independently of the body of the mother. It elucidates how the choices that underlay the three-dimensional representations of embryos had social and political as well as theoretical implications. Thus, for instance, embryos in wax not only stimulated medical debates between evolutionary and mechanical approaches to embryology, and informed views of normal embryonic development, they also lay at the centre of forms of expropriation and exploitation of the female body, corroborated more or less élitist views of society, epitomized visions of progress, and substantiated eugenic anxieties.

Associated with "the lower-status activities of teaching and popularisation" (p. 3), models of embryos have long lingered at the margins of historical investigations. Along with other objects, they have borne the consequences of an enduring divide between things, traditionally characterized as mute, silent and opaque, and words, typically fashioned as the privileged medium of communication. Placing models at the centre of a complex interplay between things, people and words, Hopwood's work shows that, in fact, models of embryos made sense of people

(and words) at least as much as people made sense of models. While magnifying microscopic structures, wax-models of embryos hardly resembled anything that one could come to recognize as part of one's experience. Yet, they became powerful means of scientific communication. In order to illustrate how this happened, Hopwood takes readers back from the models to the busy laboratories in which they were made, the scientific practices and teaching methods they brought about, the forms of business and division of labour they supported, and the professional alliances and academic contempt they generated. Particular relevance is also given to the codification of the view that wax-models of embryos could be published; the relationship between "plastic publishing" and printed culture; and the bearing this relationship had on the publicity, credibility, and circulation of the models.

The discussion of all these aspects cogently addresses "the historical challenge" of getting "behind the finished products" (p. 2). Hopwood's reconstruction of the role of models in defining what embryos and embryology were all about makes a powerful case for a more integrated historical analysis of the different media of science. His assertion that this book is, among other things, "about wax" (p. 5) may whet the appetite for further systematic discussion of the part played by specific material domains—in this case wax—in the objectification of scientific tenets and values. But readers will find in this engaging study both a valuable source and new directions for research. At a time in which interest in the history of three-dimensional anatomical waxworks is growing rapidly, I would not be surprised if *Embryos in wax* came to be regarded as a model.

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Hans Bots and Rob Visser (eds),
*Correspondance, 1785–1787, de Petrus Camper
(1722–1789) et son fils Adriaan Gilles Camper
(1759–1820)*, LIAS Sources and Documents

Relating to the Early Modern History of
Ideas, vol. 28, Amsterdam and Utrecht,
APA–Holland University Press, 2002, pp. 304,
illus., €50.00 (paperback ISBN 90-302-1098-2,
ISSN 0304-0003).

The Dutch scientist second only to Boerhaave in international renown in the middle years of the eighteenth century, Petrus (otherwise Peter) Camper was typical of his time in bringing a restless intellectual curiosity to bear on a wide range of different subjects. Primarily a comparative anatomist, he made significant contributions to surgery, obstetrics, and ophthalmology as well. He discovered air spaces in bird bones and studied the hearing of fish and the croaking of frogs, while his measurement of the facial angle and his introduction of Camper's line notably furthered the young discipline of physical anthropology. From pioneer dissections of then little-known mammals, including an elephant and whales, he was later to apply his expertise to the identification of fossil vertebrates.

At the same time, Camper was untypical in the privilege he enjoyed from middle life in having the economic option of either continuing in a successful medical career as a university professor and consultant, or of retreating into rural seclusion and comfort to spend his days in private research and writing. It was an option he exercised in favour of the latter twice. He owed it to late marriage to a burgomaster's widow of great wealth, a change in circumstances for which he paid a price in role ambiguity and in a sense of public obligation as a landowner, which ultimately led to high office. He seems to have been temperamentally ill-suited to a political life and retired from it depressed and frustrated.

During the two years, 1785–7, leading up to his nomination as President of the Council of State of the United Provinces, Camper conducted an extensive correspondence with his third son, Adriaan, then following his father in a political career and in enjoying a leisurely grand tour which included a lengthy residence in Paris. Two collections of these letters, seventy-one by the father and fifty-one by the son, have survived and are now in the university libraries of