

Book Reviews

LAZZARO SPALLANZANI, *I giornali delle sperienze e osservazioni relativi alla fisiologia della generazione e alla embriologia sperimentale*, edited by C. Castellani and V. Leone, Milan, Episteme Editrice, 1978, 8vo, pp. 492, illus., L.18,000 (paperback).

Reviewed by Mario A. Di Gregorio, M.A., Ph.D., F.L.S., Darwin College, Cambridge.

The more the scope of research in the history of science widens, and the more intriguing the problems it touches appear to us, the more we feel the necessity to refer to the original sources represented by unpublished material. Thus archives are now invaluable points of reference in our research. It often happens that the historian of science finds in manuscripts the solution to problems that appear puzzling if only published material is available, and sometimes one must correct the conclusions reasonably reached through research in a scientist's printed papers. For example, the forthcoming edition of Darwin's letters will certainly induce historians to reconsider some of the conclusions reached by previous generations who could not use such evidence. Some archives are readily approachable, especially in this country, but such is not the case for most of the Italian archives which, one may be sure, contain a great deal of undiscovered treasure. Needless to say, it is no fault of the Italian archivists, who are professionally as competent as their British colleagues, but it is the state in which the necessary facilities for university research have been kept for innumerable years by inept and corrupt governments that causes frustration and discomfort to those who are more interested in academic research than political games. A few benevolent individuals keep research up to standards which are often as high as in better-organized countries.

Dr. Castellani is one of these individuals: historians of biological science should be deeply grateful to him for his transcription of some important manuscripts of Spallanzani. Dr. Castellani is a general practitioner and dedicates most of his free time to the history of medicine and biology. He has succeeded in his enterprise only thanks to the help and goodwill of the staff of the Biblioteca Municipale of Reggio Emilia, where the manuscripts that could be traced were preserved. Spallanzani was one of those people – T. H. Huxley is another famous example – who indulged in the habit of keeping almost all that passed through their hands, and Dr. Castellani has transcribed only part of the material which, he tells us, would need a new and thorough cataloguing.

Quite appropriately, Dr. Castellani has chosen those journals devoted to the experiments on batrachians, whilst the parts concerning salamanders have been omitted, except those on their artificial fertilization. Of Spallanzani's notes, most of which concerned the *Dissertazioni* of 1780, those relative to his actual research have been transcribed, omitting those on matters not primarily scientific, such as problems concerning the printing of the work.

The transcription appears to me reliable and accurate – unusual and wrong punctuation and spellings have been maintained, while grammatical and syntactical mistakes have simply been noted, leaving the original as it is. Explicative notes to the text have been added by Dr. Castellani and by Professor V. Leone, a distinguished embryologist from Milan University. Dr. Castellani's notes are of a historical nature,

Professor Leone's throw light on the actual scientific problems treated in the passage considered, and as such they are of great help for a reader not closely acquainted with the modern developments of embryology.

Dr. Castellani has provided a lengthy introduction which, though occasionally verbose, is of great interest for the student of eighteenth-century embryology. Dr. Castellani, who approaches the interpretation of Spallanzani's work from a viewpoint highly sympathetic to Kuhn's theory of scientific paradigms, outlines not only Spallanzani's contributions to embryology, but also his relationship with other leading biologists of his time, such as Bonnet, Needham, Fontana, and Roesel. One of Dr. Castellani's major points is that, when Spallanzani came on to the scene, there was no such thing as an epigenetic paradigm, but only an epigenetic theory shared by "philosophers" rather than scientists, whereas the current scientific paradigm was a preformist one.

At least one example of the use one can make of direct access to Spallanzani's manuscripts through this book is worth noting, and is reported by Dr. Castellani in his introduction. It concerns the well-known question of Spallanzani's failure to recognize the function of the spermatozoa in the process of fertilization, although the evidence in his possession was sufficient for a correct interpretation of the phenomenon. In his published *Ricerche* Spallanzani claims to have been able to fertilize frogs' eggs with sperm devoid of spermatozoa; but in his diary he reports that "the seed, as seen on the microscope, had no spermatozoa, *at least alive*" (16 March 1777). This hitherto unknown remark makes it clear that the sperm used by Spallanzani was not *totally* devoid of spermatozoa, but he thought that even though some spermatozoa actually *were present* in the sperm, they were not alive. Dr. Castellani suggests that those spermatozoa were not dead, as Spallanzani thought, but simply immobile; thus Spallanzani examined a specimen of sperm, and, after seeing that there were no mobile spermatozoa and noticing that that sperm indeed fertilized the eggs, quite logically concluded that sperm without spermatozoa does fertilize eggs.

Though published by a very small publishing house, the typographical presentation of the book is attractive enough, and there are no dramatic misprints. The price (about £10) is reasonable for a book of limited circulation. This book should be available to scholars in Great Britain and the U.S.A. Italian is a language known to few, and Spallanzani's vocabulary in these notes, which he did not of course expect to see published, is extremely unapproachable for those who are not perfectly conversant with Italian. This book seems to me important and ought to be read by all who are interested, especially professionally, in eighteenth-century biological science. It surely deserves an English translation.

JAMES G. PARADIS, *T. H. Huxley: Man's place in nature*, Lincoln, Nebr., and London, University of Nebraska Press, 1978, 8vo, pp. xi, 226, £8.10.

Reviewed by Mario A. Di Gregorio, M.A., Ph.D., F.L.S., Darwin College, Cambridge.

Amongst Victorian scientists, T. H. Huxley is perhaps the most often quoted and the least satisfactorily known. A relatively large number of studies has been dedicated to him, but, on the one hand, we have no clear insight into his real scientific outlook, beyond his official image of "Darwin's bulldog", and, on the other, most biographies