


## BOOK REVIEW

### Anne Greenwood MacKinney, *Nature on Paper: Documenting Science in Prussia, 1770–1850*

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*Nature on Paper* conveys the story of Martin Hinrich Lichtenstein's management of the University of Berlin's Zoological Museum, as told through the voluminous paperwork – registers, inventories, accession lists, specifications and catalogues – that Lichtenstein and his colleagues compiled in the course of managing the museum in the first half of the nineteenth century. Yet the book is by no means an institutional history. Anne Greenwood MacKinney deftly turns these documentary sources – all of them can be classified as lists – into the principal subject of her analysis: how museum paperwork shaped a scientific epistemology and even a scientific persona in natural history. The result is a portrayal of a period of transition in natural history through the use of lists to illuminate the relationships between research, museum collections, bureaucracy and civil society.

MacKinney's story unfolds in five well-written chapters that move through the realms occupied by natural history museum artefacts during their natural and institutional lives: from specimen to field and then to museum, followed by their interactions with the state's bureaucratic apparatus and finally with civil society. Each of these realms had a characteristic list, or a few lists, that defined the artefacts' place, meaning and value in natural history. These lists, she argues, essentially defined scientific research in natural history, and not only in museums. Even if an artefact were a duplicate and so no longer necessary for museum display or research purposes, it still had a scientific role to play in communicating science. Its characteristics could be logged in an auction catalogue that both educated the public in the current terminology of its scientific classification and offered interested citizens the opportunity to own a certified piece of natural history for display at home. Pertinent historical literature on museums and natural history and the methodological literature on paperwork are woven through these chapters. The relevance of both to the book's theme is also carefully argued in the introduction and conclusion. Comparisons with other Western natural-history institutions, especially in France, abound, as do comparisons to other institutional uses of lists outside the realm of science. Few works in the history of science have the kind of detailed and thoughtful methodological self-reflection that *Nature on Paper* has.

A particular novelty of the book is its depiction of the role of the Prussian state, long held to be a major actor in the promotion of science thanks in large part to its rigorous appointment policy and its financial support of specialized institutes and seminars. For MacKinney, though, the state played another equally important role by promoting science through its demands for written documentation from the institutional units it supported

financially. She pursues this argument even in the face of evidence that some scholars at the time regarded the state's documentary fetishism with distain and even as contrary to the proper conduct of science. She calls out some of them. Christian Samuel Weiss, mineralogist at the University of Berlin, rebuffed the state's request for more information detailing the contents of the university's mineralogical collection, calling the request 'the most dismal and useless form of pseudowork' (p. 135) – an appropriate retort to administrative paperwork even today. Lichtenstein's massive paperwork on the zoological museum's collection led MacKinney to conclude otherwise. Because the state's inquiries had to be answered precisely, thoroughly, clearly and promptly, these traits became the core of the museum director's persona, along with the types of intellectual discernment upon which judgements regarding an artefact's value and usefulness were made. Even the simple act of selecting a specimen for the permanent collection was significant because it assured the specimen's status as a bone fide object of investigation in natural history. Thus it was precisely because of its incessant requests for information, she argues, that the state played an instrumental role in cultivating expertise in natural history and in facilitating the determination of the field's legitimate scientific objects.

The book's story ends with the separation of natural-history research proper from the natural-history museum (and the paperwork associated with it) during second half of the nineteenth century, a split that isolated the tedium of detail from the spectacle of public observation. Other historians, such as Lynn Nyhart and Carsten Kretschmann, have explained this shift in terms of the professionalization of curators, the growth of naturalists' expertise, and the need to retain the public's interest. In MacKinney's explanation of this split, the decisive factor was the changing perception of paperwork. The paperwork that had shaped authoritative definitions and evaluations in the first half of the century was no longer recognized as research in the second half. For the period before 1850, she argues that it is through the changing nature of lists, registers and catalogues over the crucial period known as the *Sattelzeit* – the transformation to modernity in the German-speaking world that took place in the five decades either side of the year 1800 – that we can better understand the dynamics not only of how natural history evolved, but also of who was sanctioned to practise it, what agencies should fund it and who should have access to its findings. Her deft methodological treatment and insightful historical interpretation of paperwork provide an imaginative and fruitful model for reflecting on the development of other branches of science and technology as they are treated in the vast and rich archives of Prussia. There is still much to be explored.