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from the opening article in *Die medicinische Reform*: "Die Arzte sind die natürlichen Anwälté der Armen und die sociale Frage fällt zu einem erheblichen Theil in ihre Jurisdiction."

The continued interest of the issues addressed in Virchow's weekly is shown by the present photomechanical reproduction from East Germany. It comes not many years after a West German edition (Georg Olms Verlag, Hildesheim, 1975). The East German republication has been handsomely produced and enlarged with a ten-page epilogue by Peter Schneck.

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OTTO SONNTAG (editor), *The correspondence between Albrecht von Haller and Charles Bonnet*, Berne, Stuttgart, and Vienna, Hans Huber, 1983, 8vo, pp. 1338, SFr. 278.00.

This work is remarkable for a variety of reasons. The 928 letters and archival materials at the Burgerbibliothek in Berne and at the Bibliothèque publique et universitaire in Geneva have been deciphered and transcribed with cleverness and method. As a result, Sonntag's edition is remarkably clear and well annotated. A useful introduction (pp. 13–31) details the nature of the exchanges, the topics of correspondence, and the unsuccessful attempts in Bonnet's circle after Haller's death (1777) at editing for publication part of the correspondence. Except for a few detached pieces, the larger part of the correspondence had remained unpublished when Sonntag took up the task of bringing it to scholarly light (with the appropriate notes and a detailed index for names and subjects, pp. 1307–1338).

Spanning the period 1754–77, the exchanges reflect the manifold intellectual life of two major "Aufklärer", central figures in the history of the life sciences. It is impossible to assess the wealth of information historians will extract from this impressive collection on the "ideological" setting of scientific research. For instance, the political and religious positions of both Bonnet and Haller determined a specific brand of Enlightenment philosophy, quite different from the spirit of the French *Encyclopédie*. Their philosophies involved a significant recasting of the presuppositions behind the apparently uniform empiricist methodology, which has been taken to characterize unequivocally the ideal of science in the eighteenth century. Historians of science and medicine should be especially interested by the way some major topics of Haller's and Bonnet's published scientific works are "subjectively" presented and discussed in the correspondence: Haller's doctrine of irritability and sensibility; his views on major functions: circulation of the blood and respiration; his conceptions of a physiological system; Haller's and Bonnet's preformationist theories of generation, influencing each other and developing in opposition to the epigenetist views and philosophical presuppositions of Maupertuis, Buffon, C.F. Wolff, and J. T. Needham; not to mention Bonnet's original psychological theory, or the more general discussion of scientific methodology.

Close scrutiny of the materials in this correspondence will demand a reassessment of the "image" of life science in the Enlightenment, a crucial period in its development.

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GIUSEPPE ONGARO (editor), *Leopoldo M.A. Caldani, Lazzaro Spallanzani. Carteggio (1768–98)*, Milan, Istituto Editoriale Cisalpino-La Goliardica, 1982, 8vo, pp. 419, illus., L.25.000 (paperback).

The complete correspondence between Caldani and Spallanzani (74 extant letters from Spallanzani and 64 from Caldani) enhances the perception of Caldani (1725–1813) as a scientist in close relationship with major representatives of the new observational and experimental trends in anatomy, physiology, and pathology. It complements the image emerging from his correspondence with Haller, edited by Hintzsche in 1966, and with Fontana, edited by Mazzolini and Ongaro in 1980. Following in the footsteps of Haller,

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Caldani concentrated his experimental work on the differential “irritability” of the various parts in the nervous system; his fame derives also from his *Institutiones* of physiology, pathology, and anatomy, which synthesized his own contributions as well as those of his contemporaries in pursuance of Haller’s “paradigm”. His exchanges with Spallanzani (1729–99), spanning three decades (1768–98), started when the latter sent him a copy of his *Prodrome di un’opera de imprimersi sopra le riproduzioni animali* (1768). Thereafter, the entire experimental work of Spallanzani, especially that on functions such as generation, circulation, and digestion, formed the background of a lively and friendly intercourse between the two scientists. As stated by Ongaro in his informative introduction: “Sono toccati così pressoché tutti i temi dell’attività e degli interessi scientifici dei due corrispondenti, dai problemi della generazione e dalle difficoltà che il preformismo incontrava per spiegare i fenomeni di eredità e de ibridazione, di rigenerazione parziale e di mostruosità, alla circolazione sanguigna e alla morfologia dei globuli rossi; dalle rigenerazioni animali sulle quali il Caldani esegue alcune esperienze richiestegli dallo Spallanzani, alla digestione.” (p. 15.) Abundant footnotes provide the necessary background to the scientific aspects of the exchanges. The correspondence bears testimony to the broader area of the cultural, social, and institutional setting for the activity of experimental researchers in late eighteenth-century Italy. But predominantly, the letters document the evolution of physiology in the Hallerian tradition, and the close connexion of observation and experience with the conflicting theories of that period. As an instance, one might mention the significant opinions expressed on Blumenbach’s notions of *Bildungstrieb* or *nisus formativus* and on his vitalistic recasting of the Hallerian paradigm in Caldani’s and Spallanzani’s letters from August to November 1787 (pp. 209–222).

Apart from the fact that a major part of the correspondence had not been previously published and that it deserved the type of scientific transcription Ongaro undertook, the present edition provides scholars with a useful tool for the historical understanding of the scientific achievements of Caldani, Spallanzani, and other eighteenth-century researchers, especially among Italians.

As an additional feature of the edition, Appendices I and II present the correspondence between Caldani and Nicolo Spallanzani, brother of Lazzaro, from the latter’s death in 1799 to 1807. The appendices are followed by an interesting ‘Iconografia’ and by the appropriate index and bibliography.

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JOHN E. LESCH, *Science and medicine in France: the emergence of experimental physiology, 1790–1855*, Cambridge, Mass., and London, Harvard University Press, 1984, 8vo, pp. viii, 276, £20.00.

Lesch maintains that “the challenge facing historians is to show how the sciences, while retaining this necessary degree of autonomy, have also been creatures of time and place.” In other words, he calls for an end to the false dichotomy between internalist and externalist approaches to the history of science, and for an awareness of the way in which the content, means, and ends of a science are shaped by the environment in which it operates.

Lesch does not, however, consider the impact of class interests or national politics upon the medical sciences in France at the turn of the nineteenth century. Instead, he focuses upon the scientist’s “immediate” environment: upon the institutions within which he acquires his skills and orientations and to which he looks for resources and approbation. The major theme of the book is how the combination of factors that made up the internal milieu of French medicine acted to promote the emergence of experimental physiology in a recognizably modern form during this period.

Around 1800, the precise connotation of “physiology” remained to be fixed. Although its ancient signification as the science of nature had largely been superseded by the more limited