Introduction: Immunology as a Historical Object

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> L'objet en histoire des sciences n'a rien en commun avec l'objet de la science.
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> – Georges Canguilhem

The papers published in this special issue were first presented at a symposium on "Conceptual Issues in Immunology: Experimental and Clinical Foundations," held as part of the 1993 series of the Boston Colloquium for the Philosophy of Science. The idea to call this symposium came to the organizers on a June evening the year before, during a conference on the history of immunology held on the island of Ischia (Italy). Organized by the "International Summer School of the History of Biological Sciences" and funded by the Stazione Zoologica "Anton Dohrn," the Ischia meeting had brought together scientists and professional historians in an attempt to "exchange ideas across disciplinary boundaries." It seemed to several of the participants, however, that the "exchange" was meant to be unidirectional: scientists engaged in the production of immunological knowledge were there to tell historians "how things had really been." Traces of the resulting tension, which on occasion turned into open confrontation between "the scientists" and "the historians," can be found in a reply to a conference report, both published in *Immunology Today*.[1]

1. Horace Freeland Judson and Ian R. Mackay, "History in the Bay of Naples,"

Journal of the History of Biology, vol. 27, no. 3 (Fall 1994), pp. 375–378.

The situation in Ischia reminded us of a 1966 paper by Georges Canguilhem in which the French "historical epistemologist" introduced a number of significant distinctions designed to free the history of science from the tutelage of science.[2] Having noted, for example, that the object of science should not be confused with any "natural object" – the latter being simply a pre-text (double meaning intended) – Canguilhem went on to argue that the object of the history of science had nothing in common with the object of science. In the same way as the objects of science were cultural products free from any "natural object," the history of science took as its object these cultural products, without being derivative of them. In practice, this meant that any "natural history" approach to the history of science should be rejected, and that science should not be reduced to scientists or to scientific results, as summarized in contemporary textbooks.[3]

To be sure, a lot of water has flowed under the bridges of the Seine since Canguilhem wrote his manifesto. The history of science, especially in the United States, has developed a strong network of departments, research centers, and publications, and has attained, it would seem, full maturity and independence. Institutional autonomy, however, does not necessarily entail epistemological autonomy. The demons that Canguilhem tried to exorcise are still with us, and writing the history of a particular domain is too often seen as a matter of "filling in the gaps." As shown by the Ischia meeting, this is particularly true in the case of immunology, which, in spite of the recent publication of two book-length historical overviews of the field,[4] has yet to attract the attention of a large number of historians.

The Boston symposium was a modest attempt to foster the development of a history of immunology that would generate its own questions. To that end, we asked invited speakers to organize their papers according to a restricted set of historical and socio-

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Immunol. Today, *13* (1992), 459–460; Thomas Söderqvist, "How to Write the Recent History of Immunology – Is the Time Really Ripe for a Narrative Synthesis?" *Immunol. Today*, *14* (1993), 565–568.

2. Georges Canguilhem, "L'objet de l'histoire des sciences," in idem, *Études d'histoire et de philosophie des sciences* (Paris: Vrin, 1975), pp. 9–23. The published text is a revised version of a conference presented in 1966.

3. Canguilhem thus rejects both so-called internalism and externalism, since in both cases the object of science is confused with the object of the history of science.

4. Arthur M. Silversten, *A History of Immunology* (San Diego: Academic Press, 1989); Anne Marie Moulin, *Le dernier langage de la médecine: Histoire de l'immunologie de Pasteur au Sida* (Paris: P.U.F., 1991).

logical themes, rather than on the basis of some empirical referent. This did not imply adherence to any particular "party line." And indeed, the articles collected in this special issue have adopted very different approaches. In spite of this diversity, two main themes emerge from this collection:

(a) The first theme is the role of experimental systems in immunology and, in particular, the role of technology and techniques in the constitution of immunological practices. How are experimental practices stabilized as techniques, which can then be exported to other laboratories and introduced into clinical settings? How do clinical concerns and techniques enter the immunological laboratory and structure research? How do immunological and technological objects come to be defined and to coexist within experimental systems? The first three papers focus on these questions. Craig Stillwell describes the history of thymectomy techniques from the mid-nineteenth century until the 1960s, showing that thymectomy begins to generate interesting questions for immunology once the epistemic object of the technique is changed toward mid-century – in other words, when the roles of the thymus in antibody production and in leukemia become subjects of interest. Ilana Löwy investigates the relation between laboratory research and therapeutics in the area of tumor immunology. Covering almost a century of research, Löwy points out that it was not until the 1960s that tumor immunology entered into meaningful contact with immunotherapy and, despite success with mouse models, has yet to fulfill early hopes. Arthur Silverstein analyzes the role of immune hemolysis as an experimental system that opened a number of new areas of research in turn-of-the-century immunology and that became the subject of a variety of border disputes between theory and practice. Peter Keating and Alberto Cambrosio examine the early development of the fluorescence-activated cell sorter (FACS), showing how, through a series of contingent encounters, it became an experimental system capable of producing differences that, in turn, evolved into a technology feeding standards, nomenclature, and new problems back into the original system.

(b) The second theme is the language of immunology. It has been observed more than once that immunology has recourse to a number of foundational models and metaphors. How do these resources enable immunologists to perform the practical task of differentiating and identifying disparate experimental phenomena? How do they guide or inhibit research. And how, in particular, are the successful ones constituted? Along these lines, Thomas Söderqvist presents an in-depth study of the creative synthesis that led to Niels

Jerne's natural selection model of antibody formation, while Alfred Tauber and Scott Podolsky explore the origins and consequences of the concept of self as it emerged in the work of F. Macfarlane Burnet, describing how, between 1940 and 1949, there was a transformation of the "ecological notion of self" into a "radical new conception of organismal identity."

This collection is, of course, incomplete, and the lacunae of the recent historiography of immunology are treated in the closing paper by Warwick Anderson, Myles Jackson, and Barbara Rosenkrantz. However, the incompleteness of the present collection lies less in the fact that it obviously does not cover immunology as a field (to argue this way would be to adopt a "natural history" approach), but rather in the fact that the papers only begin to answer the larger questions they raise.