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Kim Pelis, *Charles Nicolle, Pasteur's Imperial Missionary: Typhus and Tunisia*. Rochester, New York: University of Rochester Press, 2006. xix + 384 pp. Illustrations, appendices, notes, bibliography, and index. \$95.00 U.S. (cl). ISBN 1-58046-197-2.

Review by Harry W. Paul, University of Florida.

This book, which includes an intriguing set of photographs of the narcissistic great French doctor Charles Nicolle (1866-1936), is a volume in the series "Rochester Studies in Medical History." Maurice Nicolle, his older brother, might have been nearly as well known except that Charles won the Nobel Prize in Physiology or Medicine in 1928, "largely for his demonstration [in 1909] that the louse transmitted typhus" (p. 1). [1] Charles was an experienced prizewinner: the *prix* Montyon in 1909, 1912, and 1914 and the *prix* Osiris (100,000 francs) in 1927; and lucky Charles did not have to share the Nobel Prize with fellow discoverers. Kim Pelis begins with a "Prelude" to rescue her subject from the shadows (a word that often does an epistemological striptease in the book because of an opaque short story written by Nicolle) and an "Introduction" laying out the national and scientific context of Nicolle's life as head of the Institut Pasteur in Tunis (IPT). It would have been useful for the "common reader" if at the beginning there were a defining list of the different diseases dealt with in this work. Whatever Butterfield said, Whiggism is a useful conceptual tool for the ignorant reader. An excellent index will keep readers flipping back and forth to seek enlightenment.

Nicolle's father, a professor of natural history, had studied with Pouchet, the holder of the chair of natural history in Rouen who has been cursed with the reputation of loser in the debate with Pasteur over spontaneous generation. It may be that Nicolle ended up approaching the Pastorian science of bacteriology within the context of natural history, a sort of reconciliation of his biological father with his scientific fathers, the Pastorians Emile Roux and Elie Metchnikoff. Though he lived in Paris for only seven years, Nicolle wrote his M. D. thesis on a very Parisian disease, soft chancre or chancroid, which was common in world centers of prostitution. From 1893 to 1902 Nicolle spread the bacteriological gospel to local physicians in Rouen, where he managed to establish a successful laboratory of medical microbiology. A series of frustrating clashes with the clinical forces of the town led him to leave Rouen to take over the nearly decade-old IPT in Tunisia, which was a French protectorate ruled by a *Résident général*. This was the period when such institutes were being established in various parts of the world, especially in the French empire.

It is now conventional to view this scientific expansion, no matter how beneficial it was to the conquered people, as part of the imperialistic adventure. *La mission civilisatrice* had to be heavily scientific if taking up the white man's burden was to succeed at all. Science, especially incarnated in Louis Pasteur, was a useful tool for imperial propaganda. Pelis brings this out nicely in her treatment of the celebration in Tunisian schools of the centennial (1922) of Pasteur's birth (pp. 113-14) and the "Journées Médicales," "a gala event [1926] to showcase" Nicolle's scientific greatness as well as "the medical accomplishments of France in Tunisia": 600 doctors were treated to the "literary and scientific benefits" of the *mission civilisatrice* (pp.142-43). It was a sweet compensation for the disappointment he had suffered in attempting to push for reform of the Pasteur Institute in Paris (IPP), but "transforming the necropolis" (p. 120) was more

difficult than building a medical empire in Tunisia, where he came to control half of the government department whose territory included public health and the IPT. Nicolle's relations with Emile Roux, the head of the IPP, deteriorated when the IPT entered into a quiet arrangement with Poulenc to sell vaccines at a profit. An alliance of microbiology with industry would ensure the survival of the Pastorian mission, according to the pioneering Nicolle. Roux died in November 1933 without converting to the commercial gospel. A member of the Académie des sciences, Roux had been a key figure in promoting Nicolle for honors and prizes as well as in promoting his publications. In continuing his conceptually challenging work on preventive and curative vaccines, Nicolle and collaborators necessarily played on the international scene: there was intense competition in the 1930s for a safe typhus vaccine. It was not until the 1940s that Cox's mass-production vaccine became available for wide-scale use. Scientists were still squabbling (scientifically, of course) over the existence of one or two types of typhus—old world and new world (Mexico being the focus of investigation); there was excessive discussion of scrotal lesions in guinea pigs. In 1934, when he had taken up a position in Paris, Nicolle's laboratory at the IPP, in a joint Franco-American effort, developed a vaccine for yellow fever. (There had been an epidemic in Dakar in 1927; volunteers in Dakar served as guinea pigs for the successful trial.)

In the early twentieth century the IPT performed a number of functions (such as the analysis of drinking water), which would have been the responsibility of municipal agencies in a city like Paris. But the main task of the IPT was dealing with disease, never in short supply: malaria in 1906, plague and cholera in 1907, typhus, and kala-azar or visceral leishmaniasis (a dangerous disease prevalent chiefly among poor Italians and French *colons*). Nicolle cultivated good relations with politicians, especially the *Résident général*. Within five years Nicolle had become a significant player in the scientific "conquest of the [French] colonial world" (p. 46). To become a scientific conquistador on the world scene would be another matter, to be achieved by conquering a disease that was, in Nicolle's words, "a very old plague and a permanent threat to man and to civilization" (quoted on p. 47), namely typhus fever. Typhus had probably been brought to Spain in 1489 by mercenaries who had been fighting the Ottomans in Cyprus. One of the so-called filth diseases, it spread though Europe as the companion of armies (camp fever), beggars (road fever) prisoners (jail fever), and sailors (ship fever); typhus is credited with the death of many soldiers in the retreat of the *grande armée* from Russia in 1812. With the success of the public health movement typhus became a minor problem, except in parts of European empires. Nicolle needed to be in Tunis to make typhus his path to fame and fortune.

Rickettsia, the "genus of very small intracellular bacteria transmitted by arthropod vectors responsible for typhus fever and related diseases," is named for H. T. Ricketts, and the species that causes typhus fever (*R. prowazekii*) honors Stanislas von Prowazek.[2] There was no shortage of competition in the hunt for the cause of typhus, and Nicolle's claim to have discovered the louse as the agent of transmission did not go uncontested. Few important discoveries do. Taking us through the socio-scientific history of typhus, Pelis adroitly details how Nicolle and his close collaborator, Ernest Conseil (Director of public health in Tunis), arrived at their discovery. She makes it clear that Nicolle was a man of science in using the laboratory to prove a hypothesis arising from an epidemiological study of the infected population, mostly poor, young Tunisian males. A growing deafness pushed Nicolle into medical science and out of clinical work; though doctors often do not listen to patients, hearing is essential for work in the clinic. The laboratory work involved not only the sacrifice of monkeys and a chimp but also the subjection of a Tunisian employee (Habib) to some 9,000 louse bites (Habib appeared in the novel *Le Prince Jaffa* by Georges Duhamel, physician and novelist, Nicolle's close friend and Parisian promoter of the scientist's literary scribblings). Unlike in the case of a program for training Tunisians as doctors, the *colons* did not object to

this experimentation. Pelis makes a good deal of the fact that a later account of the discovery by Nicolle is a different narrative from the original account: an account based on observation/laboratory analysis versus the importance of an intuitive flash of enlightenment. Nicolle, like any good scientist, was adept “at covering up any evidence that was not tidy.” Pelis seems to disapprove of this. (Note 70, pp. 287-88. Some of the material in the voluminous notes--pp. 259-345--could be more effectively integrated into the main text.)

During World War I, with rats, lice, and typhus in abundance, soldiers and their diseases provided an excellent environment for medical advances and research. By the time the Great War was over--indeed long before--Nicolle had become an international star, even if there was still widespread debate over typhus and its transmission. One of his frequent friendly visitors, John Reenstierna, professor of the faculty of medicine in Stockholm, gave useful advice on the networking vital to win the big prize and actively promoted his cause for the Nobel, which he won in 1928 after being in the running for a couple of years. (I do not believe that Pelis has consulted the Nobel archives but has woven from other sources a convincing narrative on the issue.) In working on relapsing fever, Nicolle moved in the direction of accepting the idea of the evolution of disease; in challenging the “Pastorian” notion of microbial specificity, he ventured on the road to the non-Pastorian concept of microbial evolution. And although he did not get very far, he followed Maurice in speculating on the nature of immunity; given the difficulty of immunological theory, it is not surprising that he did not get very far.[3]

Nicolle wrote many works dealing with the role of biology in civilization, but he never really said anything of significance. His friends, especially Duhamel and some Pastorians, touted his ideas. Even Henri Bergson was seduced into a polite remark when Nicolle sent him a copy of *Biologie de l'invention* (1932). Nicolle also wrote a great deal on experimental medicine, with an emphasis on the role of genius as embodied in himself. In 1932 Nicolle succeeded Arsène d'Arsonval (1851-1940) in the chair of experimental medicine at the Collège de France; d'Arsonval was a big name in electrophysiology, co-inventor of the galvanometer, and a productive, creative researcher. He had a laboratory in biophysics in the rue Saint-Jacques and then a more famous one at Nogent-sur-Marne. Pelis makes the curious remark that he had no laboratory affiliation; certainly there was no laboratory at the Collège that Nicolle could have used, and so he had to beg Roux for one at the IPP. Nicolle was a good appointment to the so-called chair of Claude Bernard, but by 1932 he was in failing health and certainly not capable of filling the shoes of d'Arsonval, let alone those of the author of the *Introduction to the Study of Experimental Medicine* (1865). He also kept his position in Tunis and, worse, wasted time trying to gain support for the reform of the IPP. A great man in Tunis ended his career less gloriously in Paris. Pelis quotes Eliot's poem “The Hollow Men” on a page just before her last chapter, some of which old-fashioned minds will see as preface material. More shadow. Considering Nicolle's late-life return to Catholicism, I believe that it might be more appropriate to quote Thomas à Kempis on “A shadow's shadow – a world of shadows.”

NOTES

[1] See also “Charles Nicolle,” in *Nobel Lectures, Physiology or Medicine 1922-1941* (Amsterdam: Elsevier, 1965), available at <http://www.Nobelprize.org>, referred to in Pelis, note 132, p. 320.

[2] John Walton et. al., eds., *The Oxford Medical Companion* (Oxford: Oxford University Press,

1994), pp. 799, 808, 978. Like many standard references in medicine and the history of medicine, it has no reference to Nicolle.

[3] The standard work on the history of immunology is Anne-Marie Moulin, *Le dernier langage de la médecine. Histoire de l'immunologie de Pasteur au Sida* (Paris: Presses Universitaires de France, 1991). Numerous works by Moulin, including those on the Pasteur institutes as well as on Nicolle, are effectively used in Pelis's bibliography. See Charles Nicolle, pp. 363-64.

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