

Book Reviews

K Codell Carter, *The rise of causal concepts of disease: case histories*, The History of Medicine in Context, Aldershot, Ashgate, 2003, pp. ix, 237, £55.00 (hardback 0-7546-0678-3).

Occasionally a book comes along from another discipline that illuminates a new path for historical study. The philosopher K Codell Carter's authoritative study of the transition from an assumption that diseases have multiple causes to the modern belief in universal, necessary causes is such a book. For decades, historians have fruitfully explored the social history of modern medicine to the neglect of its intellectual history. Carter's careful dissection of the changing concepts that led to the germ theory of infectious diseases provides a sturdy base on which historians may rectify this imbalance and investigate previously unasked questions about the history of medicine in the last hundred years.

Building on twenty-five years of study, translation of seminal papers into English, and publication of case studies about the philosophical changes that occurred between 1830 and 1880, Carter draws heavily from his own publications but reworks the material into a coherent historical and philosophical tapestry. He begins by examining the notion of disease causation before the critical shift began providing examples. For instance, he quotes one British physician's statement in 1845 that some of his patients attributed their diabetes to "sleeping out the whole of the night in a state of intoxication" (p. 10). Today, a patient's report of possible causation is rarely considered as important as the physician's own diagnostic methods, and we find it hard to understand how anyone could believe that a serious disease like diabetes might be viewed as having different causes in different patients.

Beginning with Jacob Henle's 1844 publication seeking universal, necessary, and sufficient causes for diseases, Carter describes the steps necessary for the intellectual shift to occur. Ignaz Semmelweis's work in a Vienna

maternity hospital on childbed fever provides the first case study and the first step, the recognition of the universality of a cause, that one disease has a common cause in all patients (actually in *nearly* all—a one per cent exception became important in the argument over Semmelweis's credibility). Semmelweis also understood the concept of the necessity of that universal cause to the existence of disease: that is, without the cause, the disease does not exist. Semmelweis's intellectual leap is hard to appreciate today, so complete is our acceptance of this concept.

The idea of universal, necessary causes had to be fleshed out before it was adopted. First, it was necessary to grasp the idea that different organic processes were caused by distinct organisms and that these organisms must be transmitted from one host to another to cause disease. The latter requirement denies the possibility of spontaneous generation and marks a critical departure from traditional assumptions. These ideas became the subject of Louis Pasteur's early investigations of diseases of wines, leading him to the germ theory of infectious diseases, the assertion that a single microorganism could be causally linked to a single disease. Pasteur began by adopting a bacterial hypothesis, asserting that only microorganisms and nothing else could be considered in the search for empirical proof of his theory, a position that illustrates the highly theoretical nature of these ideas because there is no evidentiary way to prove or disprove that something else—evil spirits or miasmas or astrological conjunctions—also played a role.

Once enough evidence had been marshalled to convince some scientists that it was worthwhile looking for proof that bacteria caused disease, it became necessary to develop an experimental method for demonstrating causation.

Robert Koch's work on cholera, wound infections, and especially tuberculosis, led him in 1882 to define the postulates for demonstrating causation. Carter notes that the two best known postulates—that the organism must be cultured on laboratory media and then inoculated

in an experimental animal and shown to produce the disease—are the weakest philosophically, because they are not possible to achieve for all infectious diseases. Stronger and more central to the demonstration of causation is the necessity argument embodied in the first three postulates, which state: “The organism must be exhibited in every examined case of the disease. The distribution of the organism must correlate with and explain disease phenomena. For each different disease, a morphologically distinguishable organism must be identified” (p. 131).

To convert sceptics to the radically different view of disease causation, proponents were able to point to a few key events that demonstrated the power of the new ideas. Pasteur, the consummate showman, called in the press and the public to witness his test of an anthrax vaccine and to see that his rabies vaccine had protected Joseph Meister from one of the most dreaded diseases of the time. Koch’s triumphs in discovering and demonstrating the causes of cholera and tuberculosis, both greatly feared diseases, convinced most sophisticated scientists, physicians, and public health leaders. By the 1890s, the transformation was complete, cemented ever more firmly in 1894 when antidiphtheria serum was introduced as the first effective therapeutic substance developed within the new theory. The antiserum’s ability to save the lives of children on the verge of death from diphtheria was powerful evidence indeed for laypeople as well as professionals.

Carter demonstrates how the new aetiological assumptions about infectious diseases were integrated into an entire research programme to identify universal, necessary causes for all diseases. The case of Sigmund Freud is especially telling. Considered revolutionary by many, Freud is viewed by Carter as firmly located within the new paradigm, as he was searching for universal, necessary causes for mental disorders. Also in this framework were the pioneers in nutritional diseases who linked the causes of scurvy, beriberi, and pellagra to the absence of necessary dietary factors.

The case studies in this book breathe life into the abstract concepts that remind historians why

they are not philosophers. Yet to quote Imre Lakatos, as Carter does, “history of science without philosophy of science is blind” (p. viii). For historians who study medical thought and medical research activities in the twentieth and twenty-first centuries, Carter’s book provides a clear vision of the philosophical tenets underlying these activities.

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Joel Peter Eigen, *Unconscious crime: mental absence and criminal responsibility in Victorian London*, Baltimore and London, Johns Hopkins University Press, 2003, pp.xii, 223, £29.50 (hardback 0-8018-7428-9).

In the nineteenth century concerted efforts were made to formalize the complex relationship between crime, volition and madness. The legal system attempted to grapple with the frameworks for dealing with those deemed not guilty due to insanity and, after 1883, guilty but insane. High profile cases against James Hadfield, Edward Oxford, Daniel McNaughtan, *et al.* demonstrated the antagonistic relationship between the burgeoning profession of psychiatry and the law. In these seminal trials, medical experts argued that the accused lacked the mental capacity to understand the nature or consequences of their actions. Despite Victorian attempts to classify the delusional, English courts played host to an array of “mentally wayward defendants” that defied and expanded attempts at classification. As such, what were jurors to do in cases where the accused was “missing” at the time the crime was committed?

Joel Peter Eigen tackles this very question by examining Old Bailey cases between 1843 and 1876. In this period, he argues, a new someone or “something” had wandered into the Victorian courtroom. Eigen is particularly well-versed on the context of the legal conundrums these trials represented, having contributed much of the study for the preceding period. The notion of insanity in the post-McNaughtan era, though still not clearly defined, had some legal underpinning.