

Book Reviews

cultural setting, and this also holds true for the discipline in Germany.

Cay-Rüdiger Prüll,
Durham University

William C Summers, *Félix d'Herelle and the origins of molecular biology*, New Haven and London, Yale University Press, 1999, pp. xii, 230, £20.00 (hardback 0-300-07127-2).

To historians of science, to microbiologists, and to the newer breeds of molecular biologists and geneticists alike, the name of Félix d'Herelle will always bring to mind his coining of the word and concept of bacteriophage. Whether this altogether justifies the bold title of the present biography, perilously similar to that of the classic 1966 volume *Phage and the origins of molecular biology*, is perhaps a moot question. In this account W C Summers examines in depth his studies of bacteriophage and the controversies surrounding their publication: the author's stubborn and lasting attempts to prove his own priority in "discovery" of bacteriophage in the teeth of F W Twort's paper on the same subject published two years earlier. Priority disputes—whatever later generations may or may not think of their importance—were characteristic of nineteenth- and early twentieth-century science, and were often flavoured by chauvinistic attitudes linked to the many political and military conflicts within nineteenth-century Europe. In the end bacteriophage observations became known collectively as the "Twort-d'Herelle phenomenon"; and advocates of Twort's priority included a number of former colleagues of d'Herelle in and around the Paris Pasteur Institute. Twort subsequently busied himself with other problems at London's Brown Institution; whereas d'Herelle wrestled for the rest of his life

with questions of therapeutic uses of bacteriophage.

Félix d'Herelle was born in Montreal in 1873, the son of a French-Canadian father and a Dutch mother. The father died when Félix was six years old, and the mother, considerably younger and left in comfortable circumstances, moved to Paris with Félix and his younger brother, where the boys attended a local lycée. On graduation Félix embarked on travels in South America, where he learnt to speak Spanish; on the return trip by ship from Rio de Janeiro he witnessed an outbreak of yellow fever when twenty passengers and crew died. Calm in the face of danger from little known infectious diseases, d'Herelle returned to Paris in 1890 with no clear plans for further education, let alone any firm ideas for a future career. After adventurous travelling, he finally decided to settle in Montreal, and to pursue a career in bacteriology, in 1897.

At this point, Summers is at pains to remind us of d'Herelle's early and varied achievements: his studies on fermentation, including commercial attempts to produce alcohol from surplus maple syrup in Quebec, and "banana whiskey" from surplus bananas in Guatemala. Fermentation studies appealed particularly to d'Herelle, increasing his self-regarding sense of emulating Pasteur. During the Spanish-American War in 1898 he was asked to assist Mexican sisal growers and the Yucatán Department of Agriculture to develop fermentation procedures in order to dispose profitably of surplus sisal, again by using it for the production of alcohol. The lengthy and detailed explanations of the various fermentation studies are hard on the reader, not helped by a less than sparkling style and a number of sentences where verbs and/or prepositions appear to be missing and the meaning is left to the imagination of the reader, who begins to long for a more succinct presentation and details relegated to notes. Towards the end of his stay in Mexico, and during further travels

in Argentina and Algeria, d'Herelle by chance studied diseases of locusts: studies which were perhaps the first recorded examples of a deliberate search for specific infections to be used for biological control of insect pests.

Remaining chapters are largely concerned with well-known aspects of d'Herelle's bacteriophage work, with one exception. Following his departure, not without a certain bitterness after controversies with colleagues at the Pasteur Institute and later at Yale, he left Yale in 1933. In that year he accepted an offer to join Georgiy Eliava at the Tiflis (Tbilisi) Bacteriological Institute, soon to spawn a new specialist All-Union Bacteriophage Institute, there to pursue his research on therapeutic applications of bacteriophage. Eliava had worked with d'Herelle at the Pasteur Institute in the early 1920s, and had become a friend. When d'Herelle left Yale under something of a cloud, to put it mildly, in 1933, Russia with its "new scientific socialism", and collaboration with Eliava on his own pet subject of bacteriophage therapy, seemed a golden opportunity. But the Stalinist purges were about to begin, and Eliava was caught up in the reign of terror and executed in 1937. It was the end of d'Herelle's flirtation with the powers of the USSR, although after his precipitate departure phage research and clinical studies of phage therapy continued in Russia, with encouraging results it was claimed. Today researchers in the West are tentatively renewing studies of phage therapy in the wake of development of resistance to antibiotics, especially in hospital infections.

The blurb's claim that d'Herelle's work "established the foundation for the later work of Max Delbrück and the Phage Group in molecular biology" is somewhat at odds with the author's final conclusion that although bacteriophage became "the organism of the molecular biological revolution", the largely self-taught d'Herelle never took much interest in physiological chemistry, and even less in the development

of molecular biological sciences. On the other hand, Summers in his preface stated that not only phage, but also the experimental techniques devised by d'Herelle, are still "central to molecular biology as well as to the new fields of biotechnology and genetic engineering". It is left to the reader to sort out the evidence and weigh up the degree of admiration deserved by the work of d'Herelle. In spite of the author's best efforts, this is a biography which leaves one with limited sympathy for its protagonist.

Lise Wilkinson,

The Wellcome Trust Centre for the History of Medicine at UCL

Desmond King-Hele, *Erasmus Darwin: a life of unequalled achievement*, London, Giles de la Mare, 1999, pp. x, 422, illus., £24.00 (paperback 1-900357-08-9).

Everyone should have a hobby. For over thirty years, Desmond King-Hele has made himself the authority on the remarkably productive and controversial life of Erasmus Darwin (1731–1802). It would appear from this latest biography that King-Hele has managed to trace every scrap of a hint of the illustrious Enlightenment physician, poet, inventor, and natural philosopher. It is Darwin, King-Hele suggests, who is a figure in Joseph Wright's stunning painting *An experiment with a bird in an air pump* (1767–8). Here begins a host of speculations that diminish what might have been an informative study of a great natural philosopher. King-Hele admits, although not until half way through his tome, that he is avoiding some of the taboos of modern historians of science who might eschew assertions of Darwin's prescience. This appears to have provided the author with licence for an unbridled whiggism. King-Hele seems to believe that the merit of a thinker is in the anticipation of modernity.