Book Reviews

Fleming as Bacteriologist

Alexander Fleming. The Man and the Myth. GWYN MACFARLANE. Harvard University Press, Cambridge, Mass., 1984. xvi, 304 pp. + plates. $20.

The discoverer of penicillin has been the subject of several biographies since his death in 1955. The Alexander Fleming they present has evolved in the telling. André Maurois in 1959 wrote of a "shy man with his burning faith in the capital importance of a piece of research, trying in vain to persuade." In 1970, Ronald Hare presented a Fleming who apparently did nothing with his discovery from 1928 until it was taken up by Howard Florey and his group in Oxford in 1940. Recently Hare has found laboratory notebooks from this period, which show that Fleming and his group did attempt to isolate penicillin but that the project was dropped. Gwyn Macfarlane has put together this and other new material to present a new interpretation of the life of Fleming. He seeks to explain some of the seeming mysteries that have collected around Fleming, in particular the mystery of the 12-year gap.

Macfarlane's Fleming is a bacteriologist, a man whose pride is in his neat and clever bench technique, in the identification of bacterial species, and in the development of means of isolating species by differential culture. His paper announcing the discovery of penicillin was titled, "On antibacterial action of cultures of penicillin with special reference to their use in the isolation of *B. influenzae*." Fleming used his penicillin medium for years to isolate this organism.

One of the most attractive features of Macfarlane's account is his interest in bacteriological technique. He thinks that none of the previous biographies have paid it enough attention: indeed, recent historiographic style has tended to avoid technique as a problem area. But Macfarlane's Fleming is a man who works and plays at the bench.

It is in Fleming's benchwork that Macfarlane finds the explanation of his lack of interest in developing penicillin clinically. Using the "slide cells" that he had developed to test the effectiveness of disinfectants, he found that penicillin was harmless to blood cells and highly effective against bacteria but slower to act than his disinfectants. It was also less active in the presence of serum, and pieces of tissue were not cleared of bacteria. In vivo, however, penicillin was cleared from the circulation within half an hour. Fleming's lack of interest in the therapeutic possibilities of a substance with these properties is quite logical. But, as Macfarlane points out, he did not try its effectiveness in protecting an infected animal.

J. C. Sheehan, the Massachusetts Institute of Technology chemist who synthesized penicillin and its analogues in the 1950's, writing of Fleming in 1982, says simply that Fleming was a bacteriologist and not a clinician. Macfarlane takes essentially the same point of view but elaborates it with sympathetic insight.

His analysis of Fleming's thinking is subtle and perceptive. He suggests that Fleming's omission of the in vivo protection test was a consequence of the residual influence of Sir Almroth Wright, under whom Fleming worked for many years at St. Mary's Hospital Vaccination Department. It was Wright's claim that "one experiment suffices, if properly performed, to establish the truth of a principle." To Macfarlane, a laboratory man himself, this is an outrageous generalization in a biological science. He brings his own bench experience into his interpretation.

It is Macfarlane's insights into the life of the laboratory that make this book so pleasing to read. He has already produced an equally significant study of Howard Florey and the Oxford group of penicillin workers. Perhaps his next book will be on laboratory studies of blood clotting and clinical hemophilia. He is uniquely qualified to write it.

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Cartoon of Alexander Fleming by Ronald Gray. [From *Alexander Fleming: The Man and the Myth*]

A Botanical Explorer

Frank N. Meyer. Plant Hunter in Asia. ISABEL SHIPLEY CUNNINGHAM. Iowa State University Press, Ames, 1984. xviii, 317 pp., illus. $29.95.

Frank Meyer is known to plant breeders and professional horticulturists as one of the small band of explorer-collectors who, working in that short interval in the late 19th and early 20th century when temperate Asia was briefly open to Western travelers, are responsible for more plant introductions to the West than all others put together. But to the public interested in plants he is almost unknown. In part this is because Meyer, an employee of the United States Department of Agriculture, concentrated his attention on useful plants, though his contributions to ornamental horticulture are far from insignificant.

Isabel Cunningham has attempted to redress this. Between the lines of her book it is clear that it has been a difficult task. The author has become a dedicated admirer of her subject, an apologist for his not inconsiderable shortcomings. All the same, Meyer's prowess as a plant explorer is amply vindicated; he emerges as the most courageous of the Western botanists in temperate Asia, indomitable yet meticulous, vying only with the most intrepid of the Russians. The work of a long-term plant explorer in remote and