work, including that on Saturn. He also used micrometers in the mid-1650s, he proposed lens grinding apparatus, the application of telescopic sights and the use of a double-telescope. The latter he described as two telescopes joined like a sector to measure angular distances and to be used in an astronomical method for finding longitude at sea. In all Wren was the complete scientist and his other interests — such as the anatomy of the brain, muscular action, respiration and designs for weather clocks — are all meticulously detailed by Bennett.

This is no light-weight tome, being the distillation of a doctoral thesis in the Department of the History and Philosophy of Science at Cambridge University. Some 20 pages are taken up by references, underlining the fact that it is aimed at the

professional scientific historian. The reference section is excellent and alone is ample reason for buying the book. The overall quality of production is up to usual Cambridge University standards and illustrations are good considering the limited availability of material. The author's assumption that his readers are familiar with scientific problems and personalities of the day, however, means that we are presented with a skeleton of a book. The present format unfortunately has an effect similar to force feeding; it is very rich food indeed and is only palatable in small quantities. One hopes that Bennett will in due course find time to fatten up his account. □

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Science through the scientist

Nicholas Wade

Scientific Temperaments: Three Lives in Contemporary Science.

By Philip J. Hilts.

Simon & Schuster: 1983. Pp.302. \$15.95.

PHILIP Hilts writes on science and kindred matters for the *Washington Post*. In *Scientific Temperaments* he has applied the reporter's art to describing the work and character of three contemporary practitioners of science. The result is a rich tapestry in which the substance and oral history of science are skilfully interwoven with the personal lives of individuals.

The book is composed of three essays, the first devoted to modern physics and Robert Wilson, the second to molecular biology and Mark Ptashne, and the third to computer science and John McCarthy. Each essay is based on a wealth of gracefully sketched background material, against which the subject's own career and outlook is presented. Perhaps because of the comparative youth of computer science, McCarthy is the member of the trio who stands out most clearly and strongly against his background.

Lord Rutherford, as is well known, pronounced in 1933 that the idea of nuclear power was moonshine. Less well known, at least to me, is that this was the year in which H.G. Wells had predicted (in 1914) that the means to tap the energy of the nucleus would be found. The prediction, as Hilts tells the story, deeply impressed Leo Szilard, but not until Szilard happened to attend the conference at which Rutherford declared nuclear power to be impossible did he determine to prove that it wasn't. A few days later he conceived the idea of the chain reaction for which he filed his patent application of 1934. Historians may describe the epiphenomena, but the root

cause of the nuclear age, it would seem, was Szilard's itch to prove Wells a prophet and Rutherford an ass.

Against such anecdotal Hilts describes with feeling the aesthetic and practical sense which Wilson brought to his great creation, the building of Fermilab. From that great cathedral on the Illinois plain miracles may come, one day. On one occasion a friendly Senator, seeking to justify the expense, pressed Wilson to describe how Fermilab contributed to the national defence. Wilson persistently but politely declared it made no such contribution. At the third prompting, he delivered the fine reproof, "It has nothing to do directly with defending our country except to make it worth defending".

Hilts uses the vehicle of Mark Ptashne, part *enfant* and part *terrible*, to recount the tumultuous public history of DNA from Asilomar to Wall Street. Harvard's ill-fated idea of setting up a company in conjunction with its professors is particularly well described. The subject of the final essay, John McCarthy of Stanford, the son of a Boston labourer, has made important contributions to the field of artificial intelligence. Hilts's method of blending science and scientist reaches its acme in this subtly drawn portrait.

Scientific Temperaments is presumably aimed at the general reader but contains much that will be fresh to many scientists. There is, however, lack of conclusion as to how these three vignettes should be interpreted and what, if anything, they have in common. A brief preface suggests that they show "a clear play between science and personality", and that passion, not dispassion, is a trait that many scientists share in common. If there is any room for cavilling at this excellent piece of writing, it is that such interesting assertions deserved fuller treatment. □

*Nicholas Wade is a Member of the Editorial Board of the New York Times. His most recent book, written with William Broad, is *Betrayers of the Truth* which was published earlier this year.*

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