Book Reviews

Scientists and Quasi-Scientists Living and Dead

World Who's Who in Science. A Biographical Dictionary of Notable Scientists from Antiquity to the Present. ALLEN G. DEBUS, RONALD S. CALINGER, EDWARD J. COLLINS, and STEPHEN J. KENNEDY, Eds. Marquis, Chicago, 1969. xvi + 1856 pp. $60. Marquis Biographical Library.

A Biographical Dictionary of Scientists. TREVOR I. WILLIAMS and SONIA WITHERS, Eds. Interscience (Wiley), New York, 1969. xii + 596 pp. $9.95.

As different as chalk and cheese, these two reference books are highly useful in their separate ways. The *World Who's Who* belongs in every major library. The *Biographical Dictionary* should be a welcome addition to the bookshelves of the literate scientist.

Echoing Samuel Johnson's reaction to women preaching, one is surprised to find a *World Who's Who in Science* done at all. The difficulties faced by Debus and his team of helpers were obviously considerable. Confronted with scattered sources, overlapping lists, and random catalogs, they have yet come up with a selection of 30,000 names that can make some claim to represent science "from antiquity to the present." Each brief entry gives "vital statistics," major contributions, publication titles, and (for the living) current address. The editor is at pains to point out how the procedures adopted made a Western bias inevitable. South America, Russia, and China are all underrepresented—witness the fact that the nine scientists appearing under the name of Wang all live in the U.S.A. It is to be hoped that continued editorial vigilance will lead to a more representative geographical distribution in future editions.

As one might expect of a volume produced by Chicago historians, the roughly 15,000 names of dead "scientists" constitute in many ways the more fascinating half of the work. While it will tickle the vanity of present-day practitioners to appear alongside Isaac Newton, Antoine Lavoisier, Charles Darwin, and Albert Einstein, they may be less flattered to find themselves rubbing shoulders with Robert Fludd, Franz Mesmer, Karl Marx, and Oswald Spengler. Some may find such catholicity refreshing. Others may feel it threatens the very integrity of science. Certainly the range of entries well reflects the difficulty of giving exact meaning to a word such as "science," with its ever-changing historical connotations. (Even so, one might legitimately enquire why the editor has systematically favored the occult in his historical entries while almost ignoring "the Queen of the Sciences").

No such problems confront the reader of the *Biographical Dictionary*. Here just over 1000 famous names (all safely dead) are honored in deft and careful essays by a team of 50 contributors, mostly from the United Kingdom. The utility of these pleasing pen portraits is considerably enhanced by a brief bibliography at the end of each entry, pointing the curious to the most useful sources of further information. The emphasis is on the standard Heroes of Science, and no occult or other deviant types appear to disturb the slumbers of Newton (who himself appears shorn of his alchemy, chronology, and theology—in contrast to his shorter but more rounded history in the *World Who's Who*).

The ever-increasing flow of biographical studies, dictionaries, and compilations is itself an interesting phenomenon, testifying to the maturity of science and its undisputed place in the Establishment of every developed nation. This flow also bears witness to the scientist's increasing anxiety over his public image, and the consequent need for historical validation. Indeed, were one to take seriously Oswald Spengler's claim to be included in such compilations, one might see in this whole surge of biographical concern indubitable evidence of the late stage we have now reached in the life cycle of Western science.

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Responses to Pressure

The Physiology and Medicine of Diving and Compressed Air Work. P. B. BENNETT and D. H. ELLIOTT, Eds. Williams and Wilkins, Baltimore, 1969. xiv + 534 pp., illus. $27.

This text is the best current exposition of the art and science relevant to the responses of men to increased atmospheric pressures. The 22 chapters cover the more important aspects of this diverse field, including discussions of underwater breathing apparatus, helium speech, the physiologic effects of these unusual environments, and the major problems associated with decompression. The authors present lucid and comprehensive accounts of what is known. It is equally impressive and of some concern that basic solutions to the numerous cited problems seem distant.

Approximately half the chapters review aspects of decompression. Divergent theories of gas uptake and release are expounded in some detail, as are practical applications of these theories. It is evident from the multiplicity of explanations and imperfect practical applications, even over a restricted range of diving exposures, that the physiology of decompression is not well understood. Such fundamental problems as the relative roles of perfusion and diffusion in determining the uptake or release of inert gases by tissues and the presence or absence of a gas phase in tissues during decompression remain matters of controversy. It is a reasonable expectation that what is said about decompression theory in this book is likely to undergo the greatest change in future reviews, since this subject is being investigated more intensively now than at any time in the past. Despite the conceptual limitations, however, practical men have succeeded in developing decompression schedules for which the hazards are deemed acceptable. This section also describes the manifestations and management of decompression sickness.

There are interesting discussions of alternative approaches to costly, lengthy decompression of men exposed only briefly to very great increases in atmospheric pressure. The alternative of prolonged habitation at a given depth in an underwater house with a single decompression at the end of a lengthy immersion is described well in chapters on saturation diving by French and American authorities. In this approach, the portion of time de-