

1958 in a course listed as "Humanities 304." In this course there was evidently lively give and take between the lecturer and the students, for the book has an appreciative dedication in which the author acknowledges his debt to his students.

The stage of the book is mostly the time interval between Copernicus and the end of the 19th century, or more exactly, through the time of Maxwell. There is an epilogue, however, mostly devoted to showing how the ideas of the late 19th century found their fruition in Einstein. The principal theme of the book is to show how science has become increasingly objective, thereby leading to conflict with less critical and more self-centered attitudes. The range of topics subject to detailed analysis is unusually wide for a book of this character. Not only is the requisite attention given to the expected subjects of mathematics, mechanics, and physics, but an unusual amount of attention is given to chemistry and biology. I found the discussion of Lavoisier and Darwin particularly illuminating.

If one were seeking for a single phrase to characterize the book I think "sympathetic understanding" would serve. Not only does the author show an unusual degree of technical competence, which can be explained only by a critical thinking through of the issues for himself, but he also enters, in an unusual way, into the personal characteristics of the great scientific innovators, which sometimes even led them into blind alleys. Gillispie's assessment of Einstein—his greatness and his estrangement from the great current of scientific opinion in the field of quantum theory—could not have been made with greater understanding.

In short, the book presents science as a human enterprise, something which we all know it is, but which we seldom can see as clearly.

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Paul Ehrenfest, Collected Scientific Papers. Martin J. Klein, Ed. Introduction by H. B. G. Casimir. North-Holland, Amsterdam; Interscience, New York, 1959. 632 pp. \$13.75.

I find it a great pleasure, tinged with nostalgia, to have in front of me the collected papers of my teacher Paul Ehrenfest, professor at Leiden from

1912 till his death in 1933. Together with the collected works of Lorentz, which appeared in a monumental 9-volume edition published before World War II, and the collected scientific papers of Kramers, published in 1956 by the same company and in the same format as the Ehrenfest papers, we now have available at least part of the record of what may be called the Leiden school of theoretical physics, which played such an important role in the development of physics in the first half of this century. Lorentz, Ehrenfest, Kramers—it would be tempting to try to describe and analyze the characteristic "style" of each of this great triad of physicists. They were very different, but they had in common a certain clarity and a deep concern about the fundamental questions of physics. Ehrenfest in particular had a real passion for clarity, which he instilled in all his students, and which is also evident in his papers. As Casimir remarks in his beautiful and sensitive introduction, many of Ehrenfest's papers were devoted to the clarification of a single point; however, this point always was of fundamental interest. As a result, many of Ehrenfest's contributions have been so well digested and, hence, forgotten by the physics community, that, although I thought I knew Ehrenfest's work very well, there still were several surprises.

This is not the place to review in detail the various papers. Let me only mention that the book contains Ehrenfest's dissertation (written in 1904 under Boltzmann) reproduced from the only existing handwritten copy (now in the Vienna University library), and the famous *Enzyklopädie* article on statistical mechanics (written in 1911 jointly with Mrs. Ehrenfest), which is still indispensable for any serious student of this discipline, and which has been recently translated and published by the Cornell University Press.

The editor, Martin Klein, and the publishers have done a remarkable job and have produced a book, which (again quoting Casimir) "we, Ehrenfest's pupils, shall value as a work of reference, as a historical document and as a worthy tribute to the memory of a great physicist; but reading in it we shall also wistfully remember a great and inspiring teacher who was for us the central figure in a happy era of physics that will not come again."

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Surveyor of the Sea. The life and voyages of Captain George Vancouver. Bern Anderson. University of Washington Press, Seattle, 1960. xii + 274 pp. Illus. \$6.75.

The northwest coast of North America was one of the last major strips of continental coastline to be explored by European seamen. Although reached by Francis Drake as early as 1579 and probed by Spanish navigators in the first decade of the 17th century, this remote part of the world was not placed upon the map with any degree of accuracy and detail until the last quarter of the 18th century. And the men who did more than any others to fill this gap were two English naval captains and explorers, James Cook and George Vancouver.

It seems appropriate, therefore, that the first adequate biography of Captain George Vancouver to be published in this country should have been written by an American naval officer with experience in navigating the waters which Vancouver was the first to chart, and with more than the usual historian's appreciation of the shipboard problems of navigation and coastal exploration. Yet it is the author's fascination for the man, rather than for his deeds, which is largely responsible for the weakness as well as the strength of this book.

Except for his achievements in exploring and charting the continental coastline and waterways of the northwest coast during three summer seasons—1792, 1793, and 1794—there would be little, if any, reason for a biography of George Vancouver. That in doing this Vancouver and his men carried out the greatest combined ship and boat coastal survey in the history of exploration, that his expedition pioneered in the discovery of Puget Sound and the Inside Passage to Alaska, and that Vancouver himself is responsible for more coastal place names on the map of North America than is any other single explorer would seem to justify major emphasis upon these achievements in any life of Vancouver. But only about one third of this biography is devoted to "The Great Survey."

For those who want to know what a midshipman's life was like in the English navy during the 1770's, or a lieutenant's in Caribbean service during the 1780's, or how Vancouver got along with the Spanish officials in California and the rulers of Hawaii during his side visits to these localities, the *Surveyor of the Sea* is well worth reading.

But those who want to place the truly significant work of Vancouver in its historical setting in the development of the cartography of the northwest coast of North America will find the book somewhat disappointing. It is apparent that the author has not given the same critical attention to the cartographic sources pertinent to his subject that he has to the journals, letters, and other text materials. Three of the five maps provided show detailed routes of the survey ships along the northwest coast. The crude delineation of coastal features, however, hardly justifies the description "Adapted from Vancouver's Charts."

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Medicine and Society in America 1660-1860. Richard Harrison Shryock. New York University Press, New York, 1960. viii + 182 pp. \$4.

First prepared as the Anson G. Phelps lectures on early American history and delivered at New York University in 1959, this volume presents in concise form a synthesis of the author's views on the development of medicine in America up to about 1860.

In three chapters covering the period 1660-1820 and one covering 1820-60, Shryock lucidly describes medical thought and practice, the composition of the profession, as well as its education, regulation, research (or lack of it), institutions, organizations, and publications. He discusses health conditions among the general population and the efforts made to improve these conditions by public and private measures. These topics, developed historically, are carefully related to each other, to the general background of American society, and to their European origins or counterparts.

Clearly, the best that Americans could offer in original medical thought and research or in medical institutions still fell far behind the best that Europe could offer in 1860. The history of the profession does show, however, constant efforts to improve education, practice, and standards, and it is not so clear that in 1860 the average American practitioner was inferior to the average European. As Shryock points out, the chief difference was that the second-class practitioner in Europe was so labeled. The self-criticism and disillusionment prevalent among American

medical leaders by 1850 may be traced, in part, to the very real problems they faced: weak proprietary schools, the absence of research, widespread quackery, medical sectarianism, and the ineffectiveness, increasingly recognized, of traditional medical practices. But their complaints also indicate progress; they show how much higher medical leaders had raised their sights.

This book offers, in compact form, a sound and readable synthesis of many aspects of American medical history, which is based on the author's years of brilliant and productive research in the field. Perhaps the least satisfactory part is the general picture of diseases and health conditions in the colonial era: the data are scarce and difficult to interpret in modern terms; intensive study is still needed in this area. To date, however, this book is the best brief, interpretive account of American medicine up to 1860, of interest and value to historians and physicians alike.

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Economics and Social Sciences

Communist China and Asia: Challenge to American Policy. A Doak Barnett. Published for the Council on Foreign Relations by Harper, New York, 1960. xi + 575 pp. \$6.75.

Granted that there has been all too little public debate of United States policy toward China since the scapegoat-hunting, "Who lost China?" days, what there has been of it has unfortunately centered on the merely tactical question of diplomatic recognition. The great virtue of Barnett's book is that it places the challenge presented by Communist China to America within the critical context of the political and economic future of Asia as a whole, and it does so with a wealth of documented facts that form the basis for some tough-minded conclusions.

Communist China and Asia is concerned primarily with the political, economic, and cultural means by which Communist China is seeking to influence the future of the noncommunist countries of Asia. Barnett begins his examination of the challenge of Peking's multiform foreign policy with an appraisal of the stability of the Chinese Communist regime at home

and with an examination of its motivation and strategic aims. He then turns to an analysis of Peking's ways and means in its relations with Asia, the history of these relations since 1949, and an appraisal of the significance of the Sino-Soviet alliance. The concluding chapters take up the question of Taiwan and then offer the most sensible discussion of United States policy toward Communist China that I have yet seen.

These are the important conclusions that emerge from Barnett's judicious sifting of the information available to us:

1) The Chinese Communist regime exercises effective, totalitarian control over the mainland of China. There is little, if any, prospect either for the overthrow of the regime by an internal revolt or for the reconquest of the mainland by Chiang Kai-shek.

2) Despite serious problems in the agricultural sector, China's economic advances in the past decade have been impressive. Its "rate of economic growth now appears to be almost double that of India, and in a few years Peking will probably have built a base of heavy industries overshadowing that of Japan." Both as a carrot (suggesting a model for forced industrialization elsewhere) and as a stick (because it has made Communist China's military strength greater, perhaps, than that of all other countries in East Asia combined), Peking's growing economic potential has rapidly increased its power and influence relative to those of its neighbors.

3) In the years ahead Communist China will employ its firm rule at home and its economic and military strength in an effort to achieve Great Power status and to promote the spread of communism in Asia. To attain these ends, "Peking has already used, and will continue using, all the instruments of foreign policy at its command, including diplomacy, political maneuver, subversion, trade, and economic aid, as well as military power." Moreover, Peking can count on the firm backing of the Soviet Union. "There is little chance of an open split between them within the next few years, and the Sino-Soviet alliance undoubtedly will hold together for the predictable future."

4) Chinese Communist success in dominating Asia would mean a disastrous shift in the world balance of power in favor of the Communist bloc. To prevent this outcome, adequate mili-