so useful clinically in aiding the understanding of human disease. The current status of the common cold viruses is summarized by D. A. J. Tyrrell. Janet Vaughan reviews, in considerable detail, bone disease induced by radiation and emphasizes the effects of internal radiation produced by bone-seeking radioactive elements. Cellular interactions in experimental histogenesis are considered thoughtfully by A. A. Moscona.

The topics covered in this volume clearly indicate the editors have wisely decided that experimental pathology indeed has wide limits. If subsequent volumes in the series continue in this concept, most life scientists will find the *International Review of Experimental Pathology* interesting and useful.

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Plasma Physics

Physics of Fully Ionized Gases. Lyman Spitzer, Jr. Interscience (Wiley), New York, 1962. xii + 170 pp. Illus. $4.75.

Spitzer's monograph was first published in 1956, and has become the most widely quoted reference in the field of plasma physics. Its popularity can probably be ascribed to the fact that the book was not only the first concise introduction to the field but also a convenient summary of the most important theoretical results available at that time. The last 6 years have seen an enormous increase in plasma research and, particularly since the controlled fusion effort both in this country and abroad was declassified, a vast amount of new material has been published. The growth of the subject and the advances in understanding are both reflected in this edition, which is 60 percent longer than the first edition.

The style again excels in economy of presentation, and some readers may find the derivations or explanations too sketchy. However, all important statements are adequately documented with reference to the pertinent literature so that the treatise still fulfills its primary purpose: a brief résumé of the field and a guide to further study for those who wish to delve more deeply.

The general arrangement of the material has not been greatly changed, and the monograph is still divided into five chapters. The first and the last chapters deal with single particle motion and with encounters between charged particles, respectively. Discussion of a few new topics—for example, synchrotron radiation and the most important theoretical improvements reported in the very recent literature—have expanded these chapters only slightly. The second chapter, in which the basic macroscopic features of plasmas are developed, combines, without much change, practically all of the subject matter that was distributed among the second and third chapters of the first edition. The discussion of the stress tensor has been improved, however, and a little more detail is given on the problem of diffusion across magnetic fields.

Major additions have been made to the treatment of waves (chapter 3 in this edition). In fact, the section represents an admirable summary of this very complex topic from a macroscopic point of view. It includes such nice features as "Allis diagrams" and a number of dispersion curves. Even phenomena like Landau damping and two-stream instabilities, which depend on velocity distributions rather than on macroscopic quantities, are briefly discussed in fairly simple terms. Finally, the problem of hydromagnetic equilibria and their stability has been added as an entirely new subject (in chapter 4). The treatment is again very brief, of course, and perhaps not altogether satisfying. But the principal methods of attack are at least indicated, and a few important examples are worked out.

It is probable that this second edition will retain for the monograph its place as the most popular publication in the field for many years to come.

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Epidemics and God's Justice

The Cholera Years. Chales E. Rosenberg. University of Chicago Press, Chicago, Ill., 1962 x + 257 pp. $5.95.

Charles Rosenberg, an assistant professor in the Departments of History and the History of Science at the University of Wisconsin, uses the story of three great cholera epidemics—1832, 1849, and 1866—as a means of exploring the development of medicine and its growing role in American society during the 19th century. To many Americans of that day, the epidemic of 1832 came as divine punishment, especially designed "to drain off the filth and scum which contaminate and defile human society." Physicians blamed a complex of predisposing and exciting causes, but intemperance, filthy habits, and other sins were cited as the most frequent cause of the disease. Medicine reinforced morals, strengthened the view that poverty was a sin, and gave comfort to the righteous. Public health efforts were largely confined to ineffectual quarantine, advice on personal habits, and emergency hospitals for the dying.

In 1849 Americans tended more to blame man rather than God, as the growing prestige of natural science challenged religious orthodoxy. But no effective means of control had been devised, and attempts to clean the nation's cities proved futile. Cholera still had a special affinity for the poor and depraved—terms that many considered nearly synonymous; the extreme suffering among recent Irish immigrants was seen as the natural result of their character, habits, and addiction to Roman Catholicism.

By 1866, medicine, primarily in the person of John Snow, had discovered that cholera was spread by the evacuations of the sick, and disinfection emerged as a rational preventive. A new board of health in New York City, a landmark in the history of public health, applied this theory and, with unprecedented energy, set about cleaning the city. The epidemic—whether for this reason or not—visited New York far more lightly than in the past; for the first time, public health efforts seemed effective, and cholera was now punishment for neglecting sanitary law. As the century progressed, cholera became a moral, not a social, problem.

In a way that is all too rarely done, Rosenberg has skillfully interwoven medical, social, and intellectual history to show how medicine and society interacted and changed during the 19th century. The history of medicine here takes its rightful place in the tapestry of human history.

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