Book Reviews

Atlas of Exfoliative Cytology. George N. Papanicolaou. Harvard Univ. Press, Cambridge, Mass., 1954 (for the Commonwealth Fund). 9 chapters + bibliography + index. Plates. $18.

Papanicolaou's atlas, dealing primarily with cancer diagnosis in exfoliated cells, is an outgrowth of his pioneer studies on the reproductive physiology of mammals by means of his well-known vaginal-smear technique. As a result of many years of arduous study, it has been possible to determine the presence of malignancy in certain body organs by examination of their exfoliated cells. However, much of this information is to be found only in isolated publications. Accordingly, Papanicolaou realized the urgent need for an atlas that would bring together in both a descriptive and a pictorial manner all the pertinent information relative to the subject of exfoliative cytology, particularly as it relates to the study of cancer.

The text is relatively brief. It is clearly and concisely written and seems to include the essential available descriptive morphologic information for the identity of both normal and malignant cells. Frequent reference is made to the meticulously executed color plates of both normal and pathologic cells, which were made under the supervision of the author. Of the 36 plates, 24 are drawings and 12 are photomicrographs.

In addition to chapters on the collection and staining of exfoliated cells in smears and washings and on the diagnostic characteristics of both normal and malignant cells, the work includes chapters and plates on the following: female genital system, urinary and male genital systems, respiratory system, digestive system, pleural and peritoneal exudates, and the breast. Other miscellaneous plates are of histiocytic cells, cells related to pregnancy, cells affected by radiation, and multinucleated cells and mitotic figures of both normal and malignant cells. In addition to the references made to the plates, the author has provided descriptive information in the form of legends as well as a page or more of discussion directly related to the specific cells illustrated.

The manual's durably bound seven-ring loose-leaf format is attractive if rather bulky. In adopting this form of binding, Papanicolaou hopes that the atlas may be kept up-to-date by the addition of new material as it becomes available. No one knows better than he that, at present, our knowledge of exfoliative cytology is limited, but he nurtures the hope that someday this new branch of cytology may emerge as an independent morphologic science.

It seems appropriate to mention here that in a recent symposium on the "Value of exfoliative cytology in the diagnosis of cancer," and in various other papers by experts in this field [*Am. J. Clin. Pathol.* 24 No. 6 (1954)], credit has been given to Papanicolaou as the leader in the development of this area of study. It was further stated that exfoliative cytology has proved a valuable routine screening technique for the diagnosis of certain types of cancer. In addition, the need for more trained pathologists and technicians in this field was emphasized. Accordingly, no more significant or opportune contribution could have been made to this subject than this atlas, which will serve as an essential guide, not only for the training of students, but also for the diagnostician and researcher as well.

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Physical Meteorology. John C. Johnson. Technology Press, M.I.T., Cambridge; Wiley, New York; Chapman & Hall, London, 1954. xii + 393 pp. Illus. $7.50.

In recent years meteorologists have realized that substantial progress in solving problems of synoptic weather analysis must come from further knowledge of the fundamental physics of the atmosphere. Research in government and university laboratories has emphasized this approach, and from such endeavors useful results have been and are forthcoming. This book assembles in brief readable form a summary of much of our present knowledge of the physics of the atmosphere.

Beginning with refraction of electromagnetic energy through the atmosphere, the first chapter discusses terrestrial and astronomical refraction, mirages, and radio ducts. This is followed by a discussion of scattering phenomena, polarization, visibility determinations, and visual range. Chapters 4 and 5 cover radiation processes of the atmosphere. The fundamentals and measurement of solar radiation, long-wave radiation, radiation transfer in the atmosphere, heat budget of the earth, eddy diffusion of heat, and heat transfer in the soil are included. The use of atmospheric radiation charts, and the Elsasser chart in particular, are described in detail. A working copy of the Elsasser chart is folded into a pocket inside the back cover. Chapter 6 describes the theory of major optical phenomena in the atmosphere. This chapter might better have followed the material on scattering and visibility.

The chapters on the physics of cloud and precipitation formation present the classical theories, the limitations thereof, and the recent contributions of Houghton and Bowen. The section on cloud-seeding is brief and to the point, discussing only the mechanisms that have been investigated. Recent advances in radar meteorology for study of atmospheric moisture content and distribution are included. The fundamentals of the earth's electric field, thunderstorm electricity, lightning, and sferics are described in Chapter 9. The concluding chapters cover the ionosphere, ozonosphere, and physical properties of the upper atmosphere. Based on recent upper air research, the author has incorporated methods of measurement and data