crinologists, and physicians interested in problems related to salt and water balances. Nonmammalian vertebrates, and particularly the amphibians, have provided materials for many investigations fundamental to our present understanding of renal functions, ion transport, and membrane actions of adrenocortical and neurohypophyseal hormones. We can predict that as osmoregulatory physiology and endocrinology become better understood further information derived from nonmammalian vertebrates will contribute substantially toward our fundamental understanding of osmoregulatory mechanisms in man and other mammals.

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Technology of Holography

Optical Holography. ROBERT J. COLLIER, CHRISTOPH B. BURCKHARDT, and LAWRENCE H. LIN. Academic Press, New York, 1971. xviii, 606 pp., illus. $22.

A subject can be said to have come of age when a significant book about it appears on the market that is readable and usable by people not as expert in the subject as the authors. On that premise, holography has finally reached that estate. (It took 24 years rather than the statutory 21.) *Optical Holography* is a first-rate technical book that the authors and publishers can take pride in—pride that cannot often be honestly felt these days. The authors set the level and the tone of the book in their preface: "Our book is addressed to those who will learn for themselves whether holographic techniques can solve technical problems. Our intention is to provide a ground from which innovation can spring. The reader need have no more than an undergraduate training in science and engineering. An elementary introduction to optics, an acceptance of Maxwell's equations, and a sometime acquaintance with the Fourier transform should suffice."

The fundamentals are reviewed briefly, as is the early history of holography. It is pleasant to see that the significant work of the numerous talented people that came in the era between Gabor and Leith is not ignored and forgotten. That work was extremely important for the future development of holography.

After a short discussion of point source holograms more of the important fundamentals are dealt with in detail—the Fourier transform, propagation and diffraction, and optical systems with spherical lenses. Holography proper starts in chapter 7 with a discussion of light sources and optical techniques followed by an analysis of plane and volume holograms. Separate chapters are devoted to hologram recording materials, pulsed laser holography, and nonlinear recording.

The second half of the book quite correctly is devoted to applications—image forming methods, spatial filters, interferometry, information storage, color holography, computer generated holograms, and so on. All have adequate discussion. Each topic is also very well illustrated with diagrams and photographs.

The authors have taken considerable pains to give credit where credit is due. I am sure that everyone who feels he has made a significant contribution to the subject will find reference to his work. The preface points out, however, that the work is not "a catalog of contributions to holography. We therefore have selected from the substantial amount of literature on holography that which seemed suited to the purpose."

It is hard to find any serious fault with the book—even typographical errors seem few and far between. I do wish, however, that the "coherent transfer function" and the "optical transfer function" had not been plotted on the same graph (figure 6.12, p. 136).

Optical Holography will become a standard work on the subject and from my own biased point of view will be an excellent text on which to base a special topic graduate level course.

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