pology," he writes, "faced with the disappearance of primitive peoples, and having rationalized the concept of primitive out of existence [in deference to underdeveloped nations], will have to create some new trembling vision of itself as a metaphysical grounding for the science it supposes itself to be, that is, if it is to assume a virile part in civilized man's search for himself" (p. 41).

The anthropology exemplified by most of the authors in this collection will continue to contribute to the finding of the answer through culture-historical studies with an evolutionary orientation. Others will pursue peasant societies for the remainder of this century until they, too, have disappeared. Still others will assiduously rework the written record of onetime primitive societies to create a typological analysis of social structures. Physical anthropologists can turn to baboon and ape societies. One certainty endures: so long as man does not extinguish himself, the struggle to develope a viable science of man and cultural phenomena will continue—whether as a "trembling vision" remains to be seen.

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9th Manpower Council Report

Government and Manpower. A statement by the National Manpower Council, with background chapters by the Council Staff. Erwin D. Canham, Chairman. Columbia University Press, New York, 1964. xviii + 470 pp. Illus. $8.50.

According to the 1964 "Manpower Report of the President," about four-fifths of all the job growth in the nonfarm sector of the American economy from 1957 through 1963 was generated by activities and expenditures of the federal, state, and local governments. More directly, one out of every six nonfarm workers is a government employee. Under these circumstances, the design of programs and policies in the Government sector and how they are consummated become matters of urgent concern.

It is not surprising, therefore, that 1964 also saw the beginnings of serious discussion concerning the desirability and the feasibility of a sharing of the federal internal revenue stream by state and local levels of government, and a recommendation by the National Manpower Council in the volume under review that federal, state, and local governments take steps ". . . to enable employees to transfer without loss of employment rights, from one employing unit to another in each level of government and among the three levels of government. . . ."

At the very least, this kind of thinking moves away from the exacerbated federal versus state syndrome to a focus on the interrelatedness of governmental functions at all levels and the need for some viable pathways toward cooperative and coordinated action programs among them.

All this is by way of saying that *Government and Manpower*, the ninth in a worthy line of publications from the National Manpower Council, is timely indeed. The report is well researched, and the Council has stepped out from a well-documented vantage point into the arena of recommendations for action.

There are ten substantive chapters in the book. Five of them deal with the changing size and composition of the governmental labor force itself and with the nature and conditions of its employment, compensation, and utilization. The other five deal with specific subject areas in which government plays a key role—for example, education, science, and the military: for each the evolution of public policy is traced and current problems are highlighted. These latter chapters tend to be summary in nature and may not satisfy the practitioner who knows the particular subject in depth; but they serve the purpose for which they are intended—that is, as a background for policy review.

The Council's recommendations for enhancing the public service through better programs of recruitment, career development, and utilization, and better compensation, are in line with recent federal action in this field. Unfortunately, these problems are receiving minimal attention at most local levels where the need for quality personnel and quality performance is nothing short of overwhelming. In the arena of governmental action, the Council's recommendations are impeccable in calling for additional public investment in education and health, for a better coordinated attack on manpower surpluses and shortages, and for more and better data on these subjects. The specifics of how to do all of this is another matter, but how relevant and up to date these considerations are can be seen in the current and very real problems encountered in implementing the new legislation in the fields of education, retraining, and poverty. For these, a necessary if not sufficient condition for success is a highly motivated corps of professional personnel, from a multiplicity of disciplines, conducting programs predicated almost completely on federal-state-local action in a coordinated, tandem operation.

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Applied Physics

Physics of Semiconductors. John L. Moll. McGraw-Hill, New York, 1964. x + 293 pp. Illus. $11.50.

This excellent book on the physics of semiconductor devices is admirably suited for use as a textbook for a graduate course. A relatively short book, it is pedagogically strong, but owing to its conciseness it must be supplemented. It contains good general preparatory material on crystal structure and quantum mechanics and the usual material on carrier distributions and transport, pn junctions, transistors, and areas of special interest—secondary ionization, tunneling, and surfaces. The topics selected are treated in depth. For instance, in the chapter on the pn junction, the assumptions of the theory are carefully specified, the validity of the approximations analyzed, and nonideal theory treated. The chapter on transistors covers high-frequency design, large signal or switching analysis, and charge control methods. Good use is made of illustrations. Up-to-date material has been selected. The problems at the end of each chapter are of real value.

The advantage of the author's long experience in the field is made evident in the selection of topics to be emphasized, the choice of key references, and the clarity and rigor of presentation.

The book is not intended to be as complete as the title might imply. For example, optical properties are not discussed, and there are only a few

words on metal-semiconductor rectifiers.

Compared to other books in the field, *Physics of Semiconductors* is more current and authoritative, and more oriented to devices, in its selection of topics and emphasis, although it is less comprehensive than R. A. Smith's *Semiconductors*. In the field of devices, it is less complete than, for example, L. B. Valdes' *The Physical Theory of Transistors*, but with respect to the areas treated it is generally more thorough than Valdes.

The author has succeeded in his "intention not to be all-inclusive but to present the concepts and related theories . . . in such form as to encourage further investigation."

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Anatomy of Fishes

Handbuch der Binnenfischerei Mitteleuropas. H. H. Wunsch, Ed. vol. 2A, *Anatomie der Fische*. Wilhelm Harder. Schweizerbart'sche, Berlin, 1964. Text volume, xiv + 308 pp.; plates, vi + 115 pp. Illus. Paper, DM. 94; cloth, DM. 103.

In *Anatomie der Fische*, the latest volume of this series which is under the general editorship of H. H. Wunsch, Wilhelm Harder attempts to assemble and present the great mass of scattered information on the morphology and anatomy of fishes in an organized fashion. As the author notes, despite the series for which it was intended, the text is not limited to an antomy of European freshwater fishes but includes data on and covers the literature of fishes as a group.

This general anatomy of fishes, which is the first published in German since the middle 1800's, attempts to treat body structure according to classical systems (skeleton, musculature, respiration, and the like). The method of treating anatomical nomenclature is useful in that several of the most commonly used synonyms are indicated. However, the material included in the various sections differs markedly and does not always reflect the data available.

The author in his preface goes to some length to explain the breadth and depth of the literature examined and employed in the text. Therefore, in spite of the extensive bibliography, the variation in text and reference material afforded the different sections is somewhat surprising. For example, discussion of the endocrine system contains no reference to the extensive work of Pickford and Atz. Although physiology is a special topic of another volume in the series (vol. 2B), some reference to this subject is, of course, necessary in a text that treats anatomical aspects. But it is surprising that Margaret Brown's two-volume work on the physiology of fishes is not cited among the many texts that are noted. Nor is Harrington's fundamental and widely accepted paper on the osteology of fishes mentioned. Nevertheless, the book and its accompanying volume of figures provide an excellent summary of fish anatomy and of the widely scattered pertinent literature. A minor criticism is that the zoological nomenclature, in spite of the author's statement to the contrary, is not wholly modern, and the subfamily designations (which apparently follow Berg) are in contradiction to the International Rules of Zoological Nomenclature.

The book is very clearly written and should not be difficult for the student who has only a minimum knowledge of scientific German.

Additional useful features of the volume are a separate glossary of syncranial bones, the 17-page bibliography previously noted, and an index prepared with Teutonic thoroughness (24 pages). The accompanying volume of figures and plates is composed largely of reproductions from other sources, but again it is useful to have illustrations of a wide variety of structures available in a single volume. The plate illustrating the bones of the syncranium is particularly noteworthy in that the various bone series (circumorbital, opercular, and suspensorium) are printed as overlays to be used in conjunction with the base figure of the neurocranium.

A handbook that attempts to cover as much ground as Harder has attempted to cover here is bound to be criticised, for each specialist would enjoy an expansion of a particular interest. Nevertheless, *Anatomie der Fische* is an excellent and a clearly written summary of available data on the subject. A possible inhibition to its extensive use will be its excessive cost.

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Pictorial Geology for Laymen

The Earth Beneath Us. Kirtley F. Mather. Random House, New York, 1964. 320 pp. Illus. $15.

During a period of 30 years a large number of students at Harvard University took advantage of the opportunity to sit in Kirtley Mather's lectures and become infused with his enthusiasm for geology and the natural world. But this was not as large an audience as Mather deserved. Now, at long last, that audience will be greatly expanded by the fulfillment of his "long-nurtured ambition to produce a pictorial geology for the layman." That is exactly what he has done.

The Earth Beneath Us, the story of the development of the landscape on the parts of the world we can see, should be as interesting and informative to the person who has had a course in general geology as it will be to the one who wants to become informed about this field of science. In every chapter Mather's excellence as a teacher comes through loud and clear to convince the reader that the earth is a dynamic, living planet.

Recent college texts in general geology are characterized by excellent photographic illustrations—the late William C. Putnam's *Geology* comes first to mind—and, among books for the layman, John Shimer's *This Sculptured Earth* holds high rank. But one need leaf through only a few pages of *The Earth Beneath Us* to see that this book about the earth stands at the top as far as excellence of illustrations is concerned. There are 240 photographic illustrations, 116 of them in color, and most are full- or half-page (page size is 8½ by 11 inches). Infinite care has gone into the selection of the photographs, and many of them are superb, not only because of composition embodying the highest pictorial and esthetic qualities but also for the clarity and vividness with which they depict geologic features and the operation of the processes that create these features. Among the contributing photographers are such names as Joseph Muench, Andreas Feiniger, Emil Schultess, Robert Clemenz, and others of like caliber. Chanticleer Press is to be commended for the splendid handling of the color engravings.

Fully half the book consists of photographic illustrations. The colored plates are numbered and are referred to in the text. Unfortunately