doscopic. Government is an evolving process of power relationships in tension. Every day the sciences are becoming more absorbed in the governmental process and scientists are participants in it. In another series of congressional interviews conducted five years from now, Clapp undoubtedly would obtain significantly different results, including more evidence of that new involvement with science in the congressman's job.

Today not a single member of Congress is a scientist. Inevitably there will be scientists in Congress. But even those who never expect to run for public office and that rare one whose work is not already subsidized (directly or indirectly) by the government, they too, as citizens and taxpayers, have a vital interest in the congressional process. Clapp's report is must reading for anyone who would try to understand that complicated mystery—a mystery that is of increasingly crucial concern for scientists.

Conservation

The Quiet Crisis. Stewart L. Udall. Holt, Rinehart, and Winston, New York, 1963. 209 pp. Illus. $5.

Although to many of us it is fairly apparent that the United States is approaching a point at which our stewardship of the land and its uses needs realistic reassessment, far too many citizens do not think about the question one way or the other. And there are those who, inspired by the progressive optimism of the 19th and the early 20th centuries, hopefully expect that the efforts of others, particularly the representatives of urban communities, will pull all of us out of our mounting difficulties into an era of natural resource prosperity that transcends anything we have known in the past. Stewart Udall's brief, sharply focused exposition of what is right and what is wrong with present trends in conservation policies should be read by the members of both groups. In the foreword Udall says that his book "is an attempt to outline the land-and-people story of our continent," and that it is "dedicated to the proposition that men must grasp completely the relationship between human stewardship and the fullness of the American earth." He treats both objectives superbly: this is an excellently outlined book; one that is clearly, coherently, and artistically written.

Udall's position together with his previous personal experience in various areas of natural-resource management lend particular emphasis, in point of public policy, to his thesis, and his statements have given heart to and gained additional respect from the growing army of informed conservationists. He points out that "America today stands poised on a pinnacle of wealth and power, yet we live in a land of vanishing beauty, of increasing ugliness, of shrinking open space, and of an over-all environment that is diminished daily by pollution and noise and blight. This, in brief, is the quiet conservation crisis of the 1960's."

Udall's approach is purposefully historical. His account of the long relationship between man and the land in this country starts with a consideration of early Indian ideas and continues through an appraisal of Jeffersonian policies, an exposition of the attitudes of the early scouts, explorers, and naturalists from John Bartram to Thoreau, a critical discussion of the early miners, lumbermen, ranchers, and farmers, a complimentary digest of the contributions made by George Perkins Marsh, Carl Schurz, and John Wesley Powell, and a balanced account of the conservation careers of Gifford Pinchot, John Muir, and S. T. Mather. The political side of conservation is treated with tribute to the accomplishments of Theodore and Franklin Roosevelt; modern developments are discussed with reference to the work of F. L. Olmstead, the contributions made by the National Wildlife Federation and other top-notch conservation organizations, and the current investigations into problems of urban development. This history is sound, eloquent, vigorous, and excellently written.

In the final chapter Udall discusses "conservation and the future," and he concludes with the premise that a proper ecological relationship can exist between man and his environment no matter how complicated civilization becomes. From the dictum "city planning should put people first," he deals with the costs and problems created by human and industrial wastes, air and water and land pollution, and the erosion and misuse of our natural assets in general. But, unfortunately, equally emphatic consideration is not given to various current conservation issues concerned with both fish and wildlife problems.

The book is well illustrated, both in color and in black and white. The format is pleasing and the price reasonable. *The Quiet Crisis* should be required reading for all conservationists.

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Neuroanatomy

Textbook of Neuroanatomy. H. Chandler Elliott. Lippincott, Philadelphia, 1963. xviii + 542 pp. Illus. $11.

This book covers essentially the same topics as its predecessor, *Textbook of the Nervous System* (Lippincott, ed. 2, 1954), but with changes in chapter headings and rearrangement of the sequence of topics. The first of the six subdivisions of the text deals with neurohistology and includes a chapter on conduction. Subsequent parts consider segmental structures, sensory systems, motor systems, cerebral hemispheres, and accessory systems and structures. This sequence seems a perfectly useful one, but at times the results are awkward—the hypothalamus, which is considered with the autonomic system, is included in the section on accessory systems.

As in the earlier book, the text is frequently illustrated by a diagrammatic, three-dimensional, "basic brain," upon which nuclei and fiber tracts are superimposed when appropriate, and which can be "exploded" when cross-sectional views are required. This very useful lecture device gives the student a simple model to visualize as he concentrates on local detail, but it is not invariably effective in the absence of the lecturer's explanation of relationships (for example, Fig. 13–10, optic radiation).

The atlas of 50 plates, most of which are photographs of brain sections (each accompanied by a labeled key), is unchanged. Although preference in the method of illustration is highly individual, perhaps a case may be made here for the use of laboratory material that will provide the ultimate in realism, supplemented by an atlas of clear, accurate, and well-labeled artist's drawings for the student's guidance.

The new material includes a few electron micrographs (some of remarkably poor quality) and drawings that illustrate features of ultrastructure. Some questionable concepts are pre-

sented in the latter (for example, the pores in the cell membrane in Fig. 2–7). The treatment of general sensory endings has been expanded to a full chapter, with many new photographs. None of these figures deals with the fine structure of receptors.

Limited space precludes a detailed review of this book. The author is to be commended for his attempt to reach the student in many ways, but particularly for his use of straightforward terminology in dealing with the cranial nuclear columns (somatic, branchial, visceral motor; somatic and visceral sensory) and for his interesting explanations of the meaning and derivation of the colorful but cumbersome words of neuroanatomy.

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Applied Botany

Vistas in Botany. vol. 2, *Applied Botany*. W. B. Turrill, Ed. Pergamon, London; Macmillan, New York, 1963. xiv + 380 pp. Illus. $15.

As Turrill points out, the articles in this volume do not cover all aspects of applied botany. There is, however, a wide range of subjects, including fruit, cereals, and grasses, with vistas in the plant disciplines of taxonomy, anatomy, pathology, and ecology. In all, the volume contains ten chapters written by different authors, and its diversity is illustrated by the opening chapter on botanical aspects of wood science and the closing one on uses of seaweeds.

The chapter on wood science is a succinct, accurate, and ably written digest of current studies in the field of wood anatomy. The author does not purport to cover the entire field, but he provides an excellent review of his specialized topic.

G. H. M. Lawrence's well-written essay on the taxonomy of cultivated plants contains an implicit plea that applied scientists recognize the need with respect to the nomenclature of plants and cultivars and begin recording their work not just in tables and graphs, but also in properly documented dried plant specimens or vouchers which provide more accurate and detailed information than the best written records.

In considering recent grassland research, the author briefly reviews the research without discussing many aspects of plant breeding in this broad field. Some phases of the nutritional problems of grassland are covered, including digestibility trials as a major nutritive value factor. On the whole, the subject is well treated, and the author's clear, concise style makes interesting and informative reading on grassland agriculture.

Recent research on fruit crops is discussed in two essays—"Some aspects of commercial fruit growing in Great Britain" and "Pests and diseases of fruits and their control." The first deals broadly with production of new varieties, cultural practices, propagation, and storage. The second is concerned with a brief description of the principal insect pests and diseases of fruits, and with their control.

The chapter on cereal breeding deals extensively with improvement in wheat, oats, and barley. In general, it is an excellent chapter which covers the most important points as circumscribed by well-proven chemical methods and techniques. There are notable omissions—for example, neither the importance of maintaining gene sources nor the value and use of male sterile genes for building large crosses and for maintaining back populations in a "crossable" state are discussed. No attempt was made to discuss the implications of more recent breakthroughs in genetics. Some techniques, such as those used in the United States, are not included. In general the examples are mainly tied to what has happened in Great Britain. But it would be difficult to review the world literature on cereal grains in one chapter.

There is an interesting treatment of the origins of horticultural plants. Gene mutations, the role of polyploidy, and cytological analysis are discussed in relation to horticultural crops. It is pointed out that the use of these tools in determining the origins of horticultural plants may be at odds with more classical interpretations.

A full discussion of economic plant products would probably require an entire book. The material selected for consideration here was obviously based on the recent literature, but more emphasis could have been placed on the fact that we have only begun to inventory the world's plant resources.

In the chapter on some aspects of applied plant ecology, the late W. B. Turrill, the editor of the volume, presents a concise summary of economic ecology, which is documented with specific examples.

The final chapter, a very interesting, well-illustrated one, gives a good historical account of the various species of algae, their geographical distribution, their use as human food and in commercial products, and their value in medicine.

In general, the editor's objective—that of providing a broader vista of applied botany for teachers and students—has been accomplished. Since the volume contains a number of articles on widely different aspects of botany, I have consulted specialists in the Crops Research Division (U.S. Department of Agriculture) and have incorporated their comments in this review.

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Uralic and Altaic Series

Peoples of Central Asia. Lawrence Krader. Indiana University Press, Bloomington; Mouton, The Hague, Netherlands, 1963. xiv + 319 pp.

This general survey of the geography, ecology, history, and ethnography of Central Asia is clearly the result of long and diligent labor. It can only be welcomed as a major contribution to the English-language literature on these subjects. An immense mass of material has been digested and presented in, on the whole, clear and excellently organized form.

Many of the specific issues of fact and interpretation raised by Krader are beyond my competence. Where this is not the case, we disagree only on relatively minor matters of emphasis or phrasing—for example, in the section on Central Asian shamanism (p. 130), where the concept itself seems rather too broadly defined.

The only serious criticism that might be made of this book relates to a possible conflict between the synchronic and diachronic methods. Krader defines his purpose as primarily that of describing "the indigenous peoples of the area and their traditional culture," and secondarily, that of describing "the changes brought about during the period of Tsarist and Soviet rule" (p. v). In view of this dual intention, it is not always clear to which period or set of circum-