at about 400 km and increasing by about 50 percent at the highest point, 700 km. As is now well known, the increase is produced not by cosmic rays but by particles of lower energy trapped in the earth's magnetic field. However, the Russians were limited to data obtained by telemetering over the Asian continent and did not receive results from the apogee of the satellite. In contrast, data sent back by our Explorer I satellite were obtained at an altitude high enough to make the increase quite clear-cut, and thus the presence of something different from the normal cosmic radiation was definitely indicated. In volume 2, based on results obtained with Sputnik III, both Krassovsky and Vernov show that they are aware of trapped radiation.

Other papers deal with the determination of upper atmosphere densities, satellite orbits, radio and optical observations of satellites, and the interaction of satellites with the ionosphere. Of particular interest are the ionospheric studies, reported by Krassovsky, indicating the very high electron densities in the upper region of the ionosphere which had not been previously accessible to direct measurements. The Soviet measurements on the electric charge of satellites are still unique and have not been repeated elsewhere.

After this successful beginning, one may look forward with anticipation to the translation of further volumes as they appear.

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Lewis Henry Morgan, American Scholar. Carl Resek. University of Chicago Press, Chicago, Ill., 1960. xi + 184 pp. Illus. $4.50.

This is a timely biography. Evolutionism in anthropology is being rehabilitated, and with this major reversal in perspective, it becomes necessary to rewrite the intellectual history of the discipline. In earlier decades of this century Morgan, along with the other 19th-century evolutionist pioneers, was first stoned outright by Western scholars and then buried under an avalanche of indifference. But now his books are being reissued, his journals are being edited, and publishers apparently find that he "sells." Resek makes the point that the waxing and waning of Morgan's influence may well reflect turns in American thought and life. Compared with Bernhard Stern's 1931 biography (*Lewis Henry Morgan, Social Evolutionist*), Resek's more sympathetic treatment is good documentation for this point.

Morgan, in the words of a contemporary, charted "a new continent of scholarship." In *The League of the Iroquois* (1851) he produced anthropology's first work in scientific ethnography. He entered comparative ethnology through a systematic study of kinship in the belief that he could demonstrate thereby the Asiatic origin of the American Indian. He emerged from this study, in his famous *Ancient Society* (1877), with a grand theory of the evolution of culture based on the evolution of technology, a theory that linked the development of the state to the development of private property. As a man and a scholar—as Resek says and then richly describes in fine style—Morgan cannot be easily categorized. Besides being an anthropologist, he was a lawyer, a politician, an entrepreneur, president of the American Association for the Advancement of Science, defender of the Indian, a true believer in the American Republic, and the author of a definitive treatise on the American beaver. It was left to history to display, in a huge paradox, Morgan's kaleidoscopic variety: after Marx and Engels discovered his writing, this upstate New York, Republican bourgeois was posthumously elevated to the status of a socialist prophet.

Yet Resek does not in any way convey the view that Morgan was an inconsistent, erratic thinker. One of the values of this book is that it is an antidote to Stern's volume. In Stern's hands, Morgan, caught in a crossfire of Marxism and Boasian antievolutionism, suffers the worst of both worlds and emerges as a virtual class enemy, as well as a "not erudite," unoriginal thinker with a few good ideas and more bad ones. Resek, an intellectual historian, does not consider Morgan's anthropological ideas as fully as Stern did, although Resek's discussion of classificatory kinship terminology, which Stern misunderstood, indicates that this might have been profitable. But Resek, in telling how Morgan's ideas developed, is much more convincing than Stern. And, in describing Morgan's development, he corrects Stern's assertions about Morgan's religious fundamentalism, the relation of Morgan's ideas to Darwinism, his attitude toward democracy, property, and American expansion, his originality as an intellect, and a number of other matters, large and small, ranging down to the adequacy of his library. Resek considers it the task of the intellectual historian to "uncover the assumptions that men live by in another time and place and that they modify or exchange for others as experience demands . . ." I think he has done this well for Morgan. He seems to give truth to a prophecy written by Francis Parkman in a letter to Morgan: "The more advanced we become in intellectual progress, the more your labors will be appreciated."

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Advances in Organic Chemistry. Methods and Results. vol. 1. Ralph A. Raphael, Edward C. Taylor, and Hans Wynberg, Eds. Interscience, New York, 1960. x + 387 pp. Illus. $12.

This volume contains six chapters: (i) "The Kolbe electrolytic synthesis," B. C. L. Weedon (34 pages); (ii) "Polyphosphoric acid as a reagent in organic chemistry," F. Uhlig and H. R. Snyder (47 pages); (iii) "The Wittig reaction," S. Trippett (20 pages); (iv) "Hydroxylation methods," F. D. Gunstone (45 pages); (v) "The selective degradation of proteins," E. O. P. Thompson (90 pages); and (vi) "Optical rotatory dispersion and the study of organic structures," W. Klyne (110 pages). An author index (26 pages) and a general subject index (13 pages) are provided. Each chapter is well written, by an authority on the subject, and each is an adequate, up-to-date account of the practical aspects of the topic, together with relevant theory, helpful experimental details, and results obtained. The book is well bound, beautifully printed and illustrated, and (considering the wealth of information it contains) woefully underpriced.

Despite these merits, some doubt might be entertained concerning any real need for this volume (and, by extension, the projected series), since four of the topics covered have been the subjects of excellent theoretical reviews within the past two years [Chapter 2, *Chemical Reviews* **58**, 321 (1958); 3, *Angewandte Chemie* **71**, 260 (1959); 5, *Progress in Organic Chemistry*, vol.

4 (Academic Press, New York, 1958); and 6, C. Djerassi, *Optical Rotatory Dispersion: Applications to Organic Chemistry* (McGraw-Hill, New York, 1960)]. Nevertheless, because of its practical approach, the book does fill a need, particularly for research chemists. Perhaps, to be sure of securing a permanent niche for this series, the editors should, in the future, defer treating any topic recently reviewed elsewhere from a similar point of view, unless the new chapter is far superior to its predecessor or records special progress in the field.

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Plant Physiology. A treatise. vol. 2, *Plants in Relation to Water and Solutes*. F. C. Steward, Ed. Academic Press, New York, 1959. xvii + 758 pp. Illus. $22.

Progress in plant physiology is well documented by an annual review, a number of recent textbooks, several treatments of plant biochemistry, and a multivolume *Handbook*. The appearance of another projected, six-volume treatise marks the zeal of F. C. Steward, the editor, and invites comparison.

The time has surely passed for the exhaustive treatment of a subject by one man. But one man can try to inspire a small group to accomplish a unified treatment and, by exercising adequate diligence as an editor, hope to impart the scholarship that the subject merits. This first volume, volume 2 of the series, indicates that these hopes are realized.

The headings and authors of the seven chapters on the functioning of water in plants are: (i) "Cell membranes, their resistance to penetration and their capacity for transport," by R. Collander; (ii) "Water relations of cells," by T. A. Bennett-Clark; (iii) "The water relations to stomatal cells and the mechanisms of stomatal movement," by O. V. S. Heath; (iv) "Plants in relation to inorganic salts," by F. C. Steward and J. F. Sutcliffe; (v) "Translocation of organic solutes," by C. A. Swanson; (vi) "Translocation of inorganic solutes," by O. Biddulph; and (vii) "Transpiration and the water economy of plants," by P. J. Kramer. These chapters cover all aspects of the subject from the pertinent properties of the individual cell to the functioning of the organized plant.

Concepts about the behavior of water in plants have gradually developed during the last century and are fairly definite. These classical concepts are summarized in a descriptive way with adequate literature references to guide new students. Each chapter is thorough, and several are exciting for the depth of insight given into the development of concepts.

In criticism, mathematical treatments are studiedly avoided. This is surprising for a subject that is fundamentally mathematical in content. As a result, rates of processes are largely ignored; only one differential equation is used in the 758 pages. Free-energy relationships and other thermodynamic aspects are mentioned only in a minor vein. An air of mysticism sometimes enters; for example, "Thus the investigator must still stand, awed but challenged, by that built in capacity for growth . . . which exists in the fertilized egg and which, through the beautifully coordinated and balanced process of organic and inorganic nutrition maintains the internal composition of the environment. By the accumulation and diversification of substance in plants, one can describe their growth: It is equally true . . . that the driving force which permits . . . accumulation of salts from the very dilute external solutions and which distributes and stores them in selected regions of the plant body is incomprehensible without the ability to grow." What is food to one may be fierce poison to others.

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The Scientific Papers of Sir Geoffrey Ingram Taylor. vol. 2, *Meteorology, Oceanography and Turbulent Flow*. G. K. Batchelor, Ed. Cambridge University Press, New York, 1960. x + 515 pp. Illus. $14.50.

This second volume of Sir Geoffrey Taylor's *Scientific Papers* is the first of three volumes that will be devoted to Taylor's work on the mechanics of fluids. It contains 45 papers on meteorology, oceanography, and turbulent flow. The phenomenon of turbulence and its effects provides the main theme of this volume, but many geophysical investigations are also covered.

New Books

Biological and Medical Sciences

Braungart, Dale C., and Rita Buddeke. *An Introduction to Animal Biology*. Mosby, St. Louis, ed. 5, 1960. 416 pp. $6.25.

Christophers, S. Rickard. *Aedes Aegypti [L.]. The Yellow Fever Mosquito*. Its life history, bionomics and structure. Cambridge Univ. Press, New York, 1960. 751 pp. $14.50.

Falconer, D. S. *Introduction to Quantitative Genetics*. Ronald, New York, 1960. 374 pp. $6.

Jayle, Gaetan E., Albert G. Ourgaud, L. F. Baisinger, William J. Holmes. *Night Vision*. Thomas, Springfield, Ill., 1959 (translated from *La Vision Nocturne et Troubles*, Masson, Paris, 1950). 422 pp. $13.50. In an introduction to the English edition, Sir Stewart Duke-Elder writes "One of the most outstanding monographs which has appeared since the World War. . . . This monograph is much more than the usual review . . . provides a critical assessment and integrative judgment on a multitude of incompatible theories. . . ."

Zakhvatkin, A. A. *Fauna of the U.S.S.R. Arachnoidea*. vol. 6, No. 1, *Turoglyphoidea Acari*. Translated and edited by A. Ratcliffe and A. M. Hughes. American Inst. of Biological Sciences, Washington, D.C., 1959. 578 pp. $10.

Economics and the Social Sciences

Birket-Smith, Kaj. *The Eskimos*. Translation of 1959 rev. ed. by W. E. Calvert. Methuen, London; Humanities Press, New York, 1960. 277 pp.

de Huszar, George B., Ed. *The Intellectuals*. A controversial portrait. Free Press, Glencoe, Ill., 1960. 551 pp. $7.50.

Hognin, H. Ian. *Social Change*. Watts, London; Humanities Press, New York, 1960. 257 pp.

Katona, George. *The Powerful Consumer*. Psychological studies of the American economy. McGraw-Hill, New York, 1960. 285 pp. $6.50.

Lange, Charles H. *Cochiti*. A New Mexico pueblo, past and present. Univ. of Texas Press, Austin, 1960. 644 pp. $10.

Lennard, Henry L., and Arnold Bernstein. *The Anatomy of Psychotherapy*. Systems of communication and expectation. Columbia Univ. Press, New York, 1960. 229 pp. $6.

Spitz, René A. *A Genetic Field Theory of Ego Formation*. Its implication for pathology. International Universities Press, New York, 1959. 123 pp. $3.

Stein, Maurice R., Arthur J. Vidich, David Manning White. *Identity and Anxiety*. Survival of the person in mass society. Free Press, Glencoe, Ill., 1960. 658 pp. $7.50.

Wedel, Waldo R. *An Introduction to Kansas Archeology*. With "Description of the skeletal remains from Doniphan and Scott counties, Kansas" by T. D. Stewart. Smithsonian Institution, Washington 25, 1960 (order from Supt. of Documents, GPO, Washington 25). 740 pp. $3.