thereafter; also Oct. 23, 24 and 25, 26, 1930, or 27 days thereafter. . . .

I have reason to think that such photos when compared with our results will show a very remarkably interesting sequence of events.

The occasion came out of a visit from Dr. Brian O'Brien, of the University of Rochester, who told me that he found the correlation curve for the year 1915, published in my paper "On Periodicity in Solar Variation," Smithsonian Miscellaneous Collections, Vol. 69, No. 6, 1918, to his mind the most convincing type of evidence of the fluctuation of the solar constant of radiation. As I still find many skeptics on that question, I thought it good to obtain evidence, from more recent solar constant observations, that solar variation is associated with the rotation period of the sun.

After a little search among the newly revised solar constant values soon to be published in Volume 6 of our *Annals,* I found an interval from August 1, 1929, to January 19, 1931, when the same pattern of march of solar variation persistently accompanied each of 20 successive rotations of the sun. The largest amplitude of the fluctuation, occurring about April, 1930, was a little over 0.5 per cent. The pattern was barely distinguishable in August, 1929, reached a maximum amplitude about April, 1930, and faded nearly away in December, 1930. The correlation coefficient as between day 1 and day 27 for the interval November 11, 1929, to October 5, 1930, is 45.5 ± 7.5 per cent.

I anticipated that the sudden rise of intensity which occurred after the eighteenth day of the 27-day period, as I had chosen it, would be found associated with a well-marked increase in the disturbance of the sun's visible surface. Such a change might be evidenced either by the appearance at the expected time of a new sunspot group, just advancing over the sun's limb, or by the formation or sudden growth of a sunspot group somewhere on the disk. When writing to Dr. Adams I expected that the first two days of each of the five sets I requested would show no such visible change, but the third and fourth day of each set would show that such a change occurred.

Dr. Adams kindly sent original plates of five sets of four successive direct photographs each, covering the days in question, and an extra set covering the interval 27 days later than the set beginning December 4, 1929. These plates arrived at the Smithsonian Institution on March 12. I immediately examined them, and found my prophecy fulfilled in every case. On December 6 and 7, 1929, as well as 27 days later, large groups of new spots advanced over the limb. The same recurred on March 23 and 24, 1930, although the spots were now smaller. Again on August 5 and 6, 1930, new spots advanced over the limb. On August 20 and 21, 1929, occurred a very decided increase of size of spots already well advanced towards the center of the disk. On October 25 and 26, 1930, new spots were formed and grew rapidly beyond the center of the disk.

Dr. Adams also sent spectroheliographic plates of the same dates as the direct photographs. These show the increasing activity of the sun on the dates predicted still more strikingly.

C. G. ABBOT

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SCIENTIFIC BOOKS

HUMAN AFFAIRS

Why Men Behave like Apes and Vice Versa. By EARNEST ALBERT HOOTON. xxv + 234 pp. Illus. Princeton: Princeton University Press. 1940. $3.00.

FROM this series of Princeton lectures it appears that Hooton is genuinely interested in human affairs and confident that science can alleviate our wretched state. An introductory homily labeled "Harangue" closes with these words: "The future of our species does not hang upon forms of government, economic adjustment, religious or social creeds, and purely environmental education. The future of man is dependent upon biology. We must have fewer and better men, not more morons and machines." The theme of the lectures is "the extent to which the nature of the animal organism predetermines behavior" (p. 7). In turn, the primate order, the human family as a whole, the races of man, nations and ethnic groups and the individual are searched for evidences of body-behavior relations. The conclusion finally formulated, with special reference to man, is that "his own peculiar familial heredity, the idiosyncrasies of his own organic composition, and his own adaptive ability are the principal determinants of his behavior" (p. 192).

The most stirring chapter of all, because it presents a new method and theoretical schema for the description and classification of human physiques, is that on the individual. It is concerned mostly with individual form and physical constitution; only incidentally, and in terms of temperament, with facts of behavior. In contrast with such earlier systems as those of Viola, Kretschmer, Draper and Lombroso, Sheldon's photographic method of anthropometry and his postulated endomorphic, mesomorphic and ectomorphic components of body type and their corresponding viscerotonic, somatotonic and cerebrotonic components of temperament are summarily but clearly described, and discussed with favor. Hooton's is an illuminating word-picture of the results thus far achieved by at-

tempts to distinguish significant types of human physique.

"Why Men Behave like Apes and Vice Versa" has given the reviewer many hearty laughs. It has also caused him some groans. But even when disagreeing with the author as to fact or interpretation, inference or expectation, I find myself generally in sympathy with his point of view and manifest purpose. The style and method of presentation are unusual. Humor, irony, wit tend to compensate for iconoclasm and seemingly uncalled-for depreciativeness. Thus of biology, "On the whole, however, the apathy of biologists toward the study of the human organism is profound and general" (p. 195), or "of psychology—a science which seemingly measures its advance terminologically —by substituting, for example, the word 'drive' for the word 'instinct'" (p. 7).

This review may not be primarily a summary of the Hooton lectures, for they in themselves constitute a survey of certain areas of biology. It should then serve instead to steer the reader either to or away from the volume. If consulted as to whether it may be considered indispensable reading, I should unhesitatingly recommend it. The content of the lectures is stirring, thought-provoking, and most readers will finish the volume with feelings of appreciation and gratitude.

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BIOLOGY

Biology. By HOWARD M. PARSHLEY. ix + 232 pp. 80 figs. New York: John Wiley and Sons. 1940. $1.75.

MAN'S life is, or should be, a well-rounded existence, lived not in categories, but composed of many activities, completely interwrought, each affecting the others. So often, though, in his thoughts, as reflected in the books that he writes, his penchant for orderliness takes precedence over the broader aspects of reality, and treatises on specialized subjects result, which, admirable though they may be in other ways, suggest a two-dimensional rather than a three-dimensional world. So ingrained is this tendency that even in text-books of biology plants and animals are often considered separately, though this is not the modern trend. The present volume is an expression of this more recent philosophy, which after all comes closer to the fundamental truth.

Prepared as one text of a series, for the biological portion of a science survey course for colleges, Professor Parshley's "Biology" will take its place as a valuable addition to the literature of this field. It is an honest and successful attempt to present the subject-matter of both plant and animal sciences, sometimes side by side, but more often in its real interrelationship. At times this seems rather simple and totally natural, as in the chapters on "Protoplasm and the Cell," on "Nutrition," on "Heredity," on "Ecology" and on "Variation and Evolution." In other cases this innate similarity of zoology and botany is much less obvious, as in the chapters on "Cells and Tissues" and on the "Classification of Animals and Plants." Occasionally this treatment of animals and plants together serves to emphasize their dissimilarities. In both kingdoms the nature of reproduction is basically the same. But the flower of the seed plants is very different from the reproductive organs of a mammal, as a study of the figures presented on adjoining pages brings out forcefully.

Any modern scientific text-book must take cognizance of some, at least, of the more recent developments of research. Though the field of biology is broad, there are in this volume some six pages on vitamins and deficiency diseases, salivary gland chromosomes are illustrated, there is a paragraph on plant hormones, and the effect of x-rays, heat and radium emanations on mutation are considered—to mention just a few indications that this aspect is not neglected.

Since it is one of a series of volumes for a survey course, the book must of necessity be brief. However, its ten chapters are well written, the style is simple and direct, the illustrations are perfectly clear, neatly reproduced and well labeled; some are original, many have been judiciously chosen from various sources. A one-page appendix outlines the "Highlights of Biological History" from Hippocrates in 400 B.C. to De Vries in 1900 and the "Development of Genetics and of Vitamin and Hormone Physiology" from 1900 to date. There are carefully selected chapter bibliographies and a glossary.

With a facile pen the author has drawn the salient lines of that intricately interwoven web which constitutes the realm of life, both of animals and of plants, and in doing so he has made a fine contribution.

EDWIN B. MATZKE

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REPORTS

THE NATIONAL DEFENSE RESEARCH COMMITTEE

DR. VANNEVAR BUSH, chairman of the National Defense Research Committee, has made public the list of scientific men and engineers who have accepted definite appointments to work with the committee since the release of an earlier list last October. The committee organization continues to be built deliberately to