ers and students. But the fact that it still requires at least 22 days for the information to reach destination (one week for an article to get published in a weekly periodical like SCIENCE, one day to process the microfilm and two weeks to air transport to Kunming) has set the writer thinking of a plan for reducing this time lag to a minimum, which is embodied in the following proposal.

Although the preferred procedure of publishing matters of scientific import is still via the printed journal, the microfilm has already taken over a part of this function, especially in the case of lengthy papers on restricted subjects, where nowadays only an abstract is published and the original microfilmed on application. If photography can effect an earlier appearance of papers of a particular type, the radio, if drafted into service, should revolutionize the circulation of scientific publications of all kinds—be it a short note or a monographic treatise. By radio broadcasting, any scientific information can reach its intended audience the world over in the space of a few hours, certainly not requiring a 22-hour interval. By agreeing on a system of codewords, diagrams, graphs and formulas may be broadcast almost as readily as the text itself, until developments in television should place in our hands facilities not now available. By enlisting the aid of the highest research organizations of the leading United Nations, special stations can be established and maintained for the express purpose of science broadcasting.

For preserving the speeches in permanent form, the system of recording from the loudspeaker, long in use by the radio stations, is admirably adapted to this purpose. The only improvement to be made is the substitution with Cellophane tapes, as recently developed by Fonda, for the familiar discs of resinous composition. While the discs require frequent changes and therefore interruptions, the Cellophane tapes permit continuous recording for eight hours. With this semi-automatic system, the actual recording can be attended to by a trained assistant, and the need of arranging a suitable time to both the sending and receiving stations is entirely obviated. In case an article treats of a highly technical subject, a specialist in the particular field may be called in to take down the playback. From this transcript, mimeographed or printed copies can be made for wider distribution.

From journal articles this practice can be extended to books of considerable length. The royalty problem can be readily solved by reference to precedents established in the other fields of radio broadcasting. If only a digest is broadcast, it may prove a virtual stimulus to the sale of the printed book.

The desirability of accelerated dissemination of scientific knowledge is too well understood to require stressing here, but it may be pointed out that broadcasting would tend to unify the scientific language, itself a potent stabilizer of the peace to come. Having experienced the effect of intellectual isolation, the writer is prompted to bring this proposal to the consideration of the scientists and statesmen of the Allied countries. If it can not conveniently be acted upon during the war, it certainly will be our main concern after the war. We are on the threshold of a new age of contracted space and diminished time and the present suggestion is in keeping with this spirit of the future.

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SCIENTIFIC BOOKS

CHIMPANZEES

Chimpanzees. A Laboratory Colony. By ROBERT M. YERKES. xv + 321 pp. Illustrated. Yale University Press. 1943. $5.00.

THIS book is the story of an unusual project in psychobiology. It gives the history of Professor Yerkes's work with chimpanzees over a seventeen-year period and does it in an engaging manner. The book will interest the biologist, the psychologist, the medical man and also the general reader.

Yerkes successfully developed a colony of chimpanzees through controlled breeding and rearing of experimental animals. In the course of the work he faced many practical problems relating to such necessities as feeding, housing, hygiene, health, disease prevention and cure. A considerable body of general information was accumulated about chimpanzee structure and function, instincts, habits and other behavior patterns both in captivity and the native habitats. There are discussions of such topics as emotional traits, social relations, drug addiction and susceptibility, parasitic control and related problems of health. A special chapter is devoted to memory, foresight and insight, and another to language and symbolism. An entire section of the book is concerned with care and handling. An epilogue tells the story of the genesis, development and realization of a research idea. There is a selected bibliography of references. The book is richly illustrated by photographs of apparatus and pictures of animals in a variety of experimental situations. Yerkes is very generous in giving credit to his students and associates for their many contributions.

The reviewer encounters a degree of difficulty in formulating a systematic evaluation of the subjects included in Yerkes's volume, because the diversity of subject-matter does not lend itself to such treatment. However, the bulk of the research is concerned with the behavior endowment of the chimpanzee, and represents a selection from studies originally reported in monograph form.

The choice of any special group of experiments for special mention merely represents the interests of the reviewer. To him, the symbolic behavior described in the chapter on "Language and Symbolism" is of special value because of its close resemblance to the same type of behavior in humans. These experiments deal with the chimpanzees' ability to use tokens in problem solving.

The book is full of useful information for the practical caretaker of the chimpanzee as well as for the research man. It will, in fact, have a wide appeal even for those engaged in other fields. The specialists in the areas treated will find helpful summaries and useful comments on some of their problems. Any one interested in a book on animal life, written primarily from the personal experience of a man who has spent his professional career in the laboratory, will find it both illuminating and entertaining because of its diversity of scientific interests. The general reader will discover much that is both informative and intrinsically interesting in this volume. There are a number of episodes concerning the relations of the chimps with the caretakers and experimenters which indeed make entertaining reading.

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ORGANIC CHEMISTRY

Organic Reactions. Vol. II. ROGER ADAMS, editor-in-chief; WERNER E. BACHMANN, LOUIS F. FIESER, JOHN R. JOHNSON and H. R. SNYDER. Pp. iv + 461. New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. 1944. Price, $4.50.

IN the October 2, 1942, issue of SCIENCE, p. 319, Vol. I of this series was reviewed and attention called to the announced intention of its editorial board to issue additional volumes from time to time. This volume thus appears in fulfilment of that promise and will receive the same warm welcome accorded its predecessor, for it too will be of great value to all students and investigators in the very extensive field of synthetic organic chemistry.

The ten chapters included, with their authors and number of pages, are as follows: (1) Claisen Rearrangement (48 pp., D. Stanley Tarbell); (2) Preparation of Aliphatic Fluorine Compounds (45 pp., Albert L. Henne); (3) Cannizzaro Reaction (45 pp., T. A. Geissman); (4) Formation of Cyclic Ketones by Intramolecular Acylation (20 pp., William S. Johnson); (5) Reduction with Aluminum Alkoxides (The Meerwein-Ponndorf-Verley Reduction) (64 pp., A. L. Wilds); (6) Preparation of Unsymmetrical Biaryls by the Diazo Reaction and the Nitrosoacetylamine Reaction (46 pp., Werner E. Bachmann and Roger A. Hoffman); (7) Replacement of the Aromatic Primary Amino Group by Hydrogen (38 pp., Nathan Kornblum); (8) Periodic Acid Oxidation (79 pp., Ernest L. Jackson); (9) Resolution of Alcohols (35 pp., A. W. Ingersoll); (10) Preparation of Aromatic Arsonic and Arsinic Acids by the Bart, Bechamp, and Rosenmund Reactions (39 pp., Cliff S. Hamilton and Jack F. Morgan). The same admirable organization of the subject-matter of each chapter is followed as in Vol. I, with tables of contents, detailed lists of compounds to which the particular reaction has been applied and extensive references to the pertinent literature. In format, paper, binding and typography, it likewise resembles Vol. I.

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SPECIAL ARTICLES

ABNORMAL ALPHA KETOSTEROID EXCRETION IN PATIENTS WITH NEOPLASTIC DISEASE*

PREVIOUSLY reported results of studies made in this laboratory of the 17-ketosteroids extracted from individual urine collections of normal persons and those with leukemia, cancer, adrenal dysfunction and pregnancy, have demonstrated the marked variability in the nature and amounts of the substances excreted and have emphasized the importance of securing as full and detailed information as possible concerning the individual components.[1,2,3,4] In these investigations

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[1] K. Dobriner, E. Gordon, C. P. Rhoads, S. Lieberman and L. F. Fieser, SCIENCE, 95: 534, 1942.

[2] C. P. Rhoads, K. Dobriner, E. Gordon, L. F. Fieser and S. Lieberman, *Trans. Assoc. Am. Phys.*, lvii: 203, 1942.

[3] K. Dobriner, third meeting, Conference on metabolic aspects of convalescence including bone and wound healing, Josiah Macy Jr. Foundation, 184, 1943. (Limited distribution).

[4] S. Lieberman, B. R. Hill, L. F. Fieser, K. Dobriner, H. C. Taylor, Jr., and C. P. Rhoads, *Abstracts*, 107th Meeting, Am. Chem. Soc., Cleveland, April, 1944.