

with Cerenkov counter detection. Since then the annihilation process has been found and studied—up to 640 million volts being carried away by  $\pi$ -mesons. The large interaction cross-section of the anti-proton with nuclei was discussed by Teller.

Other important sessions of the Conference discussed the rapidly growing experimental evidence for the strange particles and their interpretation. The numerous modes of decay by the  $K$ -meson were described, and the evidence for the identical mass and life-time of the charged  $K$ -mesons was presented. This led to the theoretical discussion on the problem presented by the identity of the  $K$ -mesons,  $\theta$  and  $\tau$ , which decay into two and three  $\pi$ -mesons, respectively. The equality of life-time was said to be a 'miracle' not explained by theory. Later in the discussion, Feynman and Young considered the possibility that parity in weak interaction was not conserved—a hypothesis which has been abundantly confirmed during the past year.

There was also much interesting theoretical and experimental information on the interaction of nucleons and of  $\pi$ -mesons with nuclei.

The Conference has undoubtedly provided the best opportunity of keeping in touch with this fast-developing subject. In 1958 the Conference is to be held in Geneva.

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## NEUROPHARMACOLOGY

### Neuropharmacology

Transactions of the Second Conference on Neuropharmacology, Josiah Macy, Jr. Foundation, May 25, 26, and 27, 1955, Princeton, N.J. Edited by Prof. Harold A. Abramson. Pp. 328. (New York: Josiah Macy, Jr. Foundation, 1956.) 4.25 dollars.

### Tranquilizing Drugs

A Symposium held under the auspices of the American Association for the Advancement of Science, in co-operation with the American Psychiatric Association and the American Physiological Society, and presented at the Atlanta, Georgia, Meeting, December 27–28, 1955. Arranged and edited by Harold E. Himwich. Pp. viii+197. (Washington, D.C.: American Association for the Advancement of Science; London: Bailey Bros. and Swinfen, Ltd., 1957.) 45s.

### Hormones, Brain Function, and Behavior

Proceedings of a Conference on Neuroendocrinology, held at Arden House, Harriman, New York, 1956. Edited by Hudson Hoagland. Pp. xii+257. (New York: Academic Press, Inc.; London: Academic Books, Ltd., 1957.) 7 dollars.

### The Pharmacology of Psychotomimetic and Psychotherapeutic Drugs

Conference held by the New York Academy of Sciences, Section of Biology, April 12, 13 and 14, 1956. Consulting Editor: Seymour S. Kety. (*Annals of the New York Academy of Sciences*, Vol. 66, Art. 3. Pp. 417–840. New York: New York Academy of Sciences, 1957.) n.p.

NEUROPHARMACOLOGY has enjoyed immense popularity, particularly in the United States, during the past years, and the number of conferences and symposia dealing with some aspect of the subject is legion. Transactions of four of these are reviewed here. As many participants read papers at several conferences, a great deal of overlap is inevitable, but there is a distinct character to each publication. The

rapidity with which statements made at these conferences become out of date is a reflexion on the dynamic interest taken in the subject.

Earliest among the four conferences is the "Second Conference on Neuropharmacology", sponsored by the Josiah Macy, Jr. Foundation. It is written in the discussion style favoured by the sponsors, the speakers frequently being interrupted and the subject being treated as a discussion between members of the group. The main theme of the conference is the action of lysergic acid diethylamide (LSD) and its relation to human schizophrenia. There is also an amusing account of the origin of the work of Osmond and the Saskatchewan group on adrenochrome and adrenolutin as possible hallucinogens.

Next in chronological order is a symposium on "Tranquillizers", held in Atlanta in December 1955 and published in 1957. The first part deals with methods used for screening potentially useful drugs or to analyse their mode of action by physiological and biochemical methods. The second part brings the results of treatment of psychoses, the most important drugs being chlorpromazine and reserpine. Two new drugs, however, are just appearing on the horizon: azacyclonol (Frenquel) and meprobamate (Miltown). Reports on 6–8 months clinical use of these drugs, including double-blind trials, are presented from the Galesbury State Hospital and the Mississippi State Hospital.

The third conference was held in May 1956 at Columbia University's Arden House on the River Hudson. Its title, "Hormones, Brain Function, and Behavior", indicates that it is more concerned with the discovery of the causes of mental aberrations than with their treatment. Not nearly so much progress has been made in recent years on the interrelation of hormones and the nervous system as in neuropharmacology proper. Most of the book reports on the orthodox lines of investigations concerning the action of the adrenal gland, the gonads and the thyroid on behaviour and on metabolism of nervous tissue. One chapter, however, is devoted to the newly-aroused interest in 5-hydroxytryptamine (serotonin) as an agent controlling central nervous activity; it is interesting to see that this substance is classified as a hormone in spite of the fact that its occurrence in the brain is not related to the activity of any endocrine cells.

The latest report, covering a wide range of neuropharmacological topics, is that of the conference held in April 1956 at the New York Academy of Sciences. This is a most comprehensive and up-to-date survey of the actions and uses of the substances which formed the subject of the previous conferences. The actions of lysergic acid diethylamide and 5-hydroxytryptamine form a large proportion of the review, and much progress is reported in the analysis of the bio-electrical phenomena correlated with the action of these drugs, in the study of antagonists and in the understanding of the underlying biochemical events. Concerning the drugs used in therapy, progress has not only been made in determining their electrophysiological and biochemical actions, but also in observing the behavioural changes produced in animals and, most important, in using them judiciously in the therapy of psychoses. Indications for a particular drug or drug combination have become more precise, and there has been some success in the avoidance of crippling and undesirable side effects.

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