

"Strange signs from Heaven" observed before the present scare, well written and interesting. On these earlier sightings, Dr. Menzel goes back to the vision of the four living creatures in Ezekiel. He points out that the ghosts of radar are essentially mirages, and that they had caused considerable trouble during World War II. He closes the book with speculations on space travel and instructions on what to do if one sees a flying saucer.

A point which I would emphasize, more than Dr. Menzel has, is that nearly all reports telephoned to me, and using the word, "saucer," have been found to refer, certainly or probably, to the brilliant spot of sunlight reflected by a metal plane, and observed from the critical angle. Of course, I am asked to explain plenty of other phenomena such as mirage effects, but the observers do not call these "saucers." I would also emphasize that if a real space ship or enemy missile should appear over the U.S., the numerous reports would make available plenty of data for calculated figures on path, height, and speed, instead of the meaningless guesses now being published.

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Physiological Foundations of Neurology and Psychiatry. Ernst Gellhorn. Minneapolis: Univ. Minnesota Press; London: Geoffrey Cumberlege, Oxford Univ. Press, 1953. 556 pp. Illus. \$8.50.

Integration of what is known of the basic physiology of the neuron and neuronal groups or networks, with the factors involved in the problems of nervous and mental disease, is a combination of the greatest hope and despair for all investigators in these fields. For this reason, even if there were no others, an effort to perform that integration (in the present meager state of our knowledge) by as eminent a neurophysiologist as Dr. Gellhorn, will be of unquestionable interest to anyone involved with the complexities of the nervous system and its role in the total behavior and maintenance of the living organism.

Many problems and functional levels are discussed under the six following primary groupings: (1) intrinsic and extrinsic factors regulating neuronal activity; (2) contributions to the physiology and pathology of movements; (3) the physiological basis of consciousness; (4) some aspects of autonomic physiology; (5) integrations; and (6) applications.

These major divisions allow the author to include a wide variety of topics in his discussion, covering subjects from the Adrian-Bronk law, electromyography, convulsions and consciousness, to autonomic activity, conditioning, and some physiological concepts relating to mental disease and therapy. In general, the author has discussed a certain number of problems of interest to him (and to which he has contributed during his many fruitful years of investigation) and has tried to find logical places for them in the over-all picture of organismal activity. This neces-

sitates, of course, a certain bias both in commission and omission and leaves much room for controversy. It might not have been amiss to start the title of the book with the word "Some" and to have altered the word "Foundations" to "Correlates."

A great deal of valuable factual information is presented here, so much that one feels somewhat fearful, in a sense, of belittling it. Nonetheless, the feeling is inescapable that many important factors have been slighted in favor of the hypothalamic-cortical system, even in areas where they would fit into the picture the author is trying to create. For example, recent work relating to the role of rhinencephalic structures in emotion and behavior is greatly underplayed. Many of the new findings concerned with the functions of the hippocampus, fornix, cingular gyrus, amygdala, and other associated areas are of the greatest importance not only in our general considerations of emotion and behavior, but also in regard to our understanding of the "autonomic" nervous areas and functions. So much of this work raises new possibilities that one can no longer comfortably envision the hypothalamus as the answer to the neurophysiological maiden's prayer—most certainly *not* if it is being discussed just as its role as an autonomic center. Such centers are too widespread in the central nervous system to allow any one of them completely to overshadow all the others, especially those which have been shown to be of the first importance in somato-visceral integration and correlation.

If it seems unphysiological to suggest one of many interrelated neuronal groups as a multifunctional center of far more importance than other associated groups, in the same way it does not seem completely sound to suppose that the reactions to various stimuli to which the whole organism is subjected can be interpreted by constant reference to any one center. To be sure, certain things will affect the hypothalamic-cortical relationships and this is a part of the whole that must be taken into account, but there is no obvious reason for making this particular relationship more important, let us say, in trying to explain the effects of shock therapy, than bulbo-reticular thalamo-cortical interrelations, or generalized somato-visceral correlations, or changes in permeability of neuronal surfaces, etc., almost ad infinitum.

Lack of space prevents complete discussion of many other problems arising from this type of presentation, such as some questionable views concerning the theory of carbon dioxide therapy, and the interpretation of results obtained with the oxygen electrode. In contrast to these are some highly stimulating expositions of problems of convulsive activity, consciousness, and homeostasis. The entire book is a most provocative one despite its limitations and will serve physiologists, neurologists, psychiatrists, and others as a summary of much of the material now in the forefront of investigation of the nervous system.

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