techniques but this work is not mentioned. Correlation is not causation and it would be surprising if something as elaborate as consciousness depended upon something as banal as neuronal discharge rate, but it would be a shame to miss some such meaning by sectioning the brain-stem and/or shutting off the mind.

The last of the four central chapters is on learning and memory. The predictions of Uttley's model of a classification machine are compared with Hubel and Wiesel's visual processing data, and hypotheses derived from the model of a conditional probability system tested against physiological evidence for conditioned changes in synaptic conductance. The exposition is clear and the interpretations are appropriately cautious. The author's openness to other possible explanations is backed up by his treatment of promising alternative technical approaches to the physiological basis of learning: Hubel and Wiesel's developmental studies of kittens; Kandel and Tauc's investigation on *Aplysia* ganglia; and Crain and Bornstein's work with chick explants. It is ironic to note that all three of these examples, chosen to point the way of the future, are characterized by deterministic theory and highly specific data regarding synaptic events. They emphasize the predictable aspects of nervous function and use statistics sparingly, if at all. I wonder if the author has, in the end, talked himself out of his thesis. Like Hess who began by looking for the movement center and ended defining anew the motor system, Burns may have set out in quest of the meaning of randomness, uncertainty, and diffuseness and found again the determined, sure, and localized reflex arc.

Whether or not this is true, the author will have been justified in making his dialectical voyage and the reader may settle some things in his mind while also enjoying the trip.

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Electroenceph. clin. Neurophysiol., **1970**, *28*: 218–219

The central nervous system: some experimental models of neurological diseases. — O. T. Bailey and D. E. Smith (Editors). (Williams and Wilkins Co., Baltimore, Md., 1968, 364 p., $18.25).

This is the ninth in a series of Monographs in Pathology published under the auspices of the International Academy of Pathology. This particular monograph resulted from the principal course of the Academy given in Washington, D. C., in March, 1967. Eighteen authors contributed to this book, which covers a wide range of subjects. Chapter topics range from a summary of electron microscopic data of normal neurons and glia, microchemistry of the cerebral cortex and experimental models of allergic encephalomyelitis, rabies, hereditary ataxia, radiation injury and Alzheimer's disease to geographic pathology of rare central nervous system diseases, including amyotrophic lateral sclerosis in the Mariana Islands, kuru, various hepato-cerebral diseases in Japan and West Indian neuropathy. Finally, a series of papers on methods of studying the central nervous system including cerebro-spinal fluid, cerebral biopsy, histochemistry and fluorescence and electron microscopy are presented. Thus, the book covers far more than experimental models of neurologic diseases. In view of the fact that the chapters represent material devoted to a course, they vary markedly in their objectives and therefore organization. The reader is served a diverse assortment of topics which can lead to indigestion. Some chapters are intended as merely surveys of current areas of interest in neuropathology and others are detailed research papers in highly specific areas. Important areas such as cerebral neoplasia, radiodiagnosis, tissue culture, biochemical, radiochemical and electroencephalographic techniques have been omitted.

Because of my interest in experimental neurobiology, I personally found the introductory chapters by Hartmann on the neuron and Rosenbluth on glia of much value. Pope's chapter on microchemistry illustrates his fascinating approach to both normal anatomy and pathology of the human cerebral cortex. The chapters on methods of study of the central nervous system were, as might be expected, strongly anatomical in character. Discussion of biochemical, radiochemical and electrophysiological methods are lacking, making this book of less interest to electrophysiologists and electroencephalographers. Nevertheless, the book has a decided place, as pointed out by Bailey in the preface. It is a useful reference source and the International Academy of Pathology should be complimented on giving the central nervous system its proper attention.

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Electroenceph. clin. Neurophysiol., **1970**, *28*: 219

Der Hirntod. Todeszeitbestimmung bei irreversiblem Funktionsverlust des Gehirns.—H. Penin und C. Käufer (Editors). (Georg Thieme Verlag, Stuttgart, 1969, 158 p., DM 26).

La mort cérébrale est-elle la mort tout court? La "mort corticale" peut-elle tenir lieu de "mort cérébrale"? Quels sont les critères cliniques, électriques, biologiques d'une telle mort? Les critères qui permettent en particulier d'affirmer son caractère irréversible? Quels sont les éléments qui autorisent le médecin d'arrêter ses mesures de réanimation? Le chirurgien de procéder à une transplantation? La clinique à elle seule ne permet pas, dans les délais réclamés par une transplantation, de préciser l'apparition de la mort cérébrale; les erreurs interprétatives auxquelles prête parfois le comportement des réflexes spinaux, les diagnostics souvent erronés auxquels conduisent les comas par intoxication en sont deux preuves évidentes. Un tracé isoélectrique reflète l'activité corticale et ne peut à lui seul affirmer la mort cérébrale; par ailleurs, des silences électriques de très longue durée induits par voie pharmacologique ou toxique ne traduisent souvent qu'une simple inhibition fonctionnelle. Bien plus et pour le neurophysiologiste, ces silences électriques ont, suivant

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