

to me, however, for all the polish, eloquence, and command of detail these essays display, that this book can be said to have brought the political science of science more than a short distance forward.

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Health Service in Britain

Medical Practice in Modern England. The Impact of Specialization and State Medicine. ROSEMARY STEVENS. Yale University Press, New Haven, Conn., 1966. 415 pp., illus. \$10.

This book touches upon almost every aspect of England's National Health Service. It is long—almost 400 well-filled pages of text. A final section entitled "Additional notes" includes a guide to the graduate diplomas available to British physicians—40 or more, one judges—the histories of which are given in the text. There are five full pages of references described as "major," exclusive of citations to journals which are included as footnotes. This will give the reader some notion of the exhaustiveness of Stevens' work.

The 24 chapters deal with the history of medical education and medical practice prior to the National Health Service, the formation of the National Health Service, and finally its development since 1948. An American who looks at British medical care finds much that is puzzling. The sharp separation between consultants (specialists), who work in hospitals, and the general practitioner, who works largely outside of hospitals, is not only strange but somewhat alarming to an American visitor. Stevens' history makes clear how this arose—how the general practitioner descended historically from the rude, apprentice-trained apothecary who worked in earlier times under the university-educated physician.

The book is mainly descriptive and informative; the author has been sparing with her own opinions. Two examples, one historical and another related to present problems, illustrate this. Planning for the National Health Service began under a Tory Minister of Health in 1942. After the election of 1945, Aneurin Bevan, an ardent socialist, became the minister and changed the direction of previous planning quite radically. Stevens accepts a commonly held opinion of that era that

it was probably necessary to nationalize the hospitals as Bevan did. The Labour intellectuals had much greater faith in nationalization as an economic and social tool in the 1940's than they have today. This "necessity" may well have been a self-serving argument and deserves more critical attention than Stevens gives it. She notes briefly in the text that the National Health Service had been in existence for almost a decade before the Ministry of Health set up a statistical section, and in her conclusions she again mentions briefly the obvious lack of information about medical care. It is characteristic of her writing that she touches lightly where much heavier blows might be justified. But the book is, on the whole, a very good description and history of a very complex subject. I have always felt that there were two major enigmas in Britain—medical organization and the difference between the public and saloon bars in pubs. One of these is no longer an enigma.

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Physiology of Motor Control

Muscular Afferents and Motor Control. Proceedings of the First Nobel Symposium, Lidingo, Sweden, June 1965. RAGNAR GRANIT, Ed. Almqvist and Wiksell, Stockholm; Wiley, New York, 1966. 466 pp., illus. \$20.

Some of the most exciting recent work in neurophysiology has occurred in the analysis of those structures which are related to motor functions. *Muscular Afferents and Motor Control* is a valuable collection of nearly 40 papers on the motor systems. The conference at which the papers were presented inaugurated an experimental venture into a new area of activity for the Nobel Foundation and at the same time represented a continuation of the 1961 Hong Kong symposium on muscle receptors, but with somewhat greater emphasis on central rather than peripheral nervous structures.

Among the reasons for recent rapid progress in understanding motor control are the *rapprochement* of neuroanatomy and neurophysiology in the study of muscle spindle function, the development of new methods for studying neuronal activity during normal movement, the great convergence of experimentation on cerebellar physiol-

ogy, and the introduction of concepts from systems analysis. All of these new developments and many others are fully discussed in a manner that not only clarifies the way in which normal movements come about but also elucidates abnormal states such as spasticity and tremor. This volume is especially valuable for its summaries of recent work linking the dual organization of the gamma motor system (Boyd and Davey) with the detailed histology of the muscle spindle (Barker), and the dynamic and static physiological response of primary spindle afferents (Smith, Bessou, Laporte, Jansen, Andersson and Lennnerstrand). Several ambiguities of nomenclature and interpretation in spindle physiology are clarified.

A group of papers by Eccles, Lundberg, Terzuolo, Llinas, and Oscarsson shows the way in which utilization of the now classic microelectrode technique has expanded from early studies of the basic properties of neurons and their synapses to more recent preoccupations with the detailed organization of synaptic connections. This recent work involves analysis of interneuron pathways, including those in laminated structures such as the cerebellar cortex, and delineation of the locus of synaptic action on different portions of neurons. Such work is providing a refined functional microanatomy of many regions of the nervous system intimately concerned with motor control. An extremely important new approach, described by Pompeiano in connection with his studies on sleep, employs long-term implantation of electrodes in the spinal cord of unanesthetized animals. This promises to yield insights into the operation of cord structures under more normal conditions than ever before. Related to this concern with normal function are papers by Granit, Kernell, Eldred, Wilson, von Euler, Shapavolov, Sears, and Eyzaguirre dealing variously with topics such as repetitive firing of neurons, the development of rhythmic activity, the functional role of recurrent inhibition, and the use of respiration as a physiological movement that can be analyzed in experiments with immobilized animals under anesthesia.

This book will allow investigators from many different basic and clinical disciplines now focusing on various aspects of motor control to share in the excitement generated at this conference.

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