Book Reviews

Physical fitness appraisal and guidance. Thomas Kirk Cureton, Jr. St. Louis: C. V. Mosby, 1947. Pp. 566. (Illustrated.) $6.00.

This book represents an ambitious and laudable attempt, sponsored by the University of Illinois, to appraise physical fitness and to lay down principles for its improvement. A battery of fitness tests was applied to students entering the University's Colleges of Medicine, Dentistry, and Pharmacy. The techniques and results are presented, and the author, who administered the study, interprets the results and provides hints for the guidance of physical educators.

The study signifies a growing interest in fitness and health; the "Committee on Physical Fitness" that supported the study and encouraged the publication of results is to be congratulated. Since other universities are alert to the problem, *Physical fitness appraisal and guidance* may well stimulate interest in other quantitative studies designed to evaluate the author's new techniques.

It may be appropriate to refer to certain sections of Chapter 5, since these seem rather superficial. The author refers briefly to the major role played by excess fat deposition in lowering fitness and favoring degenerative disease. Convincing graphic evidence might well have been prepared from the morbidity records of insurance companies. Seven methods are recommended for reducing, but these do not include a clear statement of the basic principle: *caloric intake must be less than caloric output.* Further, the idea that sweating and reduced water intake modify fat deposition is, unfortunately, perpetuated. Finally, some readers will question the recommendations that the fat person should eat more bread and less dry cereal, more turkey and less cheese.

But these are minor points that can be corrected in later editions. The important fact is that the author has attempted to provide a basis for greater physical fitness and health. The crucibles of experience and of physiological research will determine the soundness of his approach.

DAVID B. DILL

Army Chemical Center, Maryland

Hearing aids: an experimental study of design objectives. Hallowell Davis, *et al.* Cambridge, Mass.: Harvard Univ. Press, 1947. Pp. viii + 197. $2.00.

With the development of the miniature vacuum tube and the crystal microphone in the late 1930s, pocket-size hearing aids of relatively wide frequency response and high fidelity became commercially available. In view of these technical advances, it became practicable as well as desirable to ask: "How nearly should the characteristics of the hearing aid compensate for the detailed deficiencies of the individual impairment?" The report under review proposes an answer to this problem.

To make the study, an instrument known as a "Master Hearing Aid" was constructed which could be set to give one of several patterns of frequency response and suitable limits of maximum acoustic output. Tests were then made on 18 hard-of-hearing listeners to determine the relative value of various frequency patterns. From the results obtained, the following tentative design objectives for hearing aids were drawn up: (1) a uniform frequency response, *i.e.* without marked resonant peaks or valleys, covering the range from 300 to 4,000 CPS with a tone control adjustment to give a flat or a moderately rising response; (2) a smoothly graded gain control approximately logarithmic over a 40-db range; (3) a choice of models, the lowest powered to have at least 40-db acoustic gain available, the highest powered a maximum of 80-db, with provision for limiting the maximum acoustic pressures by compression or peak clipping as required by, and as acceptable to, the wearer. The above recommendations were based on the conclusion that "regardless of the nature of their particular defect, most patients hear best with an instrument which amplifies all frequencies uniformly, or with moderate emphasis of the higher frequencies."

The term "most patients" leaves the few for whom some deviation from high fidelity must be provided for best results. The report does not cover this aspect of hearing aid "fitting." Further information on the scope of the problem undoubtedly would have been secured had the original plan of validating the laboratory studies by large-scale clinical testing been carried out. The challenge of recognizing and providing for this type of hard-of-hearing individual remains one of considerable significance to the designer, to the manufacturer, to the otologist, and to the hearing aid dealer.

In general, the conclusions reached in the Harvard study are substantiated by the recently published Report No. 261 of the British Medical Research Council.

MARK B. GARDNER

Bell Telephone Laboratories

The engrammes of psychiatry. J. M. Nielson and George N. Thompson. Springfield, Ill.: Charles C. Thomas, 1947. Pp. xix + 509. (Illustrated.) $6.75.

Included in this moderate-sized book is a careful, clearly expressed effort to relate the known facts of brain structure and function to behavior. The somewhat unfamiliar word "engramme" is used to emphasize a conviction that each pattern of personality function is controlled or produced by residual traces—engrammes—of events or inborn tendencies which remain in the brain on call in the service (or disservice) of the individual, and which are subject to various disruptions and other