vide the greatest benefits to research and to the public welfare.

Practically all great reference libraries are maintained largely at public expense or by endowments which have been collected for educational or cultural purposes. Their doors are open freely to all who are able to use their resources for the advancement of science or learning. A reader in one of these libraries is provided usually with a comfortable working place and he is waited upon by a corps of highly trained employees who place at his disposal as many books and as much reference material as may be desired. The reader takes away in his head or in the form of notes such portions of the published material as he needs. There is no charge whatever and in only rare cases is any attempt made to estimate the cost of this part of library operation. This and each of its other functions is looked upon as a public service contributing to the welfare of mankind.

The question now arising in connection with microfilm copying is whether this should be considered in the same light as other services freely rendered by libraries or as something different for which a charge should be collected. Since microfilms are material objects which cost definite amounts to produce it will probably be assumed that they should not be given away like ordinary library service for which no accurate account of its cost can be kept.

Thus the first stumbling block to considering microfilm copying simply as an extension and perfection of library service arises from the circumstance that microfilms are material objects. The fact that the many intangible services rendered by libraries cost a great deal and are performed without charge is generally not considered. The point may also be made, that although the question of just how much service a library should render a reader seldom arises, there might be difficulty in deciding how many microfilms should be made gratis for each person. These are the kinds of problems which make it difficult to include microfilm copying within the category of established library practice.

A question, however, of more fundamental importance for libarians to consider is whether the published reports in their periodical collections can be more efficiently and economically distributed to the many who are able to use them, by means of microfilms rather than by placing the books themselves at the disposal of the relatively few who can come to the library to consult them. It is also important to consider whether or not microfilm copying can be organized in such a manner that its cost will be no greater and possibly less than that required for lending books and maintaining the equipment and service necessary for library readers. In the opinion of those who have had experience with microfilm copying, this appears by no means beyond the realm of possibility. It is an objective worthy of the most serious effort.

Conditions have changed greatly in the organization and functions of reference libraries. The need of going to them to consult the literature has diminished greatly in the United States in recent years. Microfilms seem destined to hasten the day when it will no longer be necessary for any one to go to a reference library to satisfy his needs.

In conclusion the suggestion is made that publicly supported reference libraries eventually should perform microfilm copying for those engaged in research as freely as they now make interlibrary or other loans and provide facilities for consulting their books in their own reading rooms. Many other innovations in library practice were looked upon as dubiously in the beginning as the present suggestion may now be considered. It, however, offers such far-reaching advantages that its general adoption is certain to result in the ever-increasing contribution of libraries to the advancement of research and learning.

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SCIENTIFIC BOOKS

ELECTROENCEPHALOGRAPHY

Atlas of Electroencephalography. By F. A. GIBBS and E. L. GIBBS. 221 pp.; 104 illustrations. Boston: privately printed. $7.00. 1941.

THE "Atlas of Electroencephalography" by Frederick and Erna Gibbs appeared with a timeliness quite unintended by its authors. A few weeks after its publication the man to whom it is dedicated, Hans Berger, the father of electroencephalography, died. The atlas, with its dedication to Berger, will stand as a memorial to him. It will remind future electroencephalographers of the years of quiet, persevering work that preceded Berger's original publication, the polite skepticism with which his work was greeted and its ultimate verification and general acceptance.

Berger has had no more devoted disciples than the Gibbses. From their first year as electrophysiologists in the reviewer's laboratory they have read with care and understanding Berger's long and sometimes difficult papers and have carried Berger's point of view and spirit over into their own work. As they state, the atlas maintains a single point of view, that of the neurologist. They could equally well have said "the point of view of Hans Berger." Theirs is the spirit of exploration and the effort to deduce

information of practical value in the understanding of normal and abnormal function of the human brain from the electrical changes that can be recorded from the surface of the scalp.

The variety of wave-form and pattern of the electroencephalogram must be presented graphically. Words alone are inadequate. In the atlas are hundreds of samples of records, thoughtfully and systematically selected, the digest of six years of experience with thousands of cases. Each record is accompanied by a brief but informative note on the case-history of the subject. Study and comparison are greatly facilitated by the fact that all the records were taken by the same (ink-writer) technique, under similar conditions, at the same speed of tape and usually at approximately the same amplification. All have been skilfully traced by hand and reproduced without reduction in size. The reader is not confused by immaterial and distracting technical differences and can concentrate his attention on the essential wave-forms and patterns. In a clear and simple text that occupies part of each left-hand page, the technique and the principles of electroencephalography are presented. The unity of presentation is further preserved by the omission of the Grass-Gibbs spectrum analysis. The authors are to be complimented on their restraint at this point, for valuable and interesting as the frequency-analysis is it would have been confusing to include it in this volume.

Particularly valuable is the long series of records from normal children. Instability, slow waves and irregularity that would be quite abnormal in an adult are perfectly normal in children, and although these differences were first pointed out by Berger and later elaborated by Smith and by Lindsley there has nowhere been so complete a graphic presentation, side by side with records from normal adults.

The variety of records obtained in the convulsive states is equally valuable, including the presentation of questionably normal and even abnormal records from individuals who are and always have been normal as far as convulsions or epileptic conditions are concerned. The principles of localization of gross intracranial lesions are lucidly presented in considerable detail.

The atlas, in spite of its large size, twelve by fifteen inches, too large for any ordinary bookcase, is a "must" for every laboratory or clinic of electrophysiology and for every one who would be really informed on the subject. It is limited to human electroencephalograms, it is true; animal experimentation is represented only in the bibliography. But the bibliography of over six hundred titles is an achievement in its own right and will be of great use to students of the subject.

The text is admirable for its directness and clarity. Readers should appreciate that many of the statements are to be understood as first approximations or as general principles subject to secondary qualifications which are for the present omitted. Some may disagree, for example, with a sharp separation of epileptic patterns into three categories, the petit-mal, the grand-mal and the psychomotor. But the authors point out that the separation is schematic and that a patient may show now one and now another type or mixtures of any two or all three patterns. Perhaps the main fault of the book is its very clarity and simplicity of presentation. It makes electroencephalography look too easy and too much like a finished subject. The atlas should be regarded as a foundation and a starting-point—not as a final goal that has been achieved.

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PSYCHOLOGY

General Psychology. By RAYMOND B. CATTELL. 624 pp. Cambridge, Mass.: Sci-Art Publishers. $3.50. 1941.

THE atmosphere of spirited discussion permeating this book should make it stimulating and provocative to students possessing the necessary command of basic factual material and terminology. While rather careless of details the author takes pains to present both sides of controversial questions, and his own conclusions appear to be fair and judicious. The present achievements of psychology he regards with a decidedly critical eye, but he is enthusiastic regarding the potentialities of this science. Even at present it has very considerable practical value. The applications to psychotherapy, education and industry are presented briefly but at sufficient length to carry some sense of their importance.

In his treatment of cognitive processes the author follows Spearman quite largely, while in the chapters on motivation he develops the ideas of McDougall and Freud with some attention also to Alfred Adler. This general topic with its ramifications is presented with relative fulness, occupying one third of the text. All motives and all behavior, the author believes, "spring from the need of satisfying a few pervasive and biologically indispensable drives." These "ergs," as he prefers to call them, control learning and acquired modifications to a great extent by making it naturally easier for the individual to learn some things than others. Much light on human motives and their conflicts and frustrations has been derived from the study of neurotic patients. Clinical experience affords pragmatic sanction to some at least of the