identifies as a succession of "words", each word being associated with the activity of a particular mode. The set of modes constitutes a system which he calls the "centre"; influences are supposed to flow from the centre to the cortex and back again, the cortex being the seat of the memory. One must admit to feeling rather uneasy about such a model, oversimplified though its author admits it to be. But at least it will provide material for controversy and constructive improvement. Perhaps the most useful suggestion in the book is Professor Griffith's theory of synaptic facilitation; there are many other ideas, for example, those relating to the embryology of the brain, which seem rather more open to question. At least Professor Griffith's book is clear and readable, which is a rare quality nowadays.

Professor Deutsch is an electrical engineer, and perhaps it would not be unfair to describe his book as an engineer's dream about the brain. This he virtually admits in his preface, where he says "it may be true that 99 per cent of engineering models are wasteful mutations, but the 1 per cent that survives is more than sufficient justification for model making". The book contains some useful mathematical material and some interesting ideas about particular cerebral systems such as the auditory cortex. The only trouble is that the occasional appearance of detailed anatomical drawings of parts of the brain may lead the innocent reader into supposing that Professor Deutsch's models have been established by the experimental evidence. It is very easy to make bad puns on the word "neuron" which to a model builder may mean anything he pleases, but to a student of the brain means a nerve cell the anatomy and physiology of which are still beyond our intellectual reach.

Both books are interesting to read and very reasonably priced, but, different as they are, they both confirm one's view that theoretical books about the brain should at present carry an X certificate. Theoretical neurophysiology is not yet a subject for the scientifically immature mind. But in these permissive days the young will undoubtedly read such books, and their elders will have to hurry up and straighten out the subject before it falls into utter intellectual confusion.

H. C. Longuet-Higgins

REVISED SOURCEBOOK

Sourcebook on Atomic Energy

By Samuel Glasstone. Third edition. Pp. v+883. (Princeton, N.J., and London: D. Van Nostrand Company, Inc., 1967.) 86*s*. 6*d*.

It is not easy to find new ways of describing the third edition of a book which has been so successful in its two previous editions that they each sold about 50,000 copies. There is no reason to doubt that this third edition of Dr Glasstone's *Sourcebook on Atomic Energy* will be equally successful. It is, of course, based largely on the previous edition published in 1958, but in addition to revising out-of-date material new material is also added.

Because of the very wide field it covers, the depth of treatment of any particular topic is restricted, but the subject matter is dealt with in an extremely competent fashion and is so well written as to be easily understood. It is published under the auspices of the US Atomic Energy Commission and thus it is aimed particularly at those engaged in the atomic and nuclear energy fields, though its appeal will not be restricted to such a narrow audience.

Describing as they do the early theories of the atom and its structure, fundamentals of electricity, of matter, energy, radiation, the structure of the atom, natural radioactivity and isotopes, the first six chapters are little altered from the previous edition. Nuclear radiations, their detection and measurement are treated next and considerably expanded, and now such new topics as the Mössbauer effect, semiconducting detectors and a considerably expanded section on bubble and spark chambers are included. Likewise the chapter on the acceleration of charged particles is also considerably expanded. Nuclear reactions, artificial radioactivity and the neutron are then dealt with, followed by a somewhat longer account of nuclear forces and of nuclear fission. The chapter on the utilization of nuclear energy includes a considerable section on fusion. Inevitably the chapter on nuclear reactors is much longer, almost double in length, because there are so many new reactor systems to describe. The remaining chapters on the synthetic elements, uses of isotopes and radiations, biological effects and radiation protection and cosmic rays have all been brought up to date and, in the case of the chapter on cosmic rays, greatly expanded. Finally, there is an entirely new chapter on elementary particles.

There are a number of minor improvements in the presentation over the earlier editions. Each chapter now has a list of books and articles for further reading and there are more illustrations, particularly of distinguished scientists. All the numerical data have been revised and the unified scale of atomic masses is used.

Without doubt this is a most excellent reference book and it can be thoroughly recommended as a worthy successor to the two previous successful editions.

J. F. Hill

ELASTICITY AND PLASTICITY

Theoretical Elasticity

By A. E. Green and W. Zerba. Second edition. Pp. xv+457. (Oxford: Clarendon Press; London: Oxford University Press, 1968.) 105*s*. net.

Dynamic Plasticity

By N. Cristescu. (North-Holland Series in Applied Mathematics and Mechanics, Vol. 4.) Pp. xi+614. (Amsterdam: North-Holland Publishing Company, 1967.) 85 guilders; 198*s*.

Theoretical elasticians fall into two main classes: those who are motivated by problems of physical or engineering interest; and those who approach the subject essentially as mathematicians, attracted by its mathematical appeal. The Green and Zerna book is largely orientated towards the latter class. It presents the subject as a marriage between differential geometry and mechanics, capable of yielding significant fruit in a full-blooded environment of Riemannian tensors. Nobody could disagree, especially in view of all the results achieved, almost as numerous for anisotropic as for isotropic linear media plus a useful chapter on finite deformations. Certainly any serious reader must invest heavily of his time and energy to master the book's celebrated notational intricacies; but the returns are considerable. Where else could one so readily find, for example, the complex potential of an isolated force in an anisotropic plate; the isotropic elastic coefficients relevant to general curvilinear co-ordinates; and the tensor form of St Venant's compatibility relations? On the other hand, in line with the authors' bias, no reference is made to dislocations or inclusions, two important topics which have attracted much attention since the 1954 edition. One wonders why the Papkovitch-Neuber representation receives no mention, though it embraces all the particular representations cited on pages 165 *et seq*. Voigt's abbreviated notation for the stress and strain components is not given, though it could have been introduced with advantage on page 176. But these and