Strength of Biological Materials. By Hiroshi YAMADA, M.D., Professor of Anatomy, the Kyoto Prefectural University of Medicine, Kyoto, Japan. Edited by F. Gaynor EVANS, Ph.D., Professor of Anatomy, the University of Michigan Medical School, Ann Arbor, Michigan, U.S.A. 26×18.5 cm. Pp. x+297, with 235 figures and 190 tables. Index. 1970. Baltimore, Maryland: The Williams & Wilkins Company. Agents for the United Kingdom—Edinburgh and London: E. & S. Livingstone. Price £10.50.

This volume consists of synopses in English translation of the very numerous papers published by Hiroshi Yamada and his co-workers over a period of a quarter of a century. The précis and general arrangement of the material has been made by Professor Gaynor Evans. Of the 283 pages devoted to the mechanical properties of biological materials some eighty-five pages are devoted to the mechanical properties of the locomotor organs and tissues and it is this section in particular that may be of interest to orthopaedic surgeons. Other sections deal with the mechanical testing of biological materials in general and with age changes in biological materials, two subjects which may also be of orthopaedic interest.

All the tissues making up the locomotor system have been studied in various modes of loading. The mechanical properties are given not only for individual tissues such as cartilage and bone but also for whole structures such as the humerus, femur, radius and tibia. The species studied have varied from toads through tortoises and ducks to mammals including man. For many of these tissues and structures a wide variety of mechanical properties have been examined including, for example, the properties in tension, compression, bending, impact, abrasion, crushing, hardness and cleavage. Surprisingly there is no work on the fatigue properties of any biological materials. This possibly represents an important omission, because all biological materials are subject to cyclic loading and there is increasing evidence that fatigue may be important pathologically. Certain references are given at the end of most papers but in general these relate only to the Japanese literature.

The work and the synopses presented in this volume consist only of the reporting of results. There is no connecting theoretical discussion which might provide the reader with an overall view of the mechanical properties of these materials, nor with the relationship between their structure, function and mechanical properties.

That part of this book which can be viewed as a reference manual for those who wish to look up some mechanical property of one of the tissues making up the human locomotor system would be of value to orthopaedic surgeons. Other parts of the book (some of which deal with rather esoteric matters such as the breaking strength in tension of human pubic hair or sciatic nerves) may be of less interest.—M. A. R. FREEMAN.

BOOKS OF ORTHOPAEDIC INTEREST

Ortopédie et Traumatologie Conférences d'Enseignement 1969. (Orthopaedics and Traumatology Training Conferences 1969.) Volume 3. By J. JUDET, A. LEMOINE, E. LETOURNEL, J. MARION, F. MAZAS, L. MOLÉ, C. A. MOREAU, J. J. RAINAUT, J. O. RAMADIER, G. RIEUNAU, R. ROY-CAMILLE and P. VALENTIN. Published under the direction of Professor Agrégé J. DUPARC. Pp. 236, with 121 figures and several tables. Société Française de Chirurgie Orthopédique et Traumatologique. 1970. Paris: Expansion Scientifique Française. Price 65 F.

The third volume of Practical Training Conferences covers the usual wide range of subjects including orthopaedic footwear, hip prosthesis and sciatic paralysis.

Self Aids. Compiled by Wendy M. DAVIS, S.R.O.T., M.A.O.T. Formerly Occupational Therapist, Princess Margaret Rose Orthopaedic Hospital, Edinburgh. Foreword by J. J. R. DUTHIE, M.B., Ch.B., F.R.C.P.Ed. Pp. 84, with many drawings. 1970. The Thistle Foundation. Price 30p.

This is a useful little volume which lists the various types of aids which are useful in overcoming physical handicaps in dressing, cooking, typewriting and the like. It is down to earth and gives the addresses of stores where the appliances can be obtained following each object.

Air Instrument Surgery. Volume I. Cranial Surgery, Intracranial Surgery, Temporal Bone Surgery, Vertebral Surgery. Compiled and edited by Robert M. HALL, with sixteen contributors. Foreword by Robert W. RAND, Ph.D., M.D. Pp. 262, with over 200 figures. Index. 1970. Santa Barbara, California: Hall Publishing Inc. Internationally distributed by Springer-Verlag, New York, Heidelberg, Berlin. Price \$29.95.

This volume is the result of a happy combination of interests between the manufacturers of air instruments and a group of surgeons, chiefly, in this case, neurological. The cooperation is carried so far that in a technical diagram of the engineering aspects the rear bearing is called the posterior bearing. The volume gives an excellent idea of the range of tools compatible with a compressed air motor. Its interest to orthopaedic surgeons will be chiefly in the section concerned with exposure and arthrodesis of the spine. A further volume is promised in 1971 dealing specifically with orthopaedics.