
This volume will be welcomed by all familiar with Snapper's Medical Clinics on Bone Diseases, the second edition of which was published in 1949. The author has continued his researches of the literature and has in fact done a great deal of work in bringing up to date his knowledge of the affections dealt with in the previous volume. He deals fully with their treatment.

This is hardly a book for students or those with no experience of the skeletal errors dealt with, but should be of great service to those with some special experience, particularly when they run against a case of exceptional difficulty or one displaying an unusual complication. One trouble is to follow all the elaborate and deep biochemical statements made or quoted. The first chapter, dealing with the Physiology of Bones, is much too deep for those "in the daily practice of medicine." One wonders how many medical men in this country can appreciate the meaning of the title of the second chapter, viz., Semantics of Bone Disease. The author evidently prefers to discuss the rarer and more complicated types of case rather than the straightforward affections, which in some instances are rather neglected. Fanconi syndrome is very well dealt with, and he includes a good list of references for biochemical details, but his discussion becomes very complicated later, not unexpectedly. An interesting statement is that coeliac disease must last at least two years before bone changes become visible. Osteoporosis and the treatment of its various causes are well dealt with.

One of the best chapters is that dealing with hyperparathyroidism, but not for the student. Again there is an excellent list of references. The author quotes several reports of multiple parathyroid adenomas, in two of which three adenomas occurred, and in one case four adenomas: he has heard of one case with five tumours. In discussing renal osteitis fibrosa the author states that osteitis fibrosa always develops when rapid absorption of bone takes place, regardless of the cause of the bone absorption. In discussing osteitis fibrosa disseminata he claims to have reported, in 1932, the first case of what is now generally called Albright's syndrome, in a girl with widespread osteofibrosis and with brown naevi on face and chest, who experienced her first menarche at seven years.

The chapter dealing with myelomatosis is one of the best: it is up to date and contains a very full discussion of all the latest reports and information. The latest test for Bence-Jones protein he states is "paper-electrophoresis." For Hodgkin's disease, when resistant to x-ray treatment he recommends nitrogen mustard intravenously. His discussion of osteoporosis circumscripta cranii, whether this is or is not a feature of Paget's disease, is not very helpful. He evidently regards most cases showing leontiasis—and at least some without—as cases of Paget's disease. With regard to Gaucher's disease he quotes an article published in 1956 which states that increase of acid phosphatase "regularly occurs" in this disease. Among his radiographs of this affection—all radiographs are together at the end of the book—is one showing typical and well marked osteoporosis of the spine, hardly a good illustration of the radiographic changes seen in Gaucher's disease. The final chapter, dealing with "Differential Diagnosis of Bone Lesions," is very good indeed and could be appreciated by any medical man. The author gives a list of nine affections in which he regards metastatic calcification as a dangerous complication. As a final criticism of this valuable book one must refer to what he says about osteogenesis imperfecta, a bone affection he does not deal with; it was rather a shock to read that "generalised absorption of bone is a constant phenomenon in osteogenesis imperfecta, so-called fragility of bone."—Thomas FAIRBANK.

MODERN TRENDS IN SURGICAL MATERIALS. Edited by Leon GILLIS, M.B.E., M.Ch.(Orth.), F.R.C.S. (Eng.), F.R.C.S. (Edin.), D.L.O. Consultant Surgeon, Queen Mary's (Roehampton) Hospital, East Ham Memorial Hospital and St John's Hospital, London; with twenty-one other contributors. 10 x 7½ in. Pp. xi+275, with 96 figures and 2 tables. Index. 1958. London: Butterworth & Co. (Publishers) Ltd. Price 72s. 6d.

For more than two hundred years physicians have had their pharmacopoeias in which are specified the characters of the drugs inserted into the human body enterally, parenterally and transdermally. In modern times national authorities have shown interest in sponsoring official publications setting out pharmaceutical nomenclature, methods of manufacture and dosage and have set up schedules of poisons and dangerous drugs. It is, therefore, surprising that so little has been done along similar lines for the materials inserted by surgeons into the human body. True it is that this type of surgery has only been widely practised in the last fifty years; especially during the latter half of this period. The grading of sutures, the testing for toxicity in plastics, the assessment of the
chemical and physical properties of metals and the biological reactions produced by them, the mechanical design of appliances in relation to the forces within the body, in particular the size and shape of screws and the holes in appliances through which they are attached to bone; all these matters have been allowed to remain in a state for which "chaos" is the right word: an unwelcome price to pay for surgical individuality and enthusiasm.

This state is passing but we have some way to go before there is a detailed list of "Official Materials" which will be accepted as fully tested and approved products, available for those who wish to have such assurance as the scientific knowledge of the time will allow, and which will be subject to strict supervision and periodic revision, as are the medical pharmacopoeias.

The present work does not provide such a surgical "pharmacopoeia." About it there is somewhat the air of opportunism. That it sheds some light upon this important subject is certainly opportune, especially when there is so much activity by several national bodies through the assistance of the British Standards Institute: work which is referred to here only in passing.

It should not be thought, however, that the idea of the present book is new. Paré and Fabricius in the sixteenth and Scultetus in the seventeenth centuries were pioneers in discussing and illustrating the surgeons' armamentarium. The value of the present work is in the scientific discussion (notably that of F. P. Bowden, E. G. C. Clarke, J. Hickman and J. B. P. Williamson) of the background problems, particularly in the orthopaedic context, which takes up nearly half of the book. The rest deals with the materials of abdominal, dental, neurological and vascular surgery; anaesthetic apparatus but not gases; and many external appliances such as hearing aids, artificial limbs, but not artificial eyes, though including frozen corneal grafts. There is a chapter with the title "Material for Splints," but it is very limited in content and merely displays its author's enthusiasm for plastic materials. Strangely there is no mention of leather except as a material for artificial limbs; and steel for external splints is merely referred to in passing. These are real defects in this book, for leather still remains an extremely useful natural plastic material as well as being important as a covering for metal. Knowledge of the methods of using steel and light alloys in external splint making has lately been advanced by standardisation committees and it is a pity that there is no reference to this work here.

For most of us in orthopaedics the sections of this book which are of the greatest interest are those dealing with materials used as implants. These appliances fall into two groups: first, those used to hold sections of bone together while union takes place, as, for example, in fractures or in arthrodesis of joints; second, appliances used as prosthetic replacements for portions of the skeleton that must be excised. An appliance of the latter type usually remains permanently in situ and will be exposed to all the static and dynamic force normal to the part being replaced: a biomechanical synthesis is the aim, but surgeons at present are far from achieving it. In the healing of fractures implants merely fix the fragments while natural osteosynthesis occurs. When this happens the implant serves no further purpose.

The implants used must satisfy criteria which are biological, chemical and physical. They should take their place in a biologically fluctuating tissue, the chemical and physical characters of which are also not static. They should cause no biological or chemical reaction in the surrounding tissues nor themselves be subject to undesirable chemical or physical change. They should be free from electrical potentialities. The strength of the material must be fully capable of withstanding the forces to which it may properly be exposed; yet it must be capable of being shaped by casting or machining into appliances of appropriate design. The forces to which appliances are subject are those arising outside the body as well as those of intrinsic muscular origin. Belonging to the former group are the forces applied by the surgeon in introducing an appliance or fixing it in position, particularly by screws.

The corrosion of non-stainless steels is well known because it is everywhere so obvious. Only in recent years have surgeons realised that less obvious corrosion occurs in some of the stainless steels. Those that have magnetic properties are known as martensitic and are unsuitable for surgery. The austenitic steels containing chromium and nickel are best and, if also containing molybdenum (Cr. 18 per cent, Ni. 8 per cent, Mo. 2-4 per cent), provide the most strongly corrosion-resisting properties while possessing strength, toughness and workability. Such steel (BS1 No. EN58J in Great Britain and A.I.S.I. 316 in America) is the standard generally accepted. On the surface of the metal is formed a protecting layer of oxide which may be broken down by the exclusion of oxygen in surrounding parts and by changes in the electro-chemical state when combined with dissimilar metals. Micro-corrosion may be productive of untoward clinical symptoms. Amongst non-ferrous alloys that are inert a notable position is held by Vitallium (Vinertia) which is cobalt chrome molybdenum. The surgical importance of corrosion in metal is rightly emphasised in this work, but one notices a tendency on insufficient evidence to discount the influence of sepsis as a feature in the failure of many technical procedures in which metal implants have been used in the past or which have been described in standard text-books. Advocacy of a new idea does not justify discrediting an old one on grounds.
of plausibility alone. This may be a quibble but on stronger ground one feels that quite inadequate attention has been paid to the design of parts of appliances especially of plate holes and the screws by which they are fixed to bones. Badly shaped screw heads which inaccurately fit countersunk plate-holes offend first mechanical principles. Lately we have heard much about the corrosion of stainless steel screws as a result of the deposition of minute metal fragments from the unsuitable martensitic steel of screwdrivers; but in this book little is said upon the very real danger of the breakdown of screws from the application of too great a torque by the surgeon through the screw-driver because the hole in the bone has been made with a drill of too small a calibre.

In the past there has been a great lack of animal experimental work before materials have been inserted into the human body. The continuing need for this experimental work is emphasised.

In the discussion of standard materials it is advisable to use a standard nomenclature. Several of the writers in this book use confusing descriptions such as F.S.T., F.M.B., E.M.S., which are all steel manufacturers’ trade names and should be avoided. The use of adjectival eponyms is unavoidable: there is no other way of describing a “Judet prosthesis.” What, however, is a worn Judet (page 90)? Neither of the distinguished surgeons of that name could ever be “worn”: or won!—Norman Capener.


Historically, orthopaedics has been closely linked with the treatment of cerebral palsy: in fact the development of orthopaedics owes much to W. J. Little who himself made a considerable study of the disease and whose influence led to the foundation of the Royal National Orthopaedic Hospital. Until twenty-five years ago almost the only treatment available for this condition was in orthopaedic departments by physical therapy and occasional operative surgery. Since then, fresh interest has been aroused by the work of Phelps and Carlson in the United States. According to Phelps cerebral palsy includes “All those conditions in which interference with the control of the motor system arises as a result of lesions within the brain.” It is, however, recognised that, although at one end of the scale such lesions will be associated with severe mental deficiency, at the other end will be found many examples of physical disability more or less severe in children of high and even normal mental capacity. While charitable bodies having a large parent membership have allowed themselves to be over-pressed by the mental potentialities, nevertheless the stimulus of such bodies has caused renewed study of a subject that had previously been relatively neglected. The importance of this new work is far greater than its results in the treatment of cerebral palsy, for undoubtedly it has led to fresh neuropsychological, psychological, physical therapeutic and educational inquiries affecting other fields. As in many new branches of medicine, there has been a tendency to discredit entirely and to neglect the older disciplines. So it has been with the orthopaedic aspects of the care of cerebral palsy. The condemnation of operative orthopaedics and the abandonment of splintage went too far, and the new workers failed to realise that, led by McCrane Aitken and such physiotherapists as Miss Isabel Ainger of Oxford, there were many of us who had come to realise that the correction of deformity and its maintenance with re-education were largely to be achieved without surgical intervention, but that surgery still had a place.

The present work is a most valuable guide to the present knowledge upon cerebral palsy. Professor Illingworth has assembled a good team of experts, and each writes with authority and is interesting: furthermore, each gives a comprehensive bibliography of recent work. Illingworth begins with a classification based upon that of Phelps and discusses incidence and causation. In his careful analysis he draws attention to a little-recognised group of patients in whom the disease is progressive, a circumstance that is most embarrassing in a special school when a child is discovered at the end of its time to be actually worse than when it entered: fortunately a relatively rare thing. Spasticity compared with athetosis is in most reports far the commonest type of case; but in Phelps’s group the incidence of the two conditions is equal (40 per cent). In all cases of cerebral palsy there is a high incidence of premature birth, and the principal single etiological factor is anoxia. Cyril B. Courville gives a fine account of the great variety of pathological changes in the brain. The clinical picture and handicaps of affected children are discussed by Illingworth. In the latter connection he quotes other workers upon the relation of eye dominance and handedness; one had thought that Russell Brain had sufficiently discounted any such relationship. A good deal of attention is paid to the sensory defects which are