spine, traction by skull tongs should be continued for six weeks to allow time for "firm fibrous union between the injured vertebrae," and that the patient may then be got out of bed and be fitted with an adjustable brace for about three months. Most orthopaedic surgeons have seen redislocation with external fixation continued twice as long as this. The problems of bedsores, bladder and bowel are dismissed in two pages. The monograph would have been better with these omitted.

The importance of this monograph lies in the first section. Further knowledge of the effects of compression of the cord and cauda equina is badly needed, and Dr Tarlov's book is a step in the right direction. The book is beautifully produced and the illustrations are excellent. The publishers are to be congratulated.—F. W. Holdsworth.


This admirable little book is intended for "physiotherapists, medical students and housemen, and to be an aide-mémoire to their seniors." It gives the first three groups all they need to know of the subject, and it gives it to them clearly, readably, in commendably few pages, and for a remarkably small price. It is, indeed, a model of what could and should be done about other orthopaedic subjects that lend themselves to this type of presentation. A concise handbook intended for junior people may fairly be criticised on points of detail. Is Professor Bowden convinced that either causalgia or tardy ulnar palsy should be called an "irritative lesion" or that nerves divided in amputations should be injected with gentian violet or "inserted into a hole drilled in the neighbouring bone"? Is she happy in accepting the theory that the intermuscular septum may cause "secondary lesions" after anterior transposition of the ulnar nerve? Ought she to teach the young that causalgia "may be relieved by removal of neighbouring foreign bodies"? These are minor criticisms but, I hope, neither unimportant nor pedantic in a book whose admirable brevity means that it will be read. The author's account of conservative treatment is excellent, and her views on the principles of operative treatment are fairly presented. I enjoyed this little book, and I am recommending it to my students.—D. Ll. Griffiths.


This useful monograph does much to advance and clarify our knowledge of the reactions of articular cartilage to injury. These were studied by inflicting damage on the patellar articular cartilage in rabbits. The depth of injury, which was confirmed by histological section, never extended beyond the radiate stratum. Avoidance of damage to the subchondral bone ensured the pure reaction of cartilage to injury. The subsequent changes were observed during several months by morphological, histological and autoradiographic techniques.

Because of the absence of mitoses, evidence of regeneration was sought by observing morphological abnormalities in the chondrocytes. Some were regenerative, others degenerative, and the correctness of the conclusions was tested by 35S uptake and by metachromatic staining with toluidine blue. There was reasonably good correlation between the two methods, 35S uptake being assumed to represent active chondroitin sulphate synthesis and metachromasia the actual presence of the substance. It was considered that uptake of 35S (administered as sodium sulphate) was the more accurate method, and the results confirmed the current views that the chondrocytes synthesize chondroitin sulphate and subsequently pass it on to the intercellular substance.

It was apparent that no extensive regeneration took place, because the site of damage was still visible to the naked eye as long as even one year after the operation. As compared with repair in vascular tissues, the whole process is much slower. It is well known that damage to the subjacent bone often produces granulation tissue, and mesenchymal cells from the bone marrow cause considerable regenerative change by undergoing metaplasia into chondrocytes and fibrocartilage. In damage confined to cartilage there was no such change. Degeneration appeared in relation to the damaged area as expected, but regeneration was visible throughout the cartilage, and particularly at the periphery. This peculiarity was ascribed to the better nutrition of the periphery of the articular cartilage, which lies near to the vascular supply of the adjacent synovial membrane. The autoradiographic studies
surprisingly revealed an increased $^{35}$S uptake of the undamaged adjacent femoro-condylar articular cartilage; and it was suggested that stimulation by contact with the damaged patellar surface was responsible. It appeared that the greatest regenerative activity came from cells of the intermediate stratum. Previous workers had suggested that the presence of fat globules in chondrocytes indicated degeneration. The findings of the present paper suggest that this is not so and that the globules are frequently seen in normal chondrocytes.

This work will be most valuable in providing basic information for further studies on the abnormalities of articular cartilage in chondromalacia patellae and osteoarthritis. In these conditions the reactions may well be modified, because some fundamental change is probably present which leads to fibrillation of the cartilage and a decrease of chondroitin sulphate.

The author is to be commended on the clarity of his observations, and the work has been most ably translated. A few minor errors, such as "Domiaich" for "Doniaich" on page 69 and "yong" for "young" on page 67, need not detract from the high standard of production.—George J. Cunningham.


This is a painstaking monograph by an Icelandic surgeon, based on a detailed review of 302 cases of fracture of the upper end of the humerus treated by at least seven different surgeons in Denmark. The author has gone into every aspect of this problem and has compiled sixty-four tables to show the difference in results between treatment by abduction splintage and by collar and cuff sling. The book opens with thirty-six pages devoted solely to a study of the literature (seventy-nine references) and ends with forty-seven pages of individual case reports (forty-two), including radiographs. Dr Einarsson has proved without doubt that treatment by collar and cuff sling and exercises is followed by better results than by splinting in abduction. His summary on treatment, contained in a delightfully short chapter (two and a half pages) entitled "Suggestions for Therapeutic Schedule," should be read by every practising fracture surgeon, especially those who advocate operation or splinting. Postgraduate students who want to see how well a surgical problem can be investigated would be advised to read this book from cover to cover.—L. W. Plewes.


"The aim of treatment in joint fracture is the re-establishment of normal function in the injured joint." From this opening sentence the author proceeds to show that after fracture-dislocation of the ankle this aim is most likely to be achieved by internal fixation and early movement. He operated on 185 ankles (and treated 312 more by closed methods).

The anatomy of the various types of injury is described in clear detail and related to the radiological patterns. The author's recommendation that fragments of the tibia or fibula displaced by 2 millimetres or more should be reduced and fixed is supported by his finding that defective ankles were considerably commoner after incomplete than complete reduction. In the 185 operations the fibula was fixed most often (the figures are not clear), the medial malleolus in 105 and the posterior fragment of the tibia in thirty-seven. Properly used, cerclage wires, screws and narrow nails gave equally reliable fixation, and residual or recurrent displacement was due either to technical shortcoming or to delayed operation. The author does not favour operating on badly swollen ankles, and a third of the operations were put off for ten to fourteen days. He admits, however, that deliberate delay carries the risk of sores and blisters that may take weeks to heal and consequently reduce the ease and success of operation. It may be significant that three of the four deep infections occurred when operation was delayed for a week or more, and necrosis of the skin edges in one-fifth of the cases seems rather frequent. The author favours exercises as soon as possible after operation and, provided the reduction was secure, left the limb out of plaster until movement had been restored and swelling abolished. In a few cases plaster was not used at all.

This is a valuable contribution with clear conclusions and enough information to provide a standard by which other methods of treatment may be judged.—P. S. London.

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