ment—Prof. T. W. Bridge—and that it should deal with a subject which he had made peculiarly his own, namely, the air-bladder of fishes. The main purpose of this interesting paper is to consider this remarkable organ, not from the points of view of morphology and function, though these aspects are not neglected, but as the source of isinglass. The author pointed out that, although there are 7000 or 8000 species of fishes with air-bladders, few are utilised for the supply of isinglass, and he suggested that the air-bladders of some of our larger British food-fishes, such as the cod, hake, gurnard, &c., might be of value for this purpose. Isinglass is apparently the only product of the animal body which can be used as a clarifying agent in brewing operations, and its mode of action does not seem to be at all clearly understood, but it is believed that it depends on the fibrous nature of the substance. The fibres swell out in the liquid, particles become entangled in their meshes, and are carried, with the settling of the isinglass, to the bottom of the barrel.

There is one other contribution from the pen of the late Prof. Bridge, probably his last published work, on the presence of a false acetabulum in a Bandicoot. Dislocation of the head of the right femur resulted in the formation of a false socket on that side of the pelvic girdle, dorsal to and closely resembling the normal acetabulum, which latter had undergone retrogressive modification as the result of the loss of function.

Half the remaining papers in this volume are concerned with fishes—Mrs. Merritt Hawkes records the presence of a vestigial sixth branchial arch in the Heterodontidæ, describes the cranial and spinal nerves, the abdominal viscera, and a vestigial seventh branchial arch of Chlamydoselachus, and gives a useful account of the theory of nerve components; Mr. A. D. Imms describes the gill-rakers of the spoonbill, and the oral and pharyngeal denticles of Elasmobranchs; and Mr. R. H. Whitehouse discusses the morphology of caudal fins, directing attention to the effects of specialisation, especially abbreviation, of the axis and restriction of the caudal fin in homocercal tails, and concluding that the present homocercal caudal fin is really a posterior anal which owes its present position to the great abbreviation of the axis coupled with excessive upturning of the end of the chorda.

There are further contributions from Mr. Imms on Anurida (being his L.M.B.C. memoir on this Collembolan), and on the occurrence at Port Erin of a pseudo-scorpion (*Obisium muscorum*) in the fissures of rocks in such positions that the specimens had to endure submersion twice daily. The studies also include papers on sex-inheritance in the moth *Abraxas grossulariata* and its variety *lacticolor*, and on animal parthenogenesis, by Mr. L. Doncaster; on the anatomy of the "green fly" of rose trees by Mr. A. J. Grove, and on the gonadial grooves of Aurelia by Mr. T. Goodey.

The studies bear testimony to the range of view of the late professor and to his stimulating influence on his pupils.

OUR BOOK SHELF.

Physiology of the Special Senses. By M. Greenwood, Jun. Pp. vii+239. (London: Edward Arnold, 1910.) Price 8*s*. 6*d*. net.

IN trite phraseology, this book supplies a long-felt want, and supplies it in a manner which is altogether commendable. It is elementary, but not so elementary as merely to traverse the same ground as that covered inefficiently in so many text-books. In reading the chapters devoted to the special senses in many text-books of physiology, one feels irresistibly that the author is out of sympathy with the subject. In this book the physiology of the special senses is introduced to the reader with illuminating clearness born of thorough knowledge and judicial discrimination. The requirements of the student are catered for by a teacher who knows how to interest his audience, but at the same time demands an attentive application of intelligence. Thought is stimulated, and the desire for further knowledge evoked. Each chapter concludes with a short but well-selected bibliography, pointing out the path for further study.

After an introduction dealing with the laws of Müller, Weber and Fechner, cutaneous sensation, taste and smell, the sense of position and movement, hearing, vision, and the physiology of space come successively under review. The work of Head and his collaborators, Rivers, Sherren, Ham and Thompson, upon protopathic and epicritic sensibility is clearly described, whilst the subsequent researches of Trotter and Davies are discussed and criticised. Taste and smell, the sense of position and movement, and hearing are adequately treated, but, as was to be expected, the physiology of vision in its manifold and complex manifestations demands the major part of the book, more than half the pages being devoted to its consideration.

After a chapter on the comparative physiology of vision, retinal processes, electrical, phototropic and chemical responses are dealt with. The student is led on in logical sequence to visual adaptation, entailing a discussion of peripheral vision and total colour-blindness. The chapter on recurrent vision theories of adaptation gives the reader ample food for reflection, and in entering upon the thorny subject of trichromatic vision the author wisely quotes the warning words of Helmholtz:—"The confession of actual doubt is better than the delusion of dogmatic certainty."

The treatment of colour-vision and colour-blindness is admirable. Expanded and treated more exhaustively in the same judicial spirit it might form a valuable corrective to the obsessions which the subject seems almost inevitably to induce. Further chapters are devoted to after images, historical theories of vision, the Young-Helmholtz theory, Hering's theory, and simultaneous contrast.

Reminiscences of a Strenuous Life. By Prof. Edward Hull, F.R.S. Pp. iv+119. (London: Hugh Rees, Ltd., 1910.) Price 4*s*. 6*d*. net.

THOUGH nothing appears in this simple record to justify the adjective in the title, it will afford to many a pleasant reminder of a life still keen and active, yet bridging the years between Thomas Oldham's lectures in Dublin and the Darwin celebration of 1909. Dr. Hull originally studied at Trinity College, Dublin, with the view of becoming a clergyman of the Church of Ireland, and it is interesting to note that a course in the Irish language then formed a part of the recognised curriculum. Having, however, been attracted by engineering, he came under Oldham's influence, and, with his aid, began work on