

Reviews.

MODERN BIOLOGY.

THERE are many reasons for extending a welcome to a book on *Modern Biology*¹ by Mr. J. T. CUNNINGHAM. He is one of the leading biologists of our time, and has devoted a long career to the single aim of explaining how living things have become so perfectly fitted to their place in Nature. He began his investigations when Weismann was winning adherents to the doctrine that the machinery of adaptation was inherent in the germ plasm, and could not be influenced by anything which lay outside the germ plasm. From his student days onwards Mr. Cunningham has done his own observing and thinking, and soon came to the conclusion that purposive modifications of the animal body could not be explained if with Weismann we regarded the germ plasm as immune from outside influences. His own early studies, particularly those on the structural modifications which fit flatfish to a life on the sea bottom, convinced him that the essentials of Lamarck's doctrine were true, and that somehow the soma could transfer its experiences and acquired modifications to the germ plasm within it. He gave clear expression to this conviction in the introduction to Eimer's *Organic Evolution as the Result of the Inheritance of Acquired Characters*, which he translated in 1890.

In the present work Mr. Cunningham again tests his Lamarckian convictions by passing in critical review all that has fallen in recent years from laboratories where the processes of life are studied by experimental methods. His is not an armchair criticism; Mr. Cunningham is an experimental naturalist, and is therefore well qualified to estimate the value of experimental results obtained by others. He accepts the opinions of those who believe that the functions of living matter are purely physical and chemical in their nature, but refuses to believe that any combination of physics and chemistry can explain the phenomena of adaptation and evolution. The belief held by Professor T. H. Morgan, based chiefly on his well-known studies of the banana fly, that new characters arise suddenly as mutations, is rejected by Mr. Cunningham as totally inadequate to explain recapitulation in the embryo and the purposive modification of structures. All recent attempts made by experimental embryologists, experimental zoologists, and biometricians to penetrate the secrets of evolution are reviewed and their bearing on present problems examined. Mr. Cunningham reserves his most rigorous criticism for the experiments of those who, like himself, believe that characters acquired by the body can be passed on to the germ plasm, and thus become inherited. His close examination of the laborious and prolonged experiments carried out by the late Professor Kammerer is most searching and valuable. Mr. Cunningham admits that the experimental evidence in support of Lamarckism is still unconvincing, but, on the other hand, the circumstantial evidence in its favour seems to him to be overwhelming.

Mr. Cunningham was the first to apply Starling's theory of hormones to explain how characters acquired by the body or brain might, in the course of repeated generations, be transferred to the germ plasm. He illustrates his conception of the manner in which hormones may serve as messengers from the soma to the gametes by many concrete examples, and those in search of a clear statement of his views will find them in this, his latest work. If Mr. Cunningham could bring forward convincing evidence that such a transference is possible, then he would have proved a matter of the greatest importance to humanity; for if the degree and manner in which parents use their brains influence ever so slightly the facility with which their children use theirs, then the accumulated effect would, in the course of time, lead to an enormous change in human mentality. It was supposed that Professor Pavlov had proved the inheritance of conditional reflexes in animals; this claim Mr. Cunningham finds to be now withdrawn.

¹ *Modern Biology. A Review of the Principal Phenomena of Animal Life in Relation to Modern Concepts and Theories.* By J. T. Cunningham, M.A. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1928. (Demy 8vo, pp. xii + 244. 10s. 6d. net.)

But in some of Professor McDougall's experiments on rats there is evidence that the experience of adults may be transferred to their progeny, but even in this case Mr. Cunningham admits that the evidence may be explained otherwise than by inheritance of experience.

Some of Mr. Cunningham's experiments, carried out on soles thirty-five years ago, seem to have an important bearing on the interpretation of Professor McDougall's results. Mr. Cunningham observed that when the non-pigmented undersurface of soles was exposed constantly to light the degree of darkening which resulted varied greatly, some fish pigmenting readily, others remaining unchanged. If the tendency to the deposition of pigment was not inherent in the animal no amount of stimulation could produce pigmentation. The power to deposit pigment must first be present; light by itself cannot produce that power. This is in keeping with what is known of the human body; the power of muscle and bone to react to exercise varies enormously from individual to individual; unless that power is present in the individual's body Lamarckism can do nothing; if the power is already inherent in the body Lamarckism can elicit it, and that power, being already an intrinsic possession of the body, is passed on by heredity. The rats which solved Professor McDougall's tests were, we may well suppose, animals which already possessed a superior cerebral equipment for dealing with the experimental situations presented to them, and we may therefore suppose that it was not their experience they handed on to their progeny, but their inherited cerebral outfit. Mr. Cunningham, of course, is fully alive to such a contingency, but perhaps does not emphasize the alternative explanation sufficiently.

Although there are both minor and major matters in which biologists will disagree with views and statements made by Mr. Cunningham, all will admit he has written a book which deserves to be read and studied by medical men as well as professional biologists.

REQUISITES AND METHODS IN SURGERY.

SENIOR students and house-surgeons are fortunate in having a few very good textbooks for their guidance, and one of these is *Requisites and Methods in Surgery*,² by Mr. CHARLES CATHCART of Edinburgh and Mr. JACKSON HARTLEY of Carlisle. It is published by an Edinburgh firm, and may be looked upon as the Scottish counterpart of Russell Howard's *The House Surgeon's Vade-mecum*.

This book by Cathcart and Hartley has a simple, direct, and effective atmosphere of its own. It is written in the careful and lucid style of the generation which was brought up to observe and study clinical facts for itself, and it is not surprising, therefore, that as a guide to general surgical principles, and their application to the details of practical treatment, this account of requisites and methods would be difficult to surpass. In addition, there are to be found references to all the modern methods of investigation on matters within its scope. The context is freely illustrated by means of refreshing pen-and-ink sketches. These have been skilfully executed and impart a homely touch of "local colour": the nurse holding an unruly child, and the occupant of Gatch's bed-rest indicating the Fowler position and others, could be found nowhere but north of the Tweed. The book deals in the main with minor surgery, wounds, haemorrhage, shock, fractures, dislocations, tuberculous disease of joints, minor operations, emergencies, treatment before and after operation, and anaesthesia. Students can read with profit the chapters on case-taking, bandaging, massage, bruises, and sprains. Chapters of general information include medico-legal notes, hints on *post-mortem* examinations, on hospital economy, on cutting fresh sections, on trusses and artificial limbs, and on making casts. Where treatment is mentioned actual prescriptions are given, as well as the composition of the various reagents used for special tests.

We can thoroughly recommend this book, and feel sure that it deserves an introduction beyond the portals of Edinburgh University.

² *Requisites and Methods in Surgery.* By Charles W. Cathcart, C.B.E., M.B., F.R.C.S. Eng. and Ed., and J. N. Jackson Hartley, O.B.E., M.B. Ed., F.R.C.S. Eng. and Ed. Edinburgh and London: Oliver and Boyd. 1928. (Cr. 8vo, pp. viii + 476; 246 figures. 12s. 6d. net.)

TEXTBOOKS OF HISTOLOGY.

Dr. A. McL. WATSON'S *Handbook of Histology*³ may be recommended to students who are commencing the practical study of that subject. It is short, and confined to those matters which a student who is examining histological sections for the first time needs to understand. The author has apparently aimed at the greatest possible conciseness compatible with full and clear histological definition. The general plan adopted is to explain the structure of the organ by proceeding from its macroscopical to its microscopical features; from the conception thus gained the student should, without difficulty, be able to interpret his sections. The book should prove a useful and trustworthy companion in practical work.

A different standpoint is taken by Dr. H. E. JORDAN in his *Textbook of Histology*,⁴ which has reached its fourth edition, and may therefore be considered to have established its reputation. The aim of the work is to present the subject in such a way as to awaken a more lively interest than is afforded by bare histological details, by associating the descriptions with considerations of practical import. With this object the subject is approached largely from the point of view of function, the known or believed function of the organ being first described, and its microscopical structure correlated with this. The result is an interesting volume, and the interest is increased by the sections on embryology and references to comparative anatomy. The book is copiously illustrated with good figures.

Professor ANGELO RUFFINI'S pamphlet on embryological technique⁵ deals with the well-known difficulties attending the microscopical examination of certain ova in the early stages of development, more especially those of amphibia. The good fixation of these has always proved a troublesome matter, and Professor Ruffini claims to have worked out a method by which these difficulties are satisfactorily surmounted. His ingenuity has also invented an exact method for the orientation of the ovum in the paraffin block, of preparing a paraffin mixture which will not deform the ovum in the process of embedding, and of spreading the sections on the slide in a manner to ensure uniformity in their dimensions. The accurate determination of the mode of formation of the blastodermic layers of the ovum depends largely on perfection of technique, and Professor Ruffini appears to have made a definite contribution towards the latter.

Professor P. BOUIN'S *Eléments d'Histologie*⁶ is a fairly up-to-date compilation of what is known about the anatomy and physiology of cells. After several chapters dealing with the general morphology and function of "the cell," the author proceeds to the description of tissue cells in which differentiation of form is associated with specialization of function. The first volume, now under review, is concerned with the histology of the skeletal and muscular tissues, of the blood and haemopoietic organs, the lymphatic and vascular systems. The book is intended primarily for medical students, and it is claimed that only essential descriptions are given in the main text; but, although many details of structural and functional significance and physico-chemical interest (which, as yet, are not fully explained or accepted) are printed in smaller type, there still remains much interesting matter not directly related to histology, which tends to distract the reader, and would be better introduced into a separate volume. To each section of the subject are appended a concise and useful summary and a sufficient bibliography. The numerous illustrations are beautifully reproduced and add greatly to the value of this attractive book. The second volume, which is now in preparation, will be concerned with the histology of the organs of nutrition, digestion, respiration, excretion, nervous system, and organs of reproduction.

³ *A Handbook of Histology*. By A. McL. Watson, Ph.D. Edinburgh: E. and S. Livingstone. 1928. (Cr. 8vo, pp. xi + 207; 53 illustrations. 8s. 6d. net.)

⁴ *A Textbook of Histology*. By Harvey Ernest Jordan, Ph.D. Fourth edition. New York and London: D. Appleton and Co. (Demy 8vo, xxviii + 457; 594 figures. 25s. net.)

⁵ *Processi di Tecnica Embriologica ed Istologica*. Professore Angelo Ruffini. Bologna: L. Cappelli. (Cr. 8vo, pp. 109; 7 figures. L. 40.)

⁶ *Eléments d'Histologie*, I. Par P. Bouin. Paris: F. Alcan. 1929. (Demy 4to, pp. vii + 334; 199 figures. 120 fr.)

PLASTIC SURGERY OF THE ORBIT.

SOME two years ago Dr. EASTMAN SHEEHAN of New York published a book on the *Plastic Surgery of the Nose*, which was noticed in our issue of July 10th, 1926 (p. 64). He has followed that up with another handsome volume on *Plastic Surgery of the Orbit*.⁷ It is a massive volume of nearly 350 pages, of fine large clear type, and profusely illustrated with line drawings in the text and coloured plates. There is a preface by the veteran Professor PIERRE SEBILEAU of the Faculty of Medicine of Paris, and the book is dedicated to Harold Delf Gillies, whose valuable work for disfigured soldiers at the Sidcup War Hospital is so well known.

In this new book Dr. Sheehan begins with the anatomy of the parts, insisting that there can be no success in such delicate operations without a full and intelligent appreciation of the tissues and structures concerned. True to his belief, he has devoted sixty pages, with a dozen figures and nine plates, to these matters. Next, the preparation of the skin of the patient is dealt with in the same minuteness of detail, for here again the author maintains with truth that if the slightest laxity is allowed in this matter there can be no success in securing fine, little-recognizable scars, free from thickenings and from that bugbear of the skin surgeon, keloid. The preparation of the skin must be commenced many days before the operation. Here the interested co-operation of the patient is valuable in securing, through repeated steaming and massage of the skin, that evacuation of the grease glands which is necessary for the action of a delicate and efficient antiseptic. Of iodine the author will have none, since it irritates if it does not burn the skin, and gives it a leathery consistency. The preparation of grafts, both mucous membrane and skin, is described with meticulous care, for material such as this is so precious that any waste is little short of criminal, and may jeopardize a promising operation, with discouragement of the patient. Thereon follow accounts of a series of considered plans for restoration of eyelids which have suffered damage of various kinds from wounds or disease. Many of these are old familiar friends to ophthalmic surgeons, that have been handed down and practised for generations. Some of the operations are of later date, particularly those which deal with the lacrimal sac, after West's and Totti's methods, and the operations for restoration of contracted eye sockets.

At the end of the work there are two appendixes. One dealing with anaesthesia, and written by Dr. I. W. Magill of the Westminster Hospital, is excellent in its terse brevity. The second, by the author of the book, is a scathing condemnation of the use of paraffin injections; he says that the evils of this practice are now so well known to surgeons that few if any practise it, but the method still has a considerable vogue among unqualified practitioners, to the great harm of those to whom they minister. With regard to reparative operations in general the author says that these are ever fresh in their variations, but by way of warning to the venturesome he adds: "The fact is that whoever engages in this constructive branch of surgery must feel that he is 'called' to the work."

TUBERCULOSIS IN CHILDREN.

FOR some years Dr. P. F. ARMAND-DELILLE has given frequent courses of lectures at various centres in Paris on the subject of tuberculosis in children, and now one such course has been taken down as the lecturer delivered it and published in a small booklet, entitled the principal clinical aspects of tuberculosis in children.⁸ This presents a very good summary of modern Continental views on an important subject by a physician with wide experience both in France and elsewhere, and it should be studied carefully by all those interested. The general etiology is first discussed, with contagion stressed as the important factor in causation, followed by sections on tuberculosis of the tracheo-bronchial glands, on generalized tuberculosis, and

⁷ *Plastic Surgery of the Orbit*. By J. Eastman Sheehan, M.D., F.A.C.S. With a preface by Pierre Sebileau. New York: The Macmillan Company; London: Macmillan and Co., Ltd. (Cr. 4to, xxv + 348; 191 figures, 11 plates. 50s. net.)

⁸ *Les Principaux aspects cliniques de la tuberculose infantile*. Par Dr. P. F. Armand-Delille. Les Publications Médicales. Paris: N. Maloine. 1928. (52 x 6, pp. 74, 5 fr.)

on tuberculosis in the various organs. An interesting section devoted to the "fever of tuberculization" is important, for it stresses the possibility of tuberculosis as a cause of obscure fever in children and discusses the differential diagnosis. In further lectures on treatment Dr. Armand-Delille deals with artificial pneumothorax, heliotherapy, and the preventive measures carried out by the "Œuvre Grancher," whereby healthy children are removed from tuberculous families. All these three methods deserve close study, and indeed the whole of Dr. Armand-Delille's remarks on this subject have a value for workers in other countries. An index would be a useful addition to this little book in future editions, and also some illustrations.

CHEMISTRY FOR STUDENTS.

SIMON and BASE's *Manual of Chemistry*⁹ is a textbook for students of medicine, pharmacy, and dentistry. The thirteenth edition now before us has been produced by Dr. KRANTZ, who is professor of pharmacy in the University of Maryland. Dr. Krantz's preface expresses the hope that the manual "will furnish to the student a clear presentation of the science, an intelligent discussion of those substances which are of interest to him and a trustworthy guide to his work in the laboratory." We have seen many books on chemistry written for students of the subjects named, and too many that fail to accomplish the objects here expressed. Their failure arises from the fact that they offer the student something to learn instead of something to understand. Krantz's work is not of that kind. It is prepared with intelligent endeavour to engage the student's interest; it not only achieves the desire above expressed, but is the most admirable volume of its kind that we have seen for a long time. It is not only a book for elementary students, but it is full of information valuable for reference after the period of academical study. No embarrassment is caused to the elementary student by this fact, because fundamental learning is distinguished in the text from supplementary information by different types of print. The choice of reactions for inclusion in the text has been most capably made with a view to effective representation of the typical characters and properties of elements and compounds, and we note with satisfaction the inclusion of many valuable tests that are not widely known. Such a book could only be produced by one who is a learned and experienced chemist. It is the kind of book to buy for a lifelong possession.

NOTES ON BOOKS.

*Burdett's Hospitals and Charities*¹⁰ has always been welcome as a handy book of reference which depicts the progress of philanthropy and hospital management, and the thirty-ninth edition indicates how the problems are changing. It has been decided to publish henceforth an article at the beginning of each annual volume bringing the statistical sections into relation with the most recent developments in hospital work. In the issue for 1929 Captain J. E. Stone examines the present financial situation of the voluntary system, and considers the new sources of hospital income from patients' contributions, and the provision that has to be made for road accidents of all kinds and for middle-class patients. An appreciable enlargement of the section devoted to mental institutions has enhanced definitely the practical value of the book, and more information is now given about King Edward VII's Welsh National Memorial Association. The most generally useful section is the concise directory of medical and educational institutions, philanthropical societies, and the similar organizations controlled by the London County Council and the Metropolitan Asylums Board. New entries include accounts of the aims and organization of the Merseyside Hospital Council, the blood transfusion service of the British Red Cross, and the Liverpool Hospital for Diseases of the Heart—the only institution of the kind outside London—and a note on recent administrative changes affecting hospitals in the Transvaal Province. Throughout the book every effort has been made to bring the information completely

⁹ *A Manual of Chemistry*. By W. Simon, Ph.D., M.D., and Daniel Base, Ph.D. Thirteenth edition, enlarged and thoroughly revised by John C. Krantz, jun., Ph.D., Sc.D. London: Baillière, Tindall and Cox. (Demy 8vo, pp. xvi + 695; 55 figures; 6 plates. 25s. net.)

¹⁰ *Burdett's Hospitals and Charities, 1929*. Founded by Sir Henry Burdett, K.C.B., K.C.V.O. Thirty-ninth year. London: Faber and Gwyer, Ltd., The Scientific Press. 1929. (Demy 8vo, pp. xxiv + 946. 21s. net.)

up to date; the index is good, and this year's edition may justly claim to be an improvement upon the best of its predecessors.

With the issue of a second edition of the *Manual of Hygiene and Public Health*,¹¹ by Dr. JAHAR LAL DAS, officiating assistant director of public health in the province of Bihar and Orissa, opportunity has been taken to revise the text and to add several new appendixes. This textbook, written from the standpoint of Indian life, is intended to meet the needs of public health officials and students in India, and deals more particularly with conditions incidental to tropical life. The first edition was reviewed in these columns two years ago.

The fifty-first volume of the *Transactions of the Medical Society of London*¹² includes the papers communicated at its meetings during the 155th session, from October, 1927, to May, 1928. Among these are the presidential address on "Surgery in the early days of the Medical Society of London," given by Mr. H. W. Carson, F.R.C.S., in October, 1927, the Lettsomian Lectures on "Rheumatic heart disease in children" by Dr. F. J. Poynton, the Lloyd Roberts Lecture on "The criminal law and insanity" by Lord Hewart, and the society's annual oration on "The lessons of rare maladies" by Sir Archibald Garrod. Most of the papers and discussions now published in full in the *Transactions* were reported at the time in our columns.

Volume xlvi of the *Transactions of the Edinburgh Obstetrical Society*¹³ contains the papers read during the session 1927-28, many of which have been reported in these columns from time to time. Among the papers included is the valedictory address on "The preventive frame of mind in obstetrics" given by Professor R. W. Johnstone on relinquishing office as president.

Reprints of the various papers, memoranda, etc., contributed by the members of the staff of the Middlesex Hospital Medical School during the session 1927-28 to various British and American medical and scientific periodicals have now been collected and bound together in volume form.¹⁴

¹¹ *Manual of Hygiene and Public Health*. By Jahar Lal Das, D.P.H. With an introduction by Lieut.-Colonel W. C. Ross, M.B., Ch.B., D.P.H., I.M.S. Second edition. Calcutta: Butterworth and Co. (India), Ltd. 1928. (Cr. 8vo, pp. xviii + 661; 105 figures. 6s. net.)

¹² *Transactions of the Medical Society of London*. Edited by T. P. Legg, C.M.G., M.S., F.R.C.S. Volume the fifty-first. London: Harrison and Sons, Ltd. 1928. (5½ × 8½, pp. lii + 470; illustrated.)

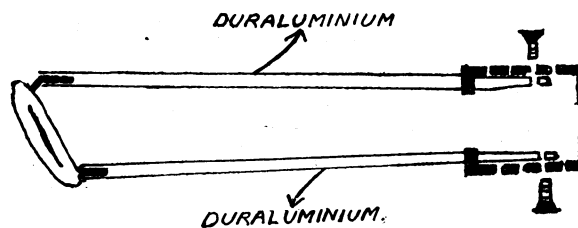
¹³ *The Transactions of the Edinburgh Obstetrical Society*. Session 1927-1928. Vol. xlvi. Edinburgh: Oliver and Boyd. 1928. (Med. 8vo, pp. xx + 195.)

¹⁴ *Published Papers by the Staff of the Middlesex Hospital Medical School, 1927-28*. (7¼ × 10¼; illustrated.)

PREPARATIONS AND APPLIANCES.

A LIGHT TUBULAR CALLIPER.

MAJOR MEURICE SINCLAIR, C.M.G., R.A.M.C.(ret.) (London), writes: Whenever the weight-bearing function of a lower limb in an adult has to be suspended for any cause, and it is desired to permit the patient to walk with the aid of a Thomas calliper splint, the instrument shown in the accompanying diagram will be found advantageous. In it I have adhered to all the original principles, and have substituted side bars with duraluminium tubing; these are made for my patients by the Surgical Supply Depot, 23, Upper Phillimore Place, Kensington, W.8, and have been very satisfactory on account of their



Diagrammatic sketch of calliper

extreme lightness and comparative cheapness (45s.), and are every bit as solid. The comparative weights of callipers of similar sizes are interesting. One made with 3/8-inch round iron throughout was 3½ lb., while the other, manufactured with tubing, was only 2 lb. The part of the tubular one which weighs the heaviest is the ring; so the patient not only derives great benefit from the loss of 1½ lb. dead weight, but at once observes the lessened resistance to leverage in bringing forward the leg more easily. The gratitude expressed by the wearers has been so encouraging that I am anxious to submit the idea to the profession.