

## Book Reviews

**R.V. Short (ed.): Reproduction.** British Medical Bulletin, Vol. 35, No. 2.

London: The British Council, Medical Department 1979. 111 pp. many figs. Soft bound £ 6.—

This issue of the British Medical Bulletin is devoted to reproduction. Sixteen papers have been included in this issue, their subject matter relates to three main areas: development of embryo and fetus, control of fertility and problems of infertility.

The development of the mammalian oocyte during its long formative period and some of the events that regulate its maturation are discussed by Moor, R.M. and G.M. Warnes. D.G. Whittingham presents a review on in-vitro fertilization (including human fertilization), embryo transfer and storage. The control of cellular differentiation in early development in the mouse and rabbit is reviewed by E.D. Adamson and R.L. Gardner. Two papers deal with sex determination (R.V. Short) and the role of embryonic signals in the establishment of pregnancy (Heap, R.B. et al.). Fetal growth (J.S. Robinson) and initiation of parturition (G.C. Liggins) are described in subsequent reviews. Our present knowledge of the mechanism underlying the maintenance of infertility associated with lactation is reviewed by A.S. McNeilly. The following papers deal with the control of gonadotrophin secretion (G. Fink), the gonadotrophic regulation of ovarian activity (K.M. Hendercon), the pituitary control of the testis (G.A. Lincoln) and the prostaglandins control of animal and human reproduction (S.M.M. Karin and H. Hillier).

The subject of human infertility is complex and this issue includes short reviews on: the chromosomal basis of human infertility (A.C. Chandley), endocrinology of male infertility (D.M. de Kretser) and female infertility (D.T. Baird). The last topic is devoted to the contraceptive research and development (R.J. Aitken).

This bulletin is recommended to interested clinicians as well as to biologists working in developmental biology and human genetics.

F.H. Herrmann, Erfurt

**Gwatkin, R.B.L.: Fertilization Mechanisms in Man and Mammals.** New York, London: Plenum Press 1977. 161 pp., 34 figs., 6 tabs. Hard bound \$ 17.50

Fertilization mechanisms in man and animals have received a great deal of attention in the last decade, and it is therefore most opportune for those wishing to obtain insight into the intricacies of this fundamental research area to be able to avail themselves of Dr. Gwatkin's monograph which in a concise and authoritative way gives an account of the recent developments. Of the many facets of the process of fertilization the techniques elaborated for fertilizing mammalian eggs *in vitro* are dealt with in a thorough and straightforward manner, which in itself should earn the author much gratitude from the beginners.

Emphasis in experiments concerned with fertilization of the mammalian egg *in vitro* has shifted lately from observations made with intact gametes to studies which involve the use of organelles. Dr. Gwatkin and his associates at the Merck Institute for Therapeutic Research at Rahway in New Jersey, U.S.A. have successfully isolated from the egg cells the fragile vestment of these cells, namely the *zona pellucida*, in quantities that have permitted them to follow the phenomenon of the binding of the spermatozoon to this material. Moreover, they managed to prepare the receptor-for-

sperm from the zonae in a soluble form and to study the functional properties of this receptor in considerable detail.

Penetration of the *zona pellucida* by the spermatozoon is normally followed by fusion with the egg's *vitellus*. This is evidently a phase of the fertilization process which is relatively species-independent when compared to penetration of the zona. The fusion of the spermatozoon with the *vitellus* is discussed in the book at some length, and the experimental records are evaluated in an exemplary manner.

The research worker in the biology of reproduction in general, as well as the specialist interested primarily in the mechanism of mammalian fertilization, will profit from, and enjoy reading, Dr. Gwatkin's monograph. Newcomers to this area of research will obtain much helpful and well-documented information on how to handle in the laboratory material that is both scarce and costly, as a preliminary to the study of mammalian fertilization. The author most helpfully outlines the many problems that are awaiting solution: this in itself will be a boom to the younger colleagues aspiring to add to our fund of knowledge in mammalian reproduction.

T. Mann, Bethesda

**Cleffmann, G.: Stoffwechselphysiologie der Tiere. Stoff- und Energieumsetzungen als Regelprozesse.**

Stuttgart: Ulmer 1979 296 pp., 141 figs., 37 tabs. Soft bound DM 22,80

This clearly written textbook on metabolic physiology has many attractive points. There are introductory chapters dealing with the essentials of feedback systems, molecular structure of organisms, energy flow and biochemical pathways. Throughout the book the reader is referred back to these basic physical principles. The book continues with chapters on food and nutrition, digestion, respiration, blood, transport functions, temperature effects and regulation and a final one on osmoregulation and excretion. These topics are discussed from a rather classic view point but with constant and thorough attention to biological homeostatic systems. Many clear schemes in red and black accentuate the interaction of the various body functions. Numerous tables supply quantitative data for comparison between species or higher taxa. The interest of most textbook readers can be stimulated by presenting experimental procedure and plain experimental results. The author does so at various places, thereby increasing the feeling of being involved from the side of the student. To keep the interest of students, I would have preferred more stress on the problems of animals and their solutions than the book actually presents. This is, however, by no means to say that the book consists of a simple collection of memorizable data, it is more a continuing story of metabolic homeostatic functions. Statements like 'Vertebrates have only extracellular digestion' (P 116) are too generalised because e.g. in fishes uptake of whole protein molecules through pinocytosis has been demonstrated. That the blood pigment occurs rarely in cells and more generally dissolved in the blood plasma (p 149) is correct, but I miss the explanation of this fact in terms of metabolic rate, oxygen carrying capacity, greatly increased blood viscosity and red blood cells. Despite these criticisms I find this book an attractive and thorough text for undergraduate students and useful for biology teachers. By also using red printing the editor has enhanced the usefulness of the illustrations.

J.W.M. Osse, Wageningen