

chondrial conversion of cholesterol to 5-pregnenolone is suggested as a rate-limiting step influenced by anterior pituitary trophins. There are probably similar mechanisms in the placenta. This organ, which contains a very active sulphatase system in the microsomes, can convert androgenic steroids (from the maternal and foetal adrenal cortex) into phenolic oestrogens.

The last part of the book deals with current concepts of the mechanism of action of hormones. The genetic control of metabolism, protein biosynthesis and enzyme activity in cells are described and it is suggested that hormones may regulate a metabolic process essential to both replication of DNA and the synthesis of messenger RNA. In many tissues hormonal regulation is essential to cell function and replication, but it is possible that different types of hormones regulate cell function by different mechanisms. There is yet no clear evidence as to the mechanism of action of hormones at the cellular level.

MAY REED

## PARASITIC PROTOZOA

### Parasitic Protozoa

By J. R. Baker. (Hutchinson University Library: Biological Sciences.) Pp. 176. (Hutchinson: London, November 1969.) Hardback 33s; paperback 14s.

INTEREST in parasitic Protozoa has increased rapidly in recent years, but there has been a notable lack of a cheap, up to date textbook suitable for a newcomer to the field. The choice has lain between books specializing in parasites of either medical or veterinary importance and books of general protozoology which are usually expensive and contain more information than is needed. Dr Baker's new book, which is based on a course of lectures given at the London School of Hygiene and Tropical Medicine, admirably fills this gap. It is aimed primarily at the medical and veterinary student, but includes much that should appeal to the undergraduate and postgraduate student of biology.

Most of the major groups of Protozoa contain parasitic forms; the Sporozoa are exclusively parasitic. Dr Baker defines parasitism in a broad sense to include organisms which might otherwise be classified as commensals. After an introductory chapter on taxonomy and possible courses of evolution, he gives a brief but comprehensive summary of protozoan anatomy and physiology. It is not his intention to dwell on ultrastructure and biochemistry because, as he points out, these aspects have been covered fully in several recent review papers. Much of the book is a systematic account of the parasites of economic importance, with sections on pathogenesis, diagnosis and treatment. Brief accounts are given of most other important parasites, although some, for example, the parasitic members of the Phytomastigophorea, are omitted entirely. The book has a well selected reference list, and is sufficiently up to date to include, for example, the new nomenclature of trypanosome forms and the recent discovery that certain free-living amoebae such as *Hartmannella* are potential parasites. Many details have been set out as tables, which has made for easier reading of the text. All the illustrations are clear black-and-white line-drawings, most of which are original. Colour diagrams would have been more instructive in certain cases, for example, the malaria parasites, but presumably it was impossible to include these in a book of this price. There is also a remarkably large number of informative footnotes, some of which could have been incorporated more appropriately into the main text. The chapter on trypanosomes and related parasites can be especially recommended for its clear guidance through the often bewildering complexity of species with similar morphology. The final section of the book is a useful summary of the techniques in common use for studying

parasitic Protozoa, which should be appreciated particularly by teachers and demonstrators.

This book, therefore, is an interesting newcomer to the useful "Hutchinson University Library" series. It is a pity that the price of these volumes has more than doubled in the past six years, but the paperback edition is still an excellent buy for the hard-up student.

D. WALLIKER

## AROUSAL MECHANISMS

### The Neurological Basis of Motivation

An Enduring Problem in Psychology. Edited by Stephen E. Glickman and Peter M. Milner. (An Insight Book.) Pp. viii + 286. (Van Nostrand: New York and London, November 1969.) \$2.75; 26s.

THIS attractive little booklet has a slightly misleading title. Motivation is not the best word to use to convey what it is all about and reference has to be made to the second paragraph of the preface to find the editors' definition. They say that the book is really concerned with arousal mechanisms, mechanisms which regulate certain drives such as hunger and thirst, and is also concerned with the processes connected with positive and negative reinforcement systems.

With these aims, the editors have collected a number of very interesting papers, all of which can be regarded as classics in their respective fields, and in this way the collection forms a very useful reference for those wanting to have under one cover the basis for further reading. All the papers have been published in journals within the past 10 years although most of them were published in the years 1960 to 1963.

The standard of reproduction of the figures suffers from the limitations of the paper used and, while line diagrams are clear, half tone reproductions have lost considerably in quality. This is inevitable, but anybody who wishes to see the original pictures has only to look back at the original source of publication.

As a compendium for students, even at the later stages of a degree course, it is an excellent investment and it will not only serve the needs of those psychology students who wish to look more closely at the neurological basis of experimental findings, but it should also interest students of other disciplines, physiology in particular, in the behavioural aspects of the central nervous system.

J. L. MALCOLM

## Correspondence

### Fingerprint Classification

SR, —R. Clerici suggests a fingerprint classification scheme that could be usefully adopted in anthropological, genetical and clinical investigations of fingerprints, and quite naturally he mentions only very briefly fingerprint retrieval for identification purposes (*Nature*, 224, 779; 1969).

I would like to mention that the Home Office Scientific Development Branch has been funding research with a view to finding a method of computerizing the fingerprint retrieval of scene-of-crime marks. A special management committee, including experts in computer science and pattern recognition, was established in 1966 and sought advice from leading scientists and fingerprint experts. Research teams in industry were asked to investigate various possible approaches (optical, topological, geometrical, etc.). Most techniques have proved inadequate because they have not been able to cope with the rheological distortions commonly found in scene-of-crime marks. Variations between impressions from the same finger under different stresses are larger than at first

expected. Thus in information space, the mapping measures of such impressions do not cluster sufficiently for efficient separation.

At least one of the projects, however, now shows considerable promise and we have reason to believe that, in a year or two, a scene-of-crime fingerprint retrieval system will be available.

Yours faithfully,  
A. GANSON

Secretary,  
Fingerprint Contracts  
Management Committee,  
Home Office.

### Ribosome Ambiguity

SIR,—As was recently pointed out in "News and Views" (*Nature*, **223**, 115 and 415; 1969), there is still controversy over the significance and even the existence of 70S bacterial ribosomes; but unfortunately both your correspondents have added to the confusion by inaccurately summarizing the alternative explanations that have been proposed. In particular, the model advanced by my colleagues and me is not included in either list, and we are erroneously cited as supporting the view that 70S ribosomes are necessarily attached to messenger. In view of the repetition of the misquotation I would like to restate our view: that while some of the 70S particles are undoubtedly monosomes complexed with peptidyl-tRNA (or f-met-tRNA) and mRNA, the cell also contains a substantial fraction of "free" 70S ribosomes, not complexed with these ligands, and playing a definite part in the ribosome-polysome cycle.

This view is based primarily on two findings: when a cell increases its conversion of polysomes to runoff products it accumulates 70S particles rather than subunits<sup>1</sup>; and such runoff ribosomes can be distinguished from polysomal ribosomes by their greater ease of dissociation<sup>2</sup>. Moreover, the "free" runoff ribosome appears to be a stable intermediate in the ribosome-polysome cycle, since under physiological conditions its conversion to subunits requires complexing with a protein dissociation factor, whose limiting supply can account for the observed constancy of the level of subunits<sup>3</sup>.

The main experimental evidence against this model, appropriately cited by your correspondents, is the finding in two laboratories that under various conditions the presence of Na<sup>+</sup> instead of K<sup>+</sup> decreases or even eliminates the 70S fraction in the extracts. But instead of assuming with the authors that Na<sup>+</sup> preserves the intracellular distribution of ribosomal particles better than K<sup>+</sup>, we would suggest that the Na<sup>+</sup> ion (which is foreign to the cell) dissociates free but not complexed ribosomes, and that the ratio of the two varies with the conditions. Experimental evidence for this interpretation, obtained by Mr R. Beller in this laboratory, will be forthcoming shortly.

Yours faithfully,  
BERNARD D. DAVIS

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Harvard Medical School,  
Boston, Massachusetts.

<sup>1</sup> Kohler, R. E., Ron, E. Z., and Davis, B. D., *J. Mol. Biol.*, **36**, 71 (1968).

<sup>2</sup> Ron, E. Z., Kohler, R. E., and Davis, B. D., *J. Mol. Biol.*, **36**, 83 (1968).

<sup>3</sup> Subramanian, A. R., Ron, E. Z., and Davis, B. D., *Proc. US Nat. Acad. Sci.*, **61**, 761 (1968).

SIR,—I would like to comment on two recent "News and Views" in which my recent article (*Nature*, **223**, 1364; 1969) and several others on the subject of the 70S ribosome were mentioned.

In contrast to your correspondent's statements, I do not consider that my results support either Schlessinger's or Davis's previous work. Davis pointed out the technical fault in Schlessinger's work and now one might say that Franklin has found a fault in Davis's work. A point of Franklin's most recent paper (*J. Mol. Biol.*, **45**, 23; 1969)

is to investigate the origin of the higher proportion of 70S ribosomes found when the lysis media contain K<sup>+</sup>. This led to the conclusion that the type of profile obtained when Na<sup>+</sup> salts are used is more representative of the *in vivo* situation. These are in fact the conditions which I used. Franklin's sucrose gradient profiles are compatible, I believe, with the small amount of 70S, 4-7 per cent of total ribosomes, that I said were present. You may admit that it is very difficult to quantitate each class of ribosome, from 30S to polysomes, from one sucrose gradient profile.

I hope that with closer attention to experimental details and the actual figures your reviewer will agree that there is no disagreement between Franklin's result and mine. I, in effect, presumed Franklin's conclusion and then asked what does this small amount of 70S material represent.

Yours faithfully,  
F. VARRICCHIO

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333 Cedar Street,  
New Haven, Connecticut.

### University Reform

SIR,—Professor Doty has many interesting things to say in his Granada lecture "The Academic Condition in the United States", printed in your issue of December 13, but he could hardly have been more mistaken in his choice of Aunt Sallies when calling for "the informed involvement of students who are not content to be the spiritual descendants of William Cobbett and William Morris, living in self imposed semi-poverty making ceramic jewellery and psychedelic posters". Both Cobbett and Morris were deeply committed radicals who spent their energies battling against the injustices of their societies as they saw them.

Yours faithfully,  
R. S. SMITH

Librarian,  
University of Nottingham.

### Black Velvet

SIR,—Please note that the mole is not "the rodent toasted by the Jacobeans" (*Nature*, **224**, 1053; 1969) but "the insectivore toasted by the Jacobites".

Yours faithfully,  
J. W. WARREN

Physics Department,  
Brunel University.

### Miscellaneous Intelligence

SIR,—Last night in the bath we were considering your distressing item about the incidence of fatal heart attacks during the act of procreation.

On reflexion, we found that 0.6 per cent of one's time is about one hour per week. Surely, Sir, this is a moderate—nay, a very moderate—estimate of the time the reasonable man would devote to this pursuit. Some indeed would regard it as a gross under-estimate. It follows that the act may not predispose to coronary infarction.

On the contrary, your figures could be construed as showing a protective influence.

Is it not time for the minister to consider setting up facilities for the study of this branch of preventive medicine?

Yours faithfully,  
A. E. M. MCLEAN  
E. K. MCLEAN

University College Hospital  
Medical School,  
University of London.