control of certain puffs by ecdysone. Both Kroeger and Karlson extrapolate so far from their results to opposing theories that they reach positions from which they can only argue with each other.

After all the lectures an edited discussion is published which sometimes, as after the lecture by Karlson, leaves the reader uncomfortably in the air, but generally serves to illuminate the material.

The section which deals with the phylogeny of hormone species, and metabolic faults in hormone synthesis and their results, illustrates how basic physiological information can be obtained by comparing inherited defects such as changes in the structure of hormone molecules and investigating strain differences.

The final section illustrates that quantitative characteristics hitherto thought of as being beyond other than biometrical analysis may be open to deeper investigation, and sometimes are genetically much less complicated than was feared (Spickett, see Thoday). A very lucid account by Huntley analyses four carefully chosen examples of quantitative characters in man and shows how variation in each can reasonably be apportioned between that due to genetic and environmental causes.

The book as a whole provides a stock of examples where the study of heredity and segregation has provided useful physiological information about the wild type or atypical individual. This approach to physiological problems is upheld in Thoday's final chapter in the book. Thoday points out that by a process of physiological compensation genetically quite different strains function normally. Comparative study of such strains can illuminate the relationship in the individual of such factors as hormone concentration and activity of secreting gland (Spickett, Shire and Stewart). Variation between healthy laboratory strains can be the kind of research tool previously achieved only through the investigation of pathological examples.

The material in the book justifies the novel title, and the scientific thesis of its editor. It will make useful and interesting reading for anyone interested in endocrinology or developmental and physiological genetics.

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NEW DRUGS AND CLINICAL MEDICINE

DRUG RESPONSES IN MAN. Ed. G. Wolstenholme and R. Porter. J. & A. Churchill London. 1967.

This book is an account of the proceedings of a symposium on drug responses in man which was held under the auspices of the Ciba Foundation. The purpose of the meeting was to discuss the unexpected and unpredicted responses that occur when new drugs are brought into widespread clinical use. These unanticipated effects may include favourable and useful responses as well as undesirable or disastrous side-effects. Consideration of carcinogenic and teratogenic side-effects was specifically excluded.

Anomalous responses to new drugs in man can be of two kinds: those which can be detected to a greater or lesser extent in all treated individuals,

and those which occur in relatively few treated individuals. The first three contributions are concerned with the first type of response and deal with the differences between the metabolism of man and the metabolism of the animals in which potential therapeutic agents are tested. Five papers are concerned with the unexpected responses and side-effects of drugs on particular organ-systems. The organ-systems considered are the cardiovascular system, bone marrow, the nervous system, the liver and the kidney. Several papers deal with drug allergies and idiosyncrasies, and with the effects of age and disease on the metabolism of drugs. The final paper covers that branch of human genetics now frequently called "pharmacogenetics". This last group of papers is particularly concerned with unfavourable responses that are found in some, but not all, individuals treated with a new drug.

The different contributors have contrasting styles of writing and hold very different views on the adequacy of current testing procedures for new drugs. They also differ about the ease with which the unexpected adverse effects of drugs can be changed into calculated risks for therapeutic purposes. These differences are well revealed in the discussions which follow the papers. These are reported in full and form an important and interesting part of the proceedings, adding significantly to the value of the volume.

This book shows how many and varied are the non-genetic factors which can affect the metabolism of drugs, and their pharmacological and therapeutic effects. It also indicates the wide range of sites at which genetic variation could act to produce the marked differences in drug-metabolism found between individuals.

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PHYSIOLOGY AND DESCENT

INTRODUCTION TO ANIMAL PHYSIOLOGY AND PHYSIOLOGICAL GENETICS. E. M. Pantelouris. Pergamon Press. 1967. Pp. 497. 73s.

This is a book which claims to be something more than a textbook of physiology, or biochemistry, or genetics; it is an attempt to "lay the ground for an understanding of the connections between physiology, embryology, and genetics". A book of this wide scope will understandably appear inadequate to someone with specialist knowledge in any one of the many fields covered; but even making this due allowance, I found some sections disappointing. Thus in the section on renal physiology, there is a drawing of a nephron where the distal tubule does not return to the macula densa of its own glomerulus, an account of renal function which makes no mention of the counter-current multiplication of osmotic pressure in the loop of Henle, and a couple of sentences which imply that the supra-optical nucleus can stimulate the synthesis of antidiuretic hormone in the pituitary gland whereas it is currently thought that the antidiuretic hormone is synthesised in the supra-optical nucleus itself, subsequently passing through nerve fibres to the pituitary where it is stored. If these are errors of omission they are so gross as to be positively misleading. Nor can the very numerous misprints be excused on the ground of wide scope; msec (millisecond) instead of