

COMPARATIVE
PHYSIOLOGY
AND
PATHOLOGY
OF THE SKIN

ROOK
&
WALTON

COMPARATIVE
PHYSIOLOGY AND
PATHOLOGY OF
THE SKIN

EDITED BY

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PREFACE

The comparative study of the normal and abnormal skin is as yet in its infancy, but offers unlimited prospects for fruitful research. The medical dermatologist is daily confronted with skin reactions, the regional distribution of which he is often able to accept on entirely empirical grounds as characteristic and of diagnostic importance. Only an evolutionary approach to the regional variations in skin structure and function can provide a logical scientific basis for such familiar clinical phenomena, and only comparative investigations can explain the fundamental biological significance of the common patterns of pathological response.

In veterinary practice, diseases of the skin are of great economic importance, but they are rarely adequately investigated and their classification is too often based on gross morphology, encumbered by obsolete terminology, lacking even the most elementary histological support. The application to the veterinary field of the knowledge available in human dermatology and the adoption of a uniform scientific terminology offers immense prospects for immediate advances in diagnosis and therapy and for planned research.

The Symposium, the Proceedings of which are here presented, was held in April, 1964, under the joint auspices of the School of Clinical Research and Postgraduate Medical Teaching and the Veterinary Medical School of the University of Cambridge. It is believed to be the first to be devoted exclusively to comparative dermatology. The speakers included authorities from many branches of biology—zoology, biochemistry, immunology, pathology, genetics, and human and veterinary medicine. The choice of topics was necessarily influenced by the availability of speakers, but was determined primarily by the possibility they offered for a fundamental comparative approach to physiological or pathological problems of wide application and importance. The zoonoses were deliberately omitted as main themes, since they have been studied more thoroughly than most diseases of animals. All the papers presented at the Symposium are published, many of them in extended versions. Comprehensive lists of references have been included. The discussions which followed each session offered the participants convincing evidence of the mutual benefits of collaboration between disciplines and of the exciting prospects for future research. It is hoped that the present volume will play some part in encouraging the comparative

approach to the study of the physiology and pathology of the skin in medical and veterinary centres throughout the world.

We should like to express our gratitude to our contributors for their enthusiastic support.

ARTHUR ROOK
GRAHAME WALTON

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PROSPECTS FOR COMPARATIVE DERMATOLOGY

KLAUS BOSSE

What is the meaning of the term 'Comparative Dermatology'? In what ways does comparative dermatology differ from veterinary dermatology? What is the purpose of comparative dermatology?

Each day these and similar questions are put to the dermatologist interested in veterinary dermatology and to the veterinary surgeon studying dermatology.

Before embarking on a detailed study of certain aspects of the comparative physiology and pathology of the skin, it is essential to consider the tasks, possibilities and aims of comparative dermatology. In making this attempt, **we cannot hope for complete success**, since we must accept subjective limitations. Problems and aims always depend on the point of view of the individual. Moreover it is an inevitable consequence of the type of interdisciplinary cooperation we wish to practice here, that facts must be related and discussed which are familiar to one faculty but may be new and of essential importance to the other. We must be aware that this situation presents inherent difficulties as well as advantages. In the second part of this paper, I shall try to explain, by concerning myself with the synchronization of hair growth, how physiology, pathology, veterinary medicine, zoology, and dermatology, each with its own different preoccupations and interpretations, contribute to the solution of our problem.

Comparative medicine uses the method of comparing physiological and spontaneous pathological phenomena in order to utilize to the full the proven experiences of zoologists, medical men, and veterinary surgeons.

Initially our most important task is not to search for new facts, but to collect, coordinate, utilize and reinterpret knowledge so far not coordinated from a common viewpoint, with synthesis as our ultimate aim. However the analytical approach may provide the basis for further synthesis. Thus experiments on animals serve comparative medicine. For general medicine animal experiments are only a more or less adequate substitute for experiments on human beings. Such experiments offer technical advantages and disadvantages but do not involve the investigator in the ethical responsibility