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# CLINICAL ENDOCRINOLOGY. I

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*Edited by* EDWIN B. ASTWOOD, M.D.



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## Preface

CLINICAL ENDOCRINOLOGY is a broad field of science and medicine with no very well defined borders. To the internist, it is a subspecialty; to the investigator in one of the natural sciences, it is a stimulus to research. Granting that a precise definition of endocrinology is not easily made, there is a general idea of its scope, but what is clinical endocrinology? "Clinical" means that the subject has to do with sick people, and the study of diseases and the treatment of the sick is the province of the physician. However, clinical endocrinology is not confined by the walls of hospitals, and it owes its rapid development to the contributions from many other kinds of endeavor.

In this book, sharp lines have not been drawn between what is clinical and what might be considered nonclinical. However, the emphasis is mainly on clinical matters and on lines of inquiry which seek to reach a fuller understanding of normal and abnormal endocrine processes in human beings.

The aim has been to provide concise authoritative articles written by specialists in the light of personal experience in their respective subjects. In a few instances, when it seemed desirable, more extensive reviews have been presented. Some of the latter have included fairly complete documentation, but in most cases only key references to source publications have been cited. Complete coverage of the entire field has not, of course, been attempted in a single volume. Classic and well established material has been omitted to make way for topics selected largely on the basis of their current interest and importance. As a consequence, some areas have been dealt with more thoroughly than others and some subjects have not received the attention that they would have deserved in a work of more extensive scope. Within the framework of these limitations, however, a great deal of useful information and many interesting articles on a fairly wide range of topics have been included, giving, at the least, a broad view of the subject as a whole.

By selecting the subjects, and especially the contributors, with great care, it has been possible to avoid contradiction, if not controversy, without introducing excessive dogmatism. Uniformity of style, an ideal achieved only by having a single experienced author, has not been achieved, but some effort has been made to attain simplicity of expression.

The title chosen for the book needs explanation. Ten years ago, *Progress in Clinical Endocrinology* was published by Grune & Stratton under the editorship of Dr. Samuel Soskin. It proved to be an interesting and most useful volume. Endocrinologists found it a practical source of reference, it

was recommended to medical students and general physicians used it as an introduction to specific topics of interest to them. The best indication of its success is the fact that a strong, continuing demand has existed for the volume even after exhaustion of a very substantial first edition. It seemed desirable, therefore, to publish a second edition, and it was to this end that the current project was initially directed. As the book took shape it was realized that it could not properly be regarded as a revision, since nearly all of the chapters were made up of new material written by new authors. Moreover, it was apparent that many of the contributions would be of lasting value as they stood. Finally, it was recognized that other aspects of the subject could profitably be dealt with and that new areas would soon unfold and call for inclusion. It was therefore decided to title the book *Clinical Endocrinology. I* in the expectation that someone would have the time and the courage to bring together subsequent volumes containing additional and new material. Should this not transpire, the "I" will at least serve as a distinctive mark of bibliopiege decoration.

*Boston, January 1960*

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*Clinical Endocrinology. I*

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# I

## PITUITARY

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### 1

### Control of Anterior Pituitary Function by the Central Nervous System

*By* MONTE A. GREER, M.D.

OVER THE PAST FEW YEARS there has been a rapidly expanding renewal of interest in the interrelationship of the two great integrative networks of the body, the nervous system and the endocrine system. Although the early history of endocrinology is filled with polemics concerning the relative importance of the hypothalamus and pituitary to the function of other endocrine glands, this debate largely became dormant following the demonstration by Smith of the primary importance of the pituitary gland and the ensuing isolation of potent pituitary extracts and purified hormones. It became generally accepted that the hypophysis secreted hormones which stimulated target endocrine glands. The target gland hormones, in turn, inhibited the release from the pituitary of their respective trophic hormones. Control of the adenohypophysis was assumed to be almost entirely humoral and to take place without any necessary mediation of the nervous system, although it was recognized that certain phenomena (e.g., persistent estrus produced by constant illumination) required a neural link.

#### HYPOPHYSIAL PORTAL SYSTEM

Harris<sup>1</sup> and Green<sup>2</sup> deserve a large share of the credit for revitalizing the concern with neural mechanisms involved in regulating pituitary activity. They have emphasized the universal presence of an hypophysial portal system in vertebrates. This system originates within the median eminence of the hypothalamus as a primary plexus of capillaries which coalesce to form trunks running down the infundibular stalk to the pituitary. There, these larger portal vessels again divide into capillaries which are distributed throughout the adenohypophysis.

This rather peculiar vascular structure appears to be of great importance to the optimal functioning of the anterior pituitary. Studies from many