COMPARATIVE ANATOMY
OF
VERTEBRATES

KINGSLEY
OUTLINES
OF
COMPARATIVE ANATOMY
OF
VERTEBRATES

BY

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SECOND EDITION, REVISED

WITH 406 ILLUSTRATIONS
LARGELY FROM ORIGINAL SOURCES

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PREFACE TO SECOND EDITION

The present edition has undergone a thorough revision, several sections having been rewritten, and every page having been carefully examined. A very considerable number of new illustrations have been added and several of those of the first edition have been redrawn. Experience has shown that it is easier to remember technical terms when their derivation and meaning is understood. Hence there has been added to this edition a list of Greek and Latin roots, from which the student can ascertain the origin and composition of practically every anatomical and embryological term in the volume. For assistance in the preparation of this, I am indebted to Professor W. A. Oldfather, of the University of Illinois. I would also return thanks here to the various persons who have sent me criticisms and corrections of statements in the first edition, and I cannot refrain from expressing my appreciation of the way in which the publishers have presented this and the former edition.

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PREFACE TO FIRST EDITION

Vertebrate anatomy is everywhere taught by the laboratory method. The student studies and dissects representatives of several classes, thus gaining an autoptic knowledge of the various organs and their positions in these forms. These facts do not constitute a science until they are properly compared and correlated with each other and with the conditions in other animals. It is the purpose of the author to present a volume of moderate size which may serve as a framework around which these facts can be grouped so that their bearings may be readily recognized and a broad conception of vertebrate structure may be obtained.

In order that this may be realized, embryology is made the basis, the various structures being traced from the undifferentiated egg into the adult condition. This renders it easy to compare the embryonic stages of the higher vertebrates with the adults of the lower and to recognize the resemblances and differences between organs in the separate classes. There has been no attempt to describe the structure of any species in detail, but rather to outline the general morphology of all vertebrates. To aid in the discrimination of the broader features and the more minor details, two sizes of type have been used, the larger for matter to be mastered by the student, the smaller for details and modifications in the separate classes to which reference may need to be made.

Considerable space has been given to the skull, as there is no feature of vertebrate anatomy which lends itself more readily to comparative study of the greatest value to the beginning student, while the same specimens can be used in the laboratory year after year. The skull also has a special interest since nowhere else is there the same chance of tracing modifications in all groups since the first appearance of vertebrates on the earth. To aid in this, extinct as well as recent species have been included.

It was the desire of the author to adopt the nomenclature of the German Anatomical Society ('BNA'), but this was often found impracticable. The BNA was based solely upon human anatomy and it fails utterly in many respects when the attempt is made to transfer