An introduction to dental anatomy and physiology, descriptive and applied

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BY THE SAME AUTHOR


"DENTAL MICROSCOPY," A HANDBOOK OF PRACTICAL DENTAL HISTOLOGY."


THE VASCULAR AND NERVOUS SYSTEMS
of
THE MAXILLÆ AND MANDIBLE OF A CHILD. x1
AN INTRODUCTION
TO
DENTAL ANATOMY
AND
PHYSIOLOGY
DESCRIPTIVE AND APPLIED

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CENTRAL-VEREINS DEUTSCHER
ZAHNÄRZTE, ETC.

WITH 340 NEW AND ORIGINAL ILLUSTRATIONS, INCLUDING A FRONTISPIECE
IN PHOTOGRAVURE AND 5 PLATES

LONDON
J. & A. CHURCHILL
7 Great Marlborough Street
1913
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PREFACE

An attempt has been made in the following pages to place before the reader a short account of the Essentials of Dental Anatomy and Physiology, and in consonance with the requirements of a utilitarian age, to indicate those aspects of such a subject which may have some direct practical bearing upon the science and art of Dental Surgery. Odontology is a matter of fundamental importance to one who has entered, or who is about to enter, upon the practice of this special branch of the treatment of disease. Hence it is important to decide what is necessary for the student to know, that he may be able to deal intelligently and intellectually with every phase of his adopted profession as he encounters it during his life's work.

A further endeavour has been made to endow an admittedly unattractive topic with some degree of interest, and to create in the mind of the reader an atmosphere of regard which the contemplation of the Anatomy of the Teeth deserves and demands. Surely even a halo of romance can be found, if looked for, in this study, so closely is it interwoven with the Natural History of Man and animals on this planet. Human teeth have been imperishable structures—when not affected by disease—from countless ages; and their physical characters and enduring natures have been, are, and may be able to render them of the greatest value in medico-legal cases in which much happens to be involved.

As an occasional means of identification of the illustrious dead, e. g., Louis XVII of France, and the Prince Imperial, son of Napoleon III, killed by the Zulus in 1879, or the victims of great calamities, such as extensive fires, like that of the Bazar de la Charité in Paris in 1897, the teeth, when exhibiting the results of surgical interference, have been found to be of enormous importance; in criminal cases their similar silent testimony may prove or disprove a legal argument; in the remains of prehistoric man they afford a clue to the nature of the food which supported life in those far-distant ages; and in indicating the habits of the individual of whose body they form a part, they may reveal the higher qualities or the baser constitution of his mental attributes.

From a strictly scientific point of view, also, the modern zoologist, appreciating the value and importance of the dental armaments of the vertebrates, has employed some of their main features for the purpose of classifying and arranging, in their proper positions in the scheme of Natural History, several orders of mammals, such as the rodents, the whales, and the marsupials.
Of Sir Richard Owen it is said that, given a single fossilized tooth, he could reconstruct, with considerable accuracy, the main skeletal features of its owner, whether bird, beast, or fish.

In short, teeth take their allotted place in Nature as do the other parts of the anatomy of Man, and on these grounds alone should be deemed worthy of consideration, attention, and investigation.

The mission of this book is to explain how it comes about that Man has a certain number of teeth, to describe their functions—combined, individual, component—to relate the method of their implantation, to detail their growth and the origin of the complexities of their patterns, and to narrate the rôle they play in the economy of Nature generally, and their close association with other portions of the body.

As on viewing a picture for the first time one stands, or should stand, at a distance, to apprehend its perspective, and inspect its composition in its entirety, and afterwards approaches closer to examine, in extended detail, its several portions, so should be the attitude of him who takes up this, or other similar volume. It should be quickly perused from cover to cover, until a general survey of the subject and the meaning of the arrangements of its parts is understood. Then each portion should be scrutinized, and studied in extenso.

The student would, therefore, be well advised to read the pages consecutively, not a passage here and a paragraph there. It has, of course, been expedient to divide the material into Chapters, but they have been harmonized in such a manner that each is dependent upon the preceding, and cannot possibly be thoroughly appreciated without a knowledge of the contents of its predecessor. Each chapter anticipates the next, and leads up to those treating of the Anatomy and the Relationships of the Teeth of Man, which, in the author’s opinion are the most important of the whole series.

A knowledge of the elementary principles underlying the study of general anatomy, general physiology, and biology is presupposed and actually required; the corollary being, therefore, that this work is intended for the use of the senior student and practitioner. Certain chapters, such as those dealing with the homologies of the Teeth, the development of the mammalian crowns, the influence that the Darwinian theory of evolution has upon the teeth, as being of less importance than the others, have, purposely, been treated in sketchy outline. Descriptions of the minute anatomy of the dental and oral tissues have been designedly omitted; for information regarding them references should be made to the Author’s “The Histology and Patho-histology of the Teeth and Associated Parts.” Comparative palaeontology has been likewise disregarded, as it is of but little moment in relation to the exercise of every-day dental work.

It would seem that a modification of some of the expressions commonly made
use of in dental parlance is imperative and necessary. In connection with the
names of teeth, the "central" incisor should be invariably known as the "first"
incisor, the "lateral" as the "second" incisor. Similarly the word "bicuspids"
should be entirely replaced by "premolar." and it is at once obvious that the terms
"six-year-old" molar, "twelve-year-old" molar and "wisdom" tooth are wrong.
In conformity with the principles and teachings of Comparative Anatomy these
teeth should be recognized as the "first," "second," and "third" molars. The
"temporary" should always be styled the "deciduous" dentition; and the "articula-
tion." the "occlusion" of the teeth. Further, it is evident that designations
such as "open bite," "edge-to-edge bite," "underhung bite," are obsolete, and
that it is desirable, as pointed out in Chapter XI. to change them to "opharmosis,"
"prosharmosis," and "epharmosis" respectively.

For the preparation of this work much information has been obtained from
examinations of the specimens in the Natural History Section of the British Museum,
the Odontological Collection of the Royal College of Surgeons of England, the
Museums of the Royal Dental Hospital of London, Guy's Hospital, the Univer-
sities of Cambridge and Birmingham, the École Dentaire de Paris, the Anatomische
Anstalt der Universität, Berlin, and the Pathologisches Museum der Kgl. Charité,
Berlin.

The author has almost essayed "prendre la lune avec ses dents." If he has
succeeded in his task of merely introducing some of the fascinating facts and
theories of Dental Anatomy and Physiology to the younger generation of students,
his attempt will be justified.

Portions of the book have already appeared substantially in the Transactions of
the Fifth International Dental Congress, and the Second Australian Dental Congress.

In connection with the publication of the volume, the author owes an especial
debt of gratitude to his eminent and learned friend, Dr. Edward C. Kirk, for his
editorial services, so readily proffered and so willingly undertaken; and he desires
to acknowledge his grateful thanks to the Publishers for the extreme care they have
exercised with regard to the typography and the pictorial aspect of its pages.

To the writings of Mr. Chas. S. Tomes—whose "Manual of Dental Anatomy"
is well-known—of Mr. E. Clodd, Dr. Black, etc., he is greatly indebted for very
much inspiring and interesting intelligence. Many of the illustrations are from
photographs taken by Mr. George Payne, Sub-Curator of the Museum of the
Royal Dental Hospital of London, of specimens therein found, and also in that
of the Royal College of Surgeons of England, and to him, and to the authorities of
these latter institutions he is beholden for much kind help.

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