

ERIK NORDENSKIÖLD

THE
HISTORY
OF
BIOLOGY



Louis W. Hutchins

Marine Biological Laboratory Library

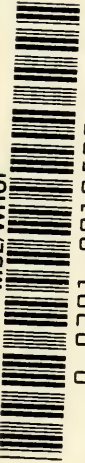
Woods Hole, Mass.



Presented by

From the estate of
Louis W. Hutchins
May, 1964

MBL/WHOI



0 0301 0010530 0

THE HISTORY OF BIOLOGY

CHAPTERS IN
MODERN BIOLOGY
AND
BIOMETRICS

By Raymond Pearl :

THE BIOLOGY OF POPULATION GROWTH
ALCOHOL AND LONGEVITY
THE RATE OF LIVING

By Julian Huxley :

ESSAYS OF A BIOLOGIST
ESSAYS IN POPULAR SCIENCE

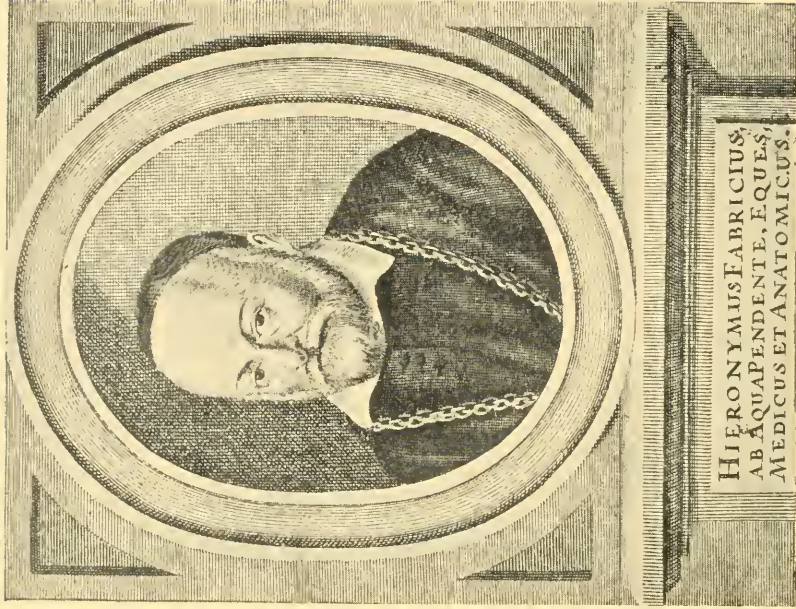
By William Morton Wheeler :

FOIBLES OF INSECTS AND MEN



ANDREAS VESALIUS

ANDREAS VESALIUS



HIERONYMUS FABRICIUS,
AB AQUAPENDENTE, EQUES,
MEDICUS ET ANATOMICUS.

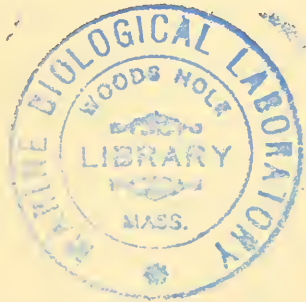
GIRALAMO FABRIZIO

By **ERIK NORDENSKIÖLD**

TRANSLATED FROM THE SWEDISH BY
LEONARD BUCKNALL EYRE

THE
HISTORY
OF
BIOLOGY

A SURVEY



TUDOR PUBLISHING CO.
MCMXXXVI New York

COPYRIGHT 1928 BY ALFRED A. KNOPF, INC.

ALL RIGHTS RESERVED—NO PART OF THIS BOOK MAY BE REPRINTED
IN ANY FORM WITHOUT PERMISSION IN WRITING FROM THE PUBLISHER

NEW EDITION AUGUST, 1935
SECOND PRINTING JULY, 1936

Originally issued as
BIOLOGINS HISTORIA
in three volumes
1920-24
STOCKHOLM, BJÖRCK & BÖRJESSON

MANUFACTURED IN THE UNITED STATES OF AMERICA

FOREWORD

THIS work, which is here presented in the English language, is based on a course of lectures given at the University of Helsingfors, Finland, during the academic year 1916-17. It is the author's intention to present a picture of the development of biological science throughout the ages, viewed in conjunction with the general cultural development of mankind. Regarded thus as a link in the general history of culture, the problems of biology will, it is hoped, prove of interest not only to young university students, for whom this book is primarily intended, but also to a still wider public. With regard to modern times, for obvious reasons it has only been possible in such a brief history as this to give a very summary account of recent developments. A more thorough knowledge of the results of specialized biological research will be gained by reference to the literary works of professional biologists, which often contain a historical survey by way of introduction. On the other hand, the theoretical principles on which research work has been carried out have been discussed here in greater detail, both for the reason that records of them are not so easily accessible and on account of the influence they have exerted upon culture in general. In accordance with this principle a number of typical representatives of each trend of thought have been selected for inclusion and their work described, while no attempt has been made to present a complete record of all personalities that have figured in the biological world. In this, as in other historical

works, the selection has of course been made by a process of elimination, which to a certain extent was bound to be subjective; especially in a work dealing mainly with a general historical development it has been necessary to exclude the names of a great many brilliant specialists, in spite of the fact that their work may be of lasting value, while other personalities, perhaps in themselves of less importance, have been mentioned on account of the part they have played in the general cultural development of their period. For the same reason representatives of scientific progress in the various civilized countries of the world have been included, as far as space has allowed, in order to present as comprehensive an idea as possible of the progress of science and the contributions that different peoples have made thereto.

For their assistance in preparing the English edition I take this opportunity of recording my thanks to Mr. Leonard Bucknall Eyre, B.A. Cantab., of Stockholm, who has translated the book from the Swedish, and to Mr. Alfred A. Knopf, who has promoted its publication.

Stockholm, November 1927

THE AUTHOR



CONTENTS

PART ONE

BIOLOGY IN CLASSICAL ANTIQUITY, THE MIDDLE AGES, AND THE RENAISSANCE

I. The development of biology amongst the primitive peoples and the civilized nations of the East	3
II. The earliest Greek natural philosophy	8
III. The earlier phase of Greek medical science and its significance for the development of biology	25
IV. The end of natural-philosophical speculation. The prede- cessors of Aristotle	30
V. Aristotle	34
VI. Natural-philosophical systems after Aristotle	45
VII. Specialized biological research after Aristotle	50
VIII. The decline of science in late antiquity	58
IX. Biological science among the Arabians	68
X. Biology during the Christian Middle Ages	74

*

THE HISTORY OF BIOLOGY DURING THE RENAISSANCE

XI. The end of mediæval science	82
XII. New cosmic ideas and new scientific method	84
XIII. Descriptive biological research during the Renaissance:	
1. Zoography	92
2. Anatomy	98

XIV. The discovery of the circulation of the blood:	
1. Harvey's predecessors	108
2. Harvey	114

*

PART TWO

BIOLOGY IN THE SEVENTEENTH AND EIGHTEENTH CENTURIES

I. The origin of the modern idea of nature in the seventeenth and eighteenth centuries	121
II. The mechanical nature-systems	123
III. Mystical speculation upon natural science	132
IV. Biological research in the seventeenth century:	
1. Harvey's successors	141
2. Attempts at a mechanical explanation of life-phenomena	151
3. Microscopics and microtechnology	158
V. Biological speculations and controversial questions at the beginning of the eighteenth century	174
VI. The development of systematic classification before Linnæus	190
VII. Linnæus and his pupils	203
VIII. Buffon	219
IX. Invertebrate research in the eighteenth century	230
X. Experimental and speculative biology in the eighteenth century	234
XI. Descriptive and comparative anatomy in the eighteenth century	258
XII. The first beginnings of modern chemistry and its influence upon the development of biology	264
XIII. Critical philosophy and Romantic conceptions of nature:	
1. Kant and his immediate successors	268
2. Goethe	279

XIV. Natural philosophical biology:	
1. Germany and Scandinavia	286
2. England and France	293

*

P A R T T H R E E

M O D E R N B I O L O G Y

B I O L O G Y D U R I N G T H E F I R S T H A L F O F T H E
N I N E T E E N T H C E N T U R Y

I. From natural philosophy to modern biology:	
1. The predecessors of comparative anatomy	301
2. Humboldt	314
3. Lamarck	316
II. Cuvier	331
III. Bichat and his tissue theory	344
IV. Cuvier's younger contemporaries	352
V. The progress of embryology	362
VI. The development of experimental research and its application to comparative biology	370
VII. Microscopy and cytology	389
VIII. The continued development of biology until the advent of Darwinism:	
1. Experimental research work	406
2. Morphology and classification	414
3. Microbiology	426
4. Botany	435
IX. Positivist and materialist natural philosophy	441

*

F R O M D A R W I N T O O U R O W N D A Y

X. The preconditions of Darwinism:	
1. Modern geology	453
2. The ideal preconditions of Darwinism	458

Thank You for previewing this eBook

You can read the full version of this eBook in different formats:

- HTML (Free /Available to everyone)
- PDF / TXT (Available to V.I.P. members. Free Standard members can access up to 5 PDF/TXT eBooks per month each month)
- Epub & Mobipocket (Exclusive to V.I.P. members)

To download this full book, simply select the format you desire below

