

**ANIMAL MICROLOGY;
PRACTICAL EXERCISES IN
MICROSCOPICAL
METHODS**

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Animal micrology; practical exercises in microscopical methods by Michael F. Guyer

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MICROSCOPICAL METHODS

BY

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PREFACE

For the past ten years it has been a part of the writer's duties to give instruction in microscopical technique, and it has seemed to him that there is need for a series of practical exercises which will serve to guide the beginner through the maze of present-day methods, with the greatest economy of time, by drilling him in a few which are thoroughly fundamental and standard. The book is intended primarily for the beginner and gives more attention to the details of procedure than to discriminations between reagents or the review of special processes. The student is told what to do with his material, step by step, and why he does it; at what stages he is likely to encounter difficulties and how to avoid them; if his preparation is defective, what the probable cause is and the remedy. In short, the book attempts to familiarize the student with the little "tricks" of technique which are commonly left out of books on methods but which mean everything in securing good results.

A very brief, non-technical account of the principles of the microscope is inserted (Appendix A) with the idea of giving the student just enough of the theoretical side of microscopy to enable him to get satisfactory results from his microscope. The microscope is so ably treated in the excellent works of Gage (*The Microscope*) and Carpenter (*The Microscope and Its Revelations*) that the writer feels himself absolved from any further responsibility in this matter.

The aim of the entire book is to be practical: to omit everything that is not essential; and, above all, to give definite statements about things. Appended to each chapter is a series of *memoranda* which serve to supply additional information that is more or less pertinent without obscuring the main features of the method under consideration.

In Appendix B the formulæ for a number of the most widely used reagents are given with comments upon their uses and manipulation. Following this (Appendix C) is a concise table of a large

number of tissues and organs with directions for properly preparing them for microscopical study.

Inasmuch as every experienced worker has his own "best" method for the preparation of almost any tissue, it is manifestly impossible to give all "best methods" in such a table. The writer believes, however, that the student will find the methods recommended all good ones which will yield satisfactory results.

In Appendix D some directions are given for collecting and preparing material for an elementary course in zoölogy.

It is hoped that the volume will prove of use: (1) as a class textbook; (2) as a guide to the independent individual worker (teacher, physician, college or medical student, or novice); (3) as a reference book for teachers, in the preparation of material for courses in elementary zoölogy, histology, or embryology.

In the matter of expressing his obligations the writer is at a loss to know just what to do. Many of the methods in microscopical technique have been handed down tradition-wise from one worker to another until their origin is unknown; they are the accumulated experiences of several generations of workers. Furthermore, many points have been absorbed, as it were, by the writer, from fellow-workers in the Universities of Chicago, Nebraska, and Cincinnati, respectively; consequently the obligation cannot be specifically expressed. Where the name of the originator of a method is known, due credit has been given. The books to which the author is most heavily indebted are the volumes of Gage, and Carpenter, already mentioned, Lee's *Microtomeist's Vade-Mecum*, Whitman's *Methods in Microscopical Anatomy and Embryology*, Hardesty's *Neurological Technique*, Foster and Balfour's *Elements of Embryology*, Minot's *Laboratory Text-book of Embryology*, Huber's translation of the Böhm-Davidoff *Text-book of Histology*, Stöhr's *Text-book of Histology*, Mallory and Wright's *Pathological Technique*, Bausch's *Manipulation of the Microscope*, and the *Journal of Applied Microscopy*. Grateful acknowledgment is also made to the various manufacturers of microscopical instruments and appliances for the loan of most of the cuts which have been used in this volume.

M. F. G.

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