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MINNIE ELIZABETH KAMM

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STUDIES ON GREGARINES

Including Descriptions of Twenty-one New Species
and a Synopsis of the Eugregarine Records
from the Myriapoda, Coleoptera and
Orthoptera of the World

WITH FIFTEEN PLATES

BY

MINNIE ELIZABETH WATSON

Contributions from the
Zoological Laboratory of the University of Illinois under the direction of
Henry B. Ward No. 65

THESIS

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TABLE OF CONTENTS

INTRODUCTION PAGE

Technic 7
Previous Work on Gregarines 9
List of Terms Used in Describing Gregarines 10

PART I BIOLOGY

The Hosts Infected 12
Localities Represented 14
Seat of Infection 14
Seasonal Variation within the Host 15
Relation of Parasite to Host Tissue 16
Movement in Gregarines 20
Summary 20

PART II MORPHOLOGY OF GREGARINES

Morphology of the Sporonts 27
The Stenophoridae 27
The Gregarinidae 30
Life History of a Typical Cephaline Gregarine 32
The Question of Sporont Maturity 33
The Cysts 34
Cyst Formation in the Gregarinidae
Leidyana erratica 34
Cyst Development and Dehiscence 36

PART III SYNOPSIS OF THE EUGREGARINE RECORDS OF THE MYRIAPODA, COLEOPTERA, AND ORTHOPTERA OF THE WORLD

Introduction 40
Brief Synopsis of the Families and Genera of the Tribe Cephalina (Delage) of the Suborder Eugregarinae (Léger) 43
Genera of Uncertain Position 48
Polycystid Gregarines in the Diplopoda 48
Polycystid Gregarines in the Chilopoda 80
Polycystid Gregarines in the Orthoptera 94
Polycystid Gregarines in the Coleoptera 128
Appendix .....
An Unnamed Didymophes from a Japanese Beetle 198

PART IV THE CEPHALINE GREGARINES OF THE WORLD TOGETHER WITH THEIR HOSTS 200
HOSTS WITH THEIR CEPHALINE GREGARINE PARASITES 207
List of New Species 215

BIBLIOGRAPHY 216

EXPLANATION OF PLATES 221

INDEX 251

INTRODUCTION

The following pages contain results from the study of a number of species of gregarines found as parasites in various Orthoptera, Coleoptera, and Myriapoda during the past three years. The work was done chiefly in the zoological research laboratory of the University of Illinois, under the supervision of Professor Henry B. Ward. I am deeply indebted to Professor Ward for his direction and helpful suggestions throughout. Four of the species described were found and studied at the Biological Laboratory of the Brooklyn Institute, Cold Spring Harbor, Long Island, N. Y., and I wish to express my gratitude to Dr. C. B. Davenport for the opportunity of carrying on investigations at the Station. I wish also to thank Professor F. D. Barker, Professor H. B. Baker, and Mr. Elmer Shafer for kindly sending me material from which parasites were obtained.

The gregarines were studied in order to procure data in addition to that already known concerning (1) their biology including the habitat, relation to the host, seasonal distribution, and character of movement, (2) their modes of reproduction, and (3) their systematic position; twenty-two species are described for the first time while additional data is given for many more species. One result of the work was the compilation of a synopsis wherein are recorded in concise form the known facts concerning all the polycystid gregarines which literature records from the Orthoptera, Coleoptera, and Myriapoda of the world. A list was made of all the polcystid gregarines known, with their hosts, in order that species may not be recorded as new which have hitherto been discovered and that new species may not be given names which have already been used.

TECHNIC

The following method was used in studying the live parasites: The anterior and posterior extremities of the host are clipped off as close to the ends of the animal as possible and the alimentary tract is drawn out intact. It is then slit lengthwise with fine scissors, placed flat on a slide, and the masses of food and the parasites then teased out carefully to form a layer as thin and as nearly transparent as possible.

Distilled water and normal salt solution were found to be the best media in which to observe the live gregarines. Plasmolysis is slower with