The five counselors for the new society are:

Dr. Oswaldo Giannotti, Instituto Biológico, São Paulo

Dr. Carlos Jorge Rossetto, Instituto Agronômico, Campinas, São Paulo

Dr. Mário Bezerra de Carvalho. Universidade Federal de Pernambuco, Recife, Pernambuco

Dr. Father Jesus S. Moure, Universidade Federal do Paraná, Curitiba, Paraná

Dr. Elpidio Amante, Instituto Biológico, São Paulo

The "Sociedade" is open to members from outside Brazil. Those wishing to join and receive the annual publication should send a check for US$8.00 to Dr. Roger N. Williams, OSU/ESALQ Contract, c/o American Consulate General/São Paulo, APO New York 09676. Dr. Carlos Flechtmann, ESALQ, Universidade de São Paulo, Piracicaba, S.P. is the editor of the new publication which will be entitled, "Anais da Sociedade Entomológica do Brasil".

BOOK REVIEWS

ARMY ANTS: A Study in Social Organization. T. C. Schneirla. [Howard R. Topoff, ed.] 1971. Freeman, San Francisco. xviii + 349 p., illus. $12.00.

Schneirla's death in 1968 truncated the production of a significant contribution to both the myrmecology and the study of social organization. It is to Topoff's credit that he undertook to edit and publish the manuscript which Schneirla had left unfinished.

The book is a catalog and summary of Schneirla's life work on army ants, both in the field and in the laboratory. Unfortunately, the early chapters are repetitive and loosely constructed. However, there are very few typographical errors or reversed captions. The book is abundantly cross-referenced. There is an extensive bibliography, a glossary, and an index.

A chapter is devoted to each of the following topics: bivouacs, raiding, emigrations, broods, functional cycles and nomadism, the queen, males and young queens, colony division, the new colonies, *Aenictus,* and the individual and the colony. The chapter on the individual and the colony and the final chapter, the Doryline Colony as an Adaptive System, provide an excellent summary of material presented in earlier pages and of Schneirla's findings and hypotheses.

The complex nature of army ant behavior becomes apparent from the following quotation (p. 284): "The systems of events . . . , through their interdependence, provide a basis for impressive patterns of group organization in the doryline colony. One set of the queen's properties, her reproductive functions, is critical for the colony functional cycle but owes its rhythm to repetitive changes in stimulative and trophic effects exerted on the queen from the general colony situation. Another set, accounting for her distinctive odor, gives a basis to normal processes of communcation that keep her colony functioning as a whole and apart from others of its species. Reciprocal stimulative relationships between workers and successive broods serve to energize the colony's cyclic functions and thus to account for their species-typical timing. The impulsion of group foraging and the initiation and maintenance of the nomadic and statary condition in alternating phases depend upon differences in the reciprocal-stimulative and trophic functions for which changing developmental conditions of the brood are critical. When the brood-excitation factor is high, colony operations in appropriating space and food are correspondingly high and complex. These results occur because a qualitatively superior pattern of foraging can arise in the nomadic situation, reaching a threshold at which an emigration results almost invariably."

In the last chapter, the doryline colony is represented as an adaptive system. The behavior of such a colony with its cyclic patterns is dependent on structural, physiological, behavioral, and environmental factors. "Organizations in function . . . develop in aggregations of queen, workers, and brood that are functioning under environmental conditions appropriate for working out changes in individual and interindividual behavior essential to them . . . . Only in the sense of their development in the group situation can the adaptivity of these group processes be understood . . . " (p. 285)

Schneirla inclines toward a monophyletic view of the origin of doryline genera on the basis of both taxonomic and behavioral data. He confines his discussion primarily to the genera *Dorylus, Anomma, Aenictus, Neivamyrmex,* and *Eciton.* He envisages two major stocks from which these genera arose: A) "an *Aenictus*-like ant living in colonies of moderate size capable of mobility and efficient action mainly on the *surface,* and B) a *Dorylus*-like ant with larger queens living in larger colonies mainly adjusted to *subterranean* conditions." (P. 321.)

The book is important because its basic theory supports the contention that individual and group behavior, even in insects, is a result of the interaction of the genetic mechanisms and environmental factors, eliminating a need for a concept of instinct. The individuals in a colony have evolved into an adaptive system "through the reduction of individuals and of their functions to just the ones that contribute in one way or another to efficiency in collective operations." (P. 326.)

Schneirla has shown the impressively complex nature of doryline colony interactions, the complexity arising from simple sequential stimuli to which each type of individual in the colony reacts, forming an intricate social organization. This book is an essential reference for courses in social insects, animal behavior, and entomology, and could be effectively used as collateral reading for related undergraduate and graduate courses because of its nontechnical format.

A. F. VAN PELT
Greensboro College
Greensboro, N. C. 27402

PROBIT ANALYSIS, 3rd Edition by D. J. Finney. 1971. Cambridge University Press. Cloth-bound only. $18.50.

This book was last issued as a reprint in 1962 and is no longer available. The revised edition incorporates many of the developments in statistical theory as well as some discussion of the more important criticisms generally made of the probit method, especially as presented in the previous edition. The revised edition is meant to be a complete account of the theory and application of probit analysis. The purpose of the book remains "to help the experimental scientist (especially biologist) in the practice of a set of statistical techniques that was becoming steadily more important."