been better if it had taken twice as long to write and been half the size. There is a certain air of inter-office memorandum about it, which is not wholly unattractive but which makes at times for tedious reading. In my own set of social indicators the book suggests that too much money is going into excuses, not enough into reasons. There is too much pressure for quick publication, and I notice a slight rise in the index of diversion of the academic community by the grants economy.

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Microbiology

Principles of Microbial Ecology. THOMAS D. BROCK. Prentice-Hall, Englewood Cliffs, N.J., 1966. 320 pp., illus. $7.75.

Principles of Microbial Ecology is to be recognized and welcomed as the first volume in any language dedicated to this difficult but timely and deserving subject. Unfortunately, the book, though commendable in concept, is not so in content. I regret that it is not more carefully composed and that it is not profound. The author's approach is more qualitative than quantitative. His intended audience is not clear, but it is one that requires simple definitions and descriptions of water, *p*H and E_h, of pure culture, virus, and micorrhiza, of ecosystem, productivity, and succession, and of the carbon, nitrogen, and sulfur cycles. There is little new information that the book can impart to a college student who has completed courses in introductory chemistry and microbiology, and the brevity and superficiality of treatment are emphasized by the author's frequent referral of the reader to other texts for "details."

Brock has considerable knowledge of his field, but in attempting to integrate facts and derive principles he sometimes contradicts himself. In the introduction to the book he writes that microbial ecology has developed slowly "partly because of experimental difficulties," but then goes on to explain that "Microbial ecology can become a meaningful experimental science, since in many cases a simple test tube or flask can be converted into a precise, reproducible, and meaningful ecosystem." On page 76 of the text the reader learns that the "interior of an experimental animal is usually sterile," but on page 86 he is informed that "No animal in nature is sterile and microorganisms are frequently present in huge quantities, especially on the skin and in the intestinal tract." Brock expends effort and space (pp. 28–33) to support his conclusion that pure culture work in the laboratory is "merely taking a situation which may already exist in nature and magnifying it in order to study it conveniently." But he considerably weakens this argument by later questioning whether the movement of colonies on agar plates is "merely a laboratory artifact" (p. 92) and by issuing a "warning to those who would attempt to measure the ecological roles of antibiotics by the use of agar plates" (p. 133).

The volume is a readable introduction to the subject in spite of its faults, however, and Brock is certainly correct in his concluding statement that "The future of microbial ecology holds nothing but promise."

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An Advance in Epidemiology

A Prospective Study of the Incidence of Mental Disorder. OLLE HAGNELL. Svenska Bokförlaget, Stockholm, 1966. 175 pp. Paper, Kr. 37.

An investigation can be notable for what it discovers or because it points the way that future research must follow. Olle Hagnell's unpretentious book provides little new substantive knowledge; it nevertheless marks an important advance in the epidemiology of mental disorder, for it demonstrates in the most convincing way possible that the approach we have all along known to be best is in fact possible.

Up to now, epidemiologists have relied either on incidence data limited to people who undergo one or another form of treatment or on prevalence data. Both of these are seriously deficient for any studies concerned with etiology. The difficulty with the first is that the many ill people who never enter treatment are markedly dissimilar to those who do. The difficulty with the second is that prevalence reflects both incidence and duration of illness, and duration is highly correlated with etiologically relevant variables. Hagnell has now done a study the way it should be done: he has taken a population that was carefully examined 10 years ago and has reexamined virtually everyone to see who has become ill in the interim. His data provide the most accurate information ever obtained on the true incidence of mental disorder.

Unfortunately, there are stringent limits to how much a single investigator can do. In interviewing 2550 people, Hagnell comes up with too few cases of any particular type or degree of mental disorder to be able to go much beyond establishing rates for the population as a whole. Furthermore, in the limited time he could spend on each interview he got very little more information than what was needed for making an accurate diagnosis. Thus, when he comes to what should have been the most exciting part of the book—the analysis of the relationship between variables of possible etiologic importance and rates of disorder—he has little to say. He tells us that there is no apparent relationship between occupational level or income and overall rates of mental disorder, but that there is an apparent relationship between migration and these rates. The negative findings are of no great significance, because there was no reason to expect otherwise: occupation and income have proved to be very potent variables in studies of large cities, but not in studies of rural and small-city populations like the one Hagnell studied. The finding on migration is potentially very exciting, but Hagnell has not the data to carry the analysis forward to discover how and why migration matters.

For future investigations to proceed further will require major modifications of method. Hagnell did the most that was possible for a single psychiatrist going into the field with the traditional diagnostic techniques of his discipline. The larger studies of urban populations that must now be done will require new techniques of measurement that can be used reliably by teams of investigators and that make much greater use of our developing abilities at multivariate analysis. In the not very distant future we may look back upon Hagnell's study as primitive in method as well as limited in scope; we shall nevertheless applaud it for having demonstrated that it is possible to do a true incidence study of mental disorder. That having been demonstrated, the technical problems we now face should not prove insuperable.

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