ments has been made even more comprehensive.

The editor has wisely chosen to accept a certain amount of repetition to make possible a more rounded presentation of relevant material in the subdivisions of the text so that each tends to stand alone, adding to reference value. At the same time, other than the chapter by Wyss concerned with natural and acquired resistance to antimicrobial substances, there is no general theoretical discussion of microbial growth inhibition and death, or consideration of the implications of the dynamics of the processes of disinfection. Possibly the authors assume an adequate background on the part of the reader, and this assumption is doubtless justified, but in my opinion the book would gain in stature by presentation of the subject material against an authoritative theoretical discussion.

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Handbook of Chemical Data. F. W. Atack, Ed. Reinhold, New York, 1957. 629 pp. $6.75.

This is a handy little pocket-size volume of essential chemical information in tabular form. Although by no means as complete as the familiar *Lange* and *Chemical Rubber* Handbooks, it lists the properties of 2100 inorganic and 5500 organic compounds and contains useful tables of specific gravities of solutions, logarithms, formulas, gravimetric factors, and so on. The book is small enough to fit a pocket or a brief case, the typeface is easy to read, and the arrangement of headings makes it possible to find information quickly without using the index.

Psychology, Evolution and Sex. Cecil P. Martin. Thomas, Springfield, Illinois, 1957. x + 166 pp.

Evidence for any biological theory is never complete. Destructive criticism points out the gaps in the evidence without offering a better explanation of the demonstrated order of facts. Constructive criticism offers an alternative theory that is more in accord with the evidence, or provides new facts that logically force modification or overthrow of inadequate theories.

Martin's book attempts to refute the "mutation-selection theory" of evolution, and, in its place, he offers the alternative theory which is little more than a modern restatement of Lamarckian inheritance of acquired somatic characters—psychological, physiological, and structural. He does not claim proof for Lamarckism, but he is strong in his opinion that the "mutation-selection" theory is less well established. He does not incorporate adequately the advancing information on the roles of recombination, inbreeding, and population genetics. He thus fails to understand how complex functions or regressions can evolve in conformity with modern genetic and ecologic principles. Many sweeping statements are made in contradiction to available evidence not mentioned in his limited bibliography. For example, he says (page 23): "That the modificatory preferences become, in time, hereditary seems fairly certain. That they do so through mutation and natural selection has not been proved and appears to be virtually impossible." He seems sincere in his viewpoint and convictions but, in my opinion, too often substitutes biased generalizations for a careful analysis of the facts, pro and con. When he does gather facts together, he often leaves out evidence opposed to his conclusions. It would take far too much time and space to supply the data that would tend to refute his major conclusions, but I suggest that the interested reader examine the following books and papers: (i) W. C. Allee, A. E. Emerson, O. Park, T. Park, and K. P. Schmidt, *Principles of Animal Ecology* (Saunders, 1949); (ii) G. L. Stebbins, Jr., *Variation and Evolution in Plants* (Columbia University Press, 1950); (iii) T. Dobzhansky, *Genetics and the Origin of Species* (Columbia University Press, ed. 3, 1951); (iv) J. Huxley, A. C. Hardy, and E. B. Ford, *Evolution as a Process* (Allen and Unwin, 1954); (v) H. J. Muller, "Life," *Science* **121**, 1 (1955).

These publications give both discussions of concepts and many pertinent bibliographical references that will supply much of the critical data lacking in Martin's book. Of course, these references do not solve completely all of the problems raised, and there are some differences of opinion and interpretation among the active investigators of evolutionary dynamics, but I think the major questions raised by Martin are largely answered. Old-fashioned Lamarckism is now rather thoroughly discredited. I would also suggest that "The evolution of adaptations" by C. H. Waddington [Endeavour **12**, 134 (1953)] be read. This essay shows how examples once used by Lamarckians may be harmonized with modern genetic and ecologic theory. Instead of a cause always preceding an effect, genetic substitution indicates that the effect, in a sense, causes the selection of genetic triggers setting off processes once physiologically acquired. In time there may be an evolutionary feed-back from effect to cause, provided only that the cause is continuous or repeated.

It is well to have a healthy skepticism concerning any theory, major or minor. Science grows by the accumulation of new evidence and the refutation or verification of theories explaining the order of facts. Relationships are observable facts as much as are the facts that are related. However, in the book under review, I am not convinced that the alternative of Lamarckism is justified by the evidence, nor am I convinced that Martin has penetrated thoroughly enough into the evidence that supports the theory he attempts to refute. He accuses others of approaching the problem with fixed preconceptions and dogmatic attitudes, but it seems to me that Martin may have erred by proceeding from a somewhat subjective bias himself. Unfortunately none of us can be thoroughly objective and remain human.

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Introduction to the Mechanics of Stellar Systems. Rudolf Kurth. Pergamon Press, New York and London, 1957. ix + 174 pp. $9.

A stellar system may be characterized as an assemblage of mass points, each moving under the combined gravitational influence of all the others, with no spatial bound on the motion of any individual particle. No straightforward theory has ever been developed for the mechanics of such a system; instead, techniques have been drawn in catch-as-catch-can fashion from theories of the *n*-body problem, the motion of continuous media, statistical mechanics, and kinetic theory. Rudolf Kurth says he has attempted to bring out the essential parts of this subject, but the scope of his book is not as broad as the title would indicate. He concerns himself chiefly with the abstract mechanical principles that may be applied to stellar systems. He cannot claim to give a systematic presentation of current theories of stellar dynamics and their application to actual stellar systems.

The book begins with a short summary of observed characteristics of existing stellar systems, followed by a consideration of the basic assumptions and methods on which a theory of their mechanics may be based. Next comes a discussion of the dynamics of many-particle systems. The two central chapters deal successively with stellar systems as assemblies of gravitating mass points and as gravitating continua. The book closes with a brief discussion of the relation of statistical mechanics to the mechanics of stellar systems.

The author's point of view is abstract and general. Such an approach can be very powerful, but in this book it is not.