the vegetation, and above the vegetation; (9) soil moisture at various depths underground; (10) evaporation from different kinds of surfaces; (11) barometric pressures.

Since such complete data are not usually available, it becomes necessary to use all the meteorological information possible and to supplement it by special records for ecological purposes. It would be a great saving in time and energy if these data could be automatically recorded on multiple-recording drums so that the values of each factor could be readily observed in simultaneous relation to others. In addition to its labor-saving value, it should also lead to clearer recognition of correlations and divergencies among the various factors that might help explain the dynamics of ecology.

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Book Reviews

Theory of Electrons. L. Rosenfeld. Amsterdam: North-Holland Pub.; New York: Interscience, 1951. 119 pp. $2.25.

This book is a revised and extended version of what must have been a most stimulating seminar for advanced graduate students of physics. It presents the foundations of the classical atomistic theory of the electric, magnetic, and optical properties of matter in a clear, careful way, in a brief 119 pages, by assuming that the reader has a considerable background in physics and mathematics, including analytical mechanics, statistical mechanics, and Maxwell's theory of the electromagnetic field. A summary of tensor notation is provided in an appendix.

The first chapter gives a brief historical review of the discoveries that led to the modern picture of the electrical constitution of atoms. The second is devoted to an unusually careful derivation of Maxwell's equations in matter by averaging over the charge and current distributions of the constituent atoms, electric quadrupole terms being retained. The third chapter deals with the dynamical properties of systems of charge, including Larmor's theorem and the gyromagnetic effects. The fourth chapter, on the magnetic properties of matter, is necessarily rather sketchy (even though the limitation to classical ideas is somewhat relaxed), but it forms a clear and attractive introduction to the field.

The last two chapters take up half of the book and form its most characteristic and valuable part. A brief discussion of the polarization of an atomic system by a constant field leads into a presentation of the elementary theory of dispersion. The remaining pages are devoted to clarification and refinement of the concepts thus introduced. Radiation damping is discussed, and its effect on the extinction coefficient of light scattered by a gas. This same contribution to the extinction coefficient is then derived from a quite different point of view, that of light scattering by a medium in which there are fluctuations in density. Ornstein and Zernike's theory of critical opalescence is presented. Finally, the book culminates in a rigorous theory of dispersion that takes account of both radiation damping and density fluctuations, and ties together the preceding material in a beautiful way.

This book is to be recommended, on both scientific and aesthetic grounds, to advanced students of physics and to those who teach them.

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Amino Acids and Proteins: Theory, Methods, Application. David M. Greenberg, Ed. Springfield, Ill.: Thomas, 1951. 950 pp. $15.00.

The editor of this monograph has had the assistance of 17 contributors who have prepared 11 of the 13 chapters. In a beautifully printed and well-illustrated, although uncomfortably heavy, volume the amino acids and proteins are described and discussed from many points of view. The first 4 chapters deal with the properties of amino acids, the analytical methods used for their determination, their preparation by synthetic methods, and their isolation from proteins. The chapters following are devoted to the classification, purification, and isolation of proteins, to determination of their molecular size, to their amphoteric properties, and to criteria for judgments regarding the purity of individual preparations. The final chapters discuss the chemical reactions of proteins, their nutritive properties, antibodies, the biochemical significance of proteins, and the metabolism of proteins and amino acids.

Emphasis is placed throughout on methods, but the contributors have interpreted their assignment in widely different ways. For example, the chapter on the synthesis of amino acids gives, by means of chemical equations, the reactions that have been used to prepare these substances, together with brief statements on the procedures and references to their origin. However, the reader can rarely tell whether the reaction described has mere historical interest today, or whether it is the procedure he would be well advised to employ if he were assigned the problem of preparing a small sample or a large stock of the substance. To assist him in his choice, there is little in-