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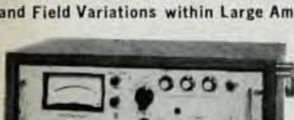

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ical chemistry which might be relevant to biological membrane phenomena. As the book is written, it is not likely to be of interest to physicists since it consists mainly of a long recitation of research by many chemists and physicists without giving a sense of emphasis on what is, or is not likely to be important. There is no detailed account of what are the biological problems, nor are the results cited applied in any detail to specific problems. Some of the topics discussed are the formation and transformation of micelles, membrane transformations, and the structure of membranes. It is possible that there is much material of ultimate value in this volume. However, the author presents only plausibility arguments rather than experimental verification to support his arguments, and these are not likely to be too convincing without detailed confirmation.

**Strong Interaction Physics.** A Lecture Note Volume. By Maurice Jacob and Geoffrey F. Chew. 154 pp. Benjamin, New York, 1964. Cloth $9.00; paper $4.95.
*Reviewed by John E. Mansfield, Harvard University.*

As one would surmise from the title, this is really two sets of lecture notes, both of good quality and up to date.

Jacob presents phenomenological aspects of pion-nucleon interactions on an elementary level. The basics of helicity amplitudes are given briefly, as are isospin and the phase-shift analysis. A clear and orderly collection of facts on the multipion resonances makes the book a good one to have on the shelf.

Analytic properties of scattering amplitudes are stated and some phenomenological applications of dispersion relations are given. The calculation of the pion-nucleon coupling constant is described. Mention is made of subtracted and spin-flip dispersion relations. Some arguments leading to peripheral models are presented.

Chew's half of the book is on bootstrap dynamics. He defines maximal analyticity of the first degree (all singularities are those of the analytic continuation of unitarity) and of the second degree (absence of CCD poles). These are illustrated in a simple nonrelativistic model. The bootstrap program is described very well; partial wave calculations are done in the strip approximation, and there is a page devoted to the not inconsiderable successes of the approach.

An index is supplied, covering both articles. The book, especially Chew's article, is designed to be read and not worked through. Yet it contains all that is necessary to put one on the doorstep of the literature.

**Electromagnetic Fields and Interactions.** Vol. 1, Electromagnetic Theory and Relativity. By Richard Becker. Fritz Sauter, ed. 439 pp. Blaisdell, New York, 1964. $9.50.

**Electromagnetic Fields and Interactions.** Vol. 2, Quantum Theory of Atoms and Radiation. By Richard Becker. Fritz Sauter, ed. Transl. by Ivor De Teissier. 403 pp. Blaisdell, New York, 1964. $9.50.

*Reviewed by D. B. Lichtenberg, Indiana University.*

The first of these volumes is a translation of the sixteenth German edition of 1957; the second is a translation of the eighth German edition of 1959. A new third volume, subtitled *Electrical and Magnetic Phenomena in Matter*, is promised, but was not available at the time of this writing.

It is useful to compare Volume 1 to the much earlier English edition of Abraham and Becker, *Classical Electricity and Magnetism*. This work is by now a classic, and Sauter wisely made few essential changes in the newer version. The major addition is the incorporation into Volume 1 of a section on special relativity, which a number of editions ago appeared in Volume 2. This beautiful treatment of relativity rightly belongs in the volume devoted to the classical theory. Its addition makes this book a very suitable graduate text in electromagnetic theory.

Volume 2 has not been previously translated. It is primarily an exposition of certain aspects of the quantum theory of electrons and radiation which are relevant for a modern treatment of electromagnetic interactions in matter.

The approach is partly historical. First, the theory of the electron is treated by classical principles. Then the development of the quantum theory is sketched from Planck's radiation