The appearance of this monograph is further testimony to the fundamental influence of É. Cartan on contemporary differential geometry, for the germs of all these ideas are contained in Cartan's work. It is regrettable, however, that the modern rediscoverers of Cartan pay so little attention to the contributions of his contemporaries, such as Eisenhart, Schouten, and T. Y. Thomas. These geometers wrote in a different idiom, and their lack of influence on contemporary differential geometry is one more illustration of the difficulties of communication among mathematicians, a situation toward the correction of which this monograph series is directed.

CARL B. ALLENDOERFER
Department of Mathematics,
University of Washington, Seattle

Clear and Perspicuous

Quantum Mechanics. vol. 1. Albert Messiah. Translated by G. M. Temmer. North-Holland, Amsterdam; Interscience, New York, 1961. xv + 504 pp. Illus. $15.

We may expect a great many new texts on quantum mechanics in the next few years. In spite of appearances, this is not because of frenetic solicitations by the publishers of science books but rather a response to a real need. Since the end of World War II—several books appeared at that time—there has been developed a large body of new material, stimulated by the demands of theory and experiment in nuclear structure and solid state and by results and speculations in the quantum theory of fields. These developments have also produced a greater emphasis on, as well as a deeper understanding of, some of the elements of the more traditional material. A new text is to be judged, in part in any event, by the extent to which it reflects these trends.

In this regard it will not be possible to give a complete judgment of Messiah's work, since only the first volume (and the table of contents for the second volume) is available in translation; but the portents are excellent. The treatment in the text is essentially elementary in nature. Nevertheless we find such topics as projection operators, interaction representation, the wave packet discussion of scattering, penetration factors and single particle resonances, the effective range approximation, harmonic oscillator in several dimensions, density matrix, creation and destruction operators, and, in the appendix, the theory of distributions. And whatever is missing seems certain, from its table of contents, to be in the second volume. The discussion of these topics, as well as of the more usual material, is clear, straightforward, and perspicuous.

I take issue with the author (and probably with the authors of all other quantum mechanics textbooks) in only one large matter—namely, the extensive section devoted to the statistical interpretation and the uncertainty relations. From this material the student will acquire the feeling that precise measurements are impossible in quantum systems. In fact, of course, very precise measurements are possible only because of the quantal nature of physical phenomena. It is this point that needs to be emphasized, not the musty atavistic to-do about position and momentum. Overdone, such discussions only become exercises demonstrating "Ask a foolish question—get a foolish answer."

In conclusion, this book is highly recommended, and I predict that this judgment will also extend to the prospective second volume.

HERMAN FESHBACH
Department of Physics,
Massachusetts Institute of Technology

ACS Symposium Volume

Retardation of Evaporation by Monolayers: Transport Processes. A collection of papers presented at the 1960 annual meeting of the American Chemical Society. Victor K. La Mer, Ed. Academic Press, New York, 1962. xviii + 277 pp. Illus. $10.

The general importance of monomolecular films of fatty materials is now well recognized by scientists in a wide variety of disciplines, for monomolecular films play a part in such diverse fields as boundary lubrication and cytolysis. Yet knowledge of the specific influence of monolayers is not nearly so widespread as it might be, considering the fact that the concepts involved in monolayer studies require a relatively slender knowledge of mathematics and physical chemistry.

One particular aspect of the behavior of monolayers, namely their influence on the transport of materials across interfaces, affects, or soon will affect, the lives of all of us, whether or not we are professionally concerned with monolayer studies. For the translation of small-scale laboratory experiments to large-scale conservation of our water resources has proved to be one of the more exciting incidents in surface chemistry in recent years, and the pioneering work in this area holds great promise. As one of the contributors to this book remarks, "evaporation from a stockwater pond often dissipates as much water as is used in a year by 500 head of cattle."

In a book which deals with research topics it is unusual to find that the first article is an address given by a United States senator (Senator Murray of Montana, in this case), but there is no incongruity in this. As Senator Murray points out, the conservation of our water resources is vital to the maintenance of our present standards of living and to the development of higher standards in many of the world's great continental areas.

Much of the emphasis in the articles is directed to the pronounced effect on the rate of evaporation of water produced by monolayers of hexadecanol and octadecanol. La Mer's own articles give clear descriptions of experimental methods of studying these effects as well as a coherent theoretical interpretation of results. A number of papers give a good account of the large-scale application of laboratory experiments to water conservation, here and in Australia. Successful and unsuccessful methods of forming the monolayers on a large scale are critically evaluated by various authors, many of whom draw attention to the frequent failures of experiments in which an unfortunate choice of solvent results in a porous, or very permeable monomolecular film. In R. G. Vine's article there are some striking photographs of the calming effects of monolayers of hexadecanol on the surfaces of lakes. On areas coated with a monolayer, the smooth reflections of light are in marked contrast to the disturbed, rippled appearance of the uncoated water.

There are several papers dealing with the effects of monolayers on the transport of gases across the water-gas interface. These will interest biologists who are concerned with animal life in ponds and lakes, but there is much in this particular subject which will also interest cell physiologists.

Contrary to what might be expected of a group of papers presented at a large meeting, the book is remarkably