"Notice to the Reader"? "Yet, let no one assume that by my readiness to agree with Galileo, I propose to deprive others of the right to disagree with him. I have praised him but all men are free to make up their own minds."

It is interesting to note how prone to controversy is the whole book, including Professor Rosen's comments. Kepler makes the following remark in his "Notice to the Reader," "But people in the academic world need not be reminded . . . what it means *to defend one's position. . . .*" (Italics not mine, but Kepler's) Indeed priority squabbles in those times were much sharper than today. The famous fight between Newton and Hooke is one example. So Kepler, while praising Galileo's achievements, points out his own work all through his book, and also what his teacher Maestlin had done. There are constant references to Kepler's *Optics*, as well as to many other books. Today we seem to be ashamed to put our priority squabbles as forthrightly as it was done in those days.

The other controversial aspect of the book is contained in Professor Rosen's very numerous commentaries. For 49 pages of the translation of Kepler's book, there are 424 commentaries, and they take up over a hundred pages. Professor Rosen tells us right at the beginning that this is the first *complete* translation of Kepler's work because, according to him, the only existing (German) translation by Otto J. Bryk, which appeared in Jena in 1918, does not include the "Dedication" and the "Notice to the Reader." In view of the interesting remarks contained in the "Notice to the Reader," quoted above, I am willing to go along with Professor Rosen's viewpoint. What bothers me a little more is that a great number of the 424 notes are straight polemical comments on either Bryk's translation or other people's interpretation of Kepler's writings. When I first looked at these notes, I started counting the number of occurrences of the word "despite." They became so numerous that finally I gave up counting them. So much ex cathedra attitude becomes suspicious. I wouldn't be surprised if tomorrow somebody came along and debunked some of the statements of Professor Rosen.

The controversial aspects do not diminish in any manner the merit of Dr. Rosen's work. He has done a masterly and scholarly piece of work in providing us with this new translation, and it is certainly a great contribution to our knowledge of the science of those times.

A SUMMARY OF 35 YEARS

ELECTRICAL CORONAS. THEIR BASIC PHYSICAL MECHANISMS. By Leonard B. Loeb. 694 pp. University of California Press, Berkeley, 1965. $14.00.

by Sanborn C. Brown

Every creative man dreams of the time toward the end of his career when he can sit down and summarize his field of endeavor and leave for posterity his insight and wisdom gained through a lifetime of work. Few ever bring this dream to a reality, but Professor Loeb has done this in the latest of his many books, bringing together the progress in knowledge of the corona mechanisms which has been made over the last 35 years.

This volume is much more than a textbook on corona discharges. It is a chronicle of the development of our understanding of their physical mechanisms in an age when scientific writing is so rigidly controlled by the economics of the book-publishing trade that the narrative quality of scientific writing has all but disappeared. It is refreshing to find the University of California Press printing a personal account of a man guiding his students, friends, and admirers through the intricacies of a difficult, and yet rewarding, search for the understanding of physical phenomena.

Reading the bibliographies as well as the text, one has the feeling that Professor Loeb could call by first name or nickname over 90 percent of those referred to, and yet the references contain the world's literature on the subject of corona discharges. In unraveling the solutions to the many

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The reviewer is a professor of electrical engineering at MIT.

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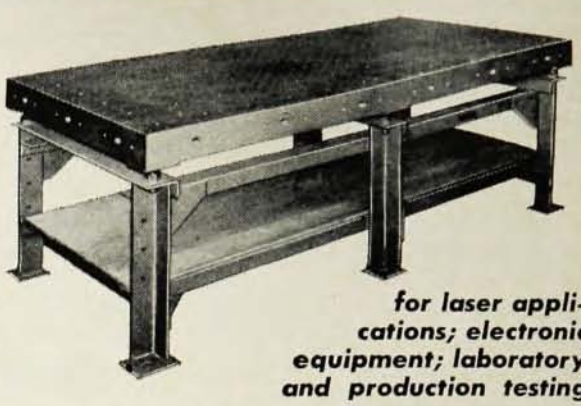

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problems, Professor Loeb presents not only the conclusions but the thoughts along the way. This produces a scientific notebook quality to the book which makes it both interesting to read and scientifically rewarding to those in search of information and guidance about the corona mechanism.

PHYSICS AND SOCIAL PROBLEMS

THEORIE PHYSIQUE ET RECHERCHE PREVISIONNELLE. Conf. Proc. (Paris, May 1962). J.-L. Destouches, ed. 180 pp. Gauthier-Villars, Paris, 1964. Paper 28F.

by R. Bruce Lindsay

Immediately after the conclusion of World War II there was organized in l'Ecole Centrale des Arts et Manufactures in Paris a "Centre de Recherche Scientifique" in order to bring to bear on industry the enormous development of basic research in this century. Such subjects as the physics and chemistry of metals, thermodynamics and fluid mechanics began to be intensively studied in this center. In 1961 a new section was inaugurated, dedicated to "Recherches Prévisionnelles." Its purpose was to take advantage of the new developments in cybernetics and modern planning theory to make intensive studies forecasting future progress in many fields of human activity. The project was conceived on a rather ample scale. Thus it was intended to include predictions of future developments in theoretical physics, e.g. the possible reformulation of quantum mechanics, as well as the forecasting of developments in the economic and social fields, e.g. city planning.

The volume under review is a report of the proceedings of the first international conference held under the auspices of the new center in May, 1962, organized by J.-L. Destouches under the presidency of L. de Broglie. It constitutes No. 14 in the series "Les Grands Problèmes des Sciences". M. Destouches, well known for his searching investigations into the mathematical foundations of quantum mechanics, is professor at the Sorbonne and director of the Centre de Recherches Prévisionnelles de l'Ecole Centrale.

The reader will find the book a rather singular one, since the first half is made up of six articles on quantum mechanics and elementary particle theory, whereas the second half is devoted to papers on probability and statistics with applications to linear programming, operations research, city planning and automation. In this melange there is indeed a common thread, namely that the same general philosophical principles at the basis of theorizing in an abstract science like physics are also applicable to a wide variety of problems in other domains of human intellectual activity. Whether this will lead sociologists, economists and industrial engineers to immerse themselves in the intricacies of quantum physics and its methodology is open to doubt, but the challenge is obvious.

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R. Bruce Lindsay is dean of the graduate school at Brown University.

SYMMETRY FOR THE PASSERBY

LIE GROUPS FOR PEDESTRIANS. By Harry J. Lipkin. (North-Holland, Amsterdam) Wiley, New York, 1965. $6.00.

by John G. Taylor

One of the most important advances in our understanding of the elementary particles in the last few years has been through the use of symmetries of various sorts, both in nuclear and high-energy physics. The relevant symmetry groups are generally assumed to be Lie groups, and the appearance of energy levels grouped close together or with certain regularities is taken as an indication of which Lie group and its representations are important. In order that ideas involved and methods used be understood by more than experts, it is necessary that a suitable introduction be written describing these ideas and methods. There are two traps into which such an introduction can fall; either that of excessive simplicity, in which case the reader ends up not knowing much

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A professor at Rutgers University, John G. Taylor has published extensively on mathematical physics.