

tionnement génétique et ancestrale, concernant des notions qui forment la trame même de notre vie."

The structure of the book is one of mathematical beauty. It elaborates the position of the problem by starting out in a more pedestrian manner (classical notions, Newtonian dynamics, properties of Maxwell's equations, and so on); we are guided to Lorentz's theory, the Michelson experiment, relativistic kinematics, Einstein's velocity laws, and Minkowski's space-time world. An excellently condensed treatment of the tools of tensor calculus and their amazing application to relativity equip the reader to deduce the dynamics of special relativity, the covariance of Maxwell's equations, relativistic mass, inertia of energy and other items. Subsequently the author manages, in some ten pages only, to supply a complete buildup of general relativity without losing any essential detail of its intrinsic fascination. Furthermore, we find a very up-to-date account of the experimental attempts to verify the theory—giving the present data on the light deflection at the Sun's limb, the motion of Mercury's perihelion, the red shifts observed for the Sun and for Sirius's companion, and finally details of the recent very successful test on the basis of the Mössbauer effect, which eliminates uncertainties inherent in the extraterrestrial measurements.

The reader is also told how, without success, a still greater synthesis has been searched for, aiming at a union between gravitation and electromagnetism within a general field theory, and how until now it has been impossible to incorporate into the framework of relativity "cet autre monument de la Physique contemporaine: la Physique quantique." The book concludes with a useful summary of all the definitions and results, and an up-to-date bibliography. The annotations and the transparent structure of the book may perhaps be a sufficient substitute for an index. Duthel's final words are: "...La 'Weltanschauung' relativiste nous amène à entrevoir un univers plus étrange, plus mystérieux que tout ce que nous aurions pu imaginer..."

Arthur Beer
Cambridge, UK

Numbers and Units for Physics

By R. A. Carman
220 pp. Wiley, New York, 1969. Cloth \$6.95; paper \$4.95

The title led me to expect a useful collection of constants and conversion tables, but instead I found a precollege level treatment of such topics as significant figures, unit conversions, dimensions, and so on, in "programmed for-

mat." The body of the main text starts with the statement: "You have not followed instructions. Nowhere in this book are you instructed to turn to this page." If this does not discourage the reader from continuing, he will find fascinating gems of wisdom. He will learn that the prefix for 10^{-15} , *femto*-, is derived from "Fermi" (I thought it was derived from the Danish word for fifteen) the prefix for 10^{-18} , *atto*-, from the word "atomus" (I thought it came from the Danish word for eighteen), that the unit of time is based on the rotation of the earth (it is now based on the frequency of the radiation associated with a transition in cesium atoms). He will find the definitions of units such as the acoulomb, au, barye (10^6 bar), chain (gunter), kip, phot, scorpio, shake, skein, stere, STILB, Ton (4.2×10^9 J).

The reader will, however, find no reference to the International System of Units (SI), which was adopted in 1960 and is the only legal system of units in the US for electricity and illumination, and is the system used by the National Bureau of Standards. Nor does the book follow the recommendations of the Commission on Symbols, Units and Nomenclature in physics of IUPAP, even though almost all scientific journals as well as the National Bureau of Standards have adopted these recommendations.

H. H. Barschall
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Physics in My Generation

By Max Born
166 pp. Springer-Verlag, New York, 1969. \$3.80

Max Born was one of the great scientists of our century and one of the cofounders of modern quantum concepts. He was perhaps less in the public eye than some of the other originators, such as Niels Bohr and Werner Heisenberg, but his contributions were nonetheless vital—matrix mechanics, the interpretation of the wave function as a probability amplitude (for which he very belatedly received the Nobel prize in 1954) and the ubiquitous Born approximation. Besides his scientific work, Born had the deep desire to build for himself a viable philosophy and to transmit his insights to others. The present slim volume offers a personal selection from his large output of popular writings. Now in its second edition, some of the more technical essays have been replaced by reflections from his later years, past the time of his active work in physics.

The most fascinating aspect of the book consists of the evolution of the author's own personality, as mirrored by his writings. In the earlier epochs of his career he was full of youthful optimism. He believed that science produces an ob-

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