BOOKS ON RELATIVITY

Das Relativitätsprinzip. Lorentz. Einstein. Minkowski. Fortschritte der mathematischen Wissenschaften in Monographien. Herausgegeben von O. Blumenthal, No. 2. Leipzig und Berlin, B. G. Teubner, dritte Auflage, 1920. i + 146 pp.

Raum. Zeit. Materie. Von Hermann Weyl. Berlin, Julius Springer, vierte Auflage, 1921. Mit 15 Textfiguren. ix + 300 pp.

Relativity. The special and the general Theory. By Albert Einstein. Translated by Robert W. Lawson. New York, Henry Holt and Co., 1921. Frontispiece. xiii + 168 pp.

The Theory of Relativity. By Robert D. Carmichael. Mathematical Monographs, Edited by Mansfield Merriman and Robert S. Woodward, No. 12. New York, John Wiley and Sons, 2nd edition, 1920. 112 pp.

Das Relativitätsprinzip. Leichtfasslich entwickelt von Adam Angerbach. Leipzig und Berlin, B. G. Teubner, 1920. Mit 9 Figuren im Text. 57 pp.

The Concept of Nature. Tarner Lectures delivered in Trinity College, November, 1919. By A. N. Whitehead. Cambridge, The University Press, 1920. viii + 202 pp.

Wiskunde, Waarheid, Werkelijkheid. Door L. E. J. Brouwer. Groningen, P. Noordhoff, 1919. 12 pp. + 23 pp. + 29 pp.

For scientists generally, and especially for mathematicians and physicists, who understand best many of the questions involved, the theory of relativity has fundamental interest. In the following pages our purpose is to pass in review the above recent books dealing with the theory and at the same time to indicate its present state and some unsolved problems.

The collection of monographs gathered by Blumenthal begins with two papers by the Dutch physicist, Lorentz, the second and more important one of which appeared in 1904. By endeavoring to unite the classical Newtonian mechanics and the electromagnetic theory of Faraday and Maxwell into a single consistent theory, one is necessarily led to absolute space (the ether) and absolute time. In fact, physics has stood committed to absolute time since the acceptance of Newton's law of gravitation. But the experiments of Michelson in 1881 yielded an opposing result. Lorentz, in common with other physicists, had the conviction that the universe was electromagnetic in character, and he turned to the electromagnetic equations for an explanation of the difficulty. His answer to the apparent contradiction of theory and experiment was based upon the fact that the equations admitted of a transformation in which space and time were intermingled. On this basis, without giving up the concepts of absolute space and time, he was able to explain the paradox by assuming that bodies undergo a slight contraction in the direction of their motion, which for the