shock. The theory is perplexing but it certainly has some points of philosophic advantage over Einstein's theory, besides leading to the electromagnetic equations. In it *action* is a pure number; there is so and so much *action* in a given region of space-time independent of the coordinates used or the unit of measures. The author thinks that in some way this pure number must be connected with *probability* so that the principle of least action becomes the principle of greatest probability. This is very attractive and, in the present state of our theory, very suggestive. There is a final chapter on the Nature of Things and an Appendix containing mathematical notes.

We agree with Eddington that H. Weyl's Raum, Zeit, Materie (recently appearing in a third edition) is the best treatise on the new relativity; his own is undoubtedly the best general presentation.

EDWIN BIDWELL WILSON.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
    August 15, 1920.

Researches in Physical Optics. Part II: Resonance Radiation and Resonance Spectra. By R. W. WOOD. New York, Columbia University Press, 1919. viii + 184 pp. + X pl.

THERE is no doubt that the theory of spectra of all sorts, including resonance spectra, offers opportunity for mathematical work, both on the side of the dynamics or kinematics of hypothetical atoms or molecules and on the side of empirical nomographic or curve-fitting studies of spectral series. Considerable has been accomplished in both directions but further studies will be necessary before anything approaching satisfaction relative to our knowledge of the intimate parts of optics and of the constitution of matter is reached. Moreover, unless some extraordinary genius like Willard Gibbs appears, to do for this field what he did for physical chemistry, much additional experimental knowledge must be acquired and digested. It is this experimental foundation, with respect to resonance spectra, which Professor Wood is developing and expounding in the researches recently appearing from the Columbia University Press. The book, as written, interests the experimental and descriptive physicist rather than the mathematician, even though he be a mathematical physicist.

E. B. WILSON.