

SHORTER NOTICES.

Wissenschaft und Methode. Par H. POINCARÉ. Autorisierte Deutsche Ausgabe mit erläuternden Anmerkungen von F. und L. Lindemann. Leipzig und Berlin, Teubner, 1914. vi+283 pp. 5 Marks.

THIS is a straightforward translation of the *Science et Méthode* of Poincaré, and although the original has never been reviewed in the *BULLETIN*, it is scarcely necessary at this late date to do so, since every one is familiar with it. In case one were not, he needs only to be informed that the book is the third in the famous series of Poincaré on Science and Hypothesis, the Value of Science, Science and Method, and Last Thoughts. The chief principle of this work is the substantial identity of the methods of science and those of mathematics. The remarkable address on mathematical invention occurs here, in which Poincaré states his views of how mathematical creation takes place, illustrating his remarks from his own experience. In brief the explanation is that after a long and severe study of the nature of a problem, one need not keep on hammering away indefinitely, but should remember that if the right idea for the solution ever comes, it will flash out suddenly and at even inopportune moments, often many days, or weeks, or even years, after the first consideration of the problem. He explains the attractiveness of the right idea when it comes before the mind, by ascribing to our esthetic sense the power of arresting and holding such ideas as fit in with the harmony of the intellectual world we build. It then becomes the function of our logical faculty to verify formally the truth of what has presented itself to us in this way.

The same general notions underlie his statement of the method of the scientist whether in the selection of his facts or in the general development of his theories. The first part of the book discusses from this standpoint the scientist and his work. The second part discusses mathematical educational method. The third part discusses the mechanics of the relativity theory. The fourth part consists of two chapters: in one, a study of the Milky Way by the kinetic theory of gases; in the other, a description of the precise methods of a geodetic survey. Each of these parts contains the well-known ideas of the author in various places. Each part has the stimulating