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 Mé-
thode 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 re-
markable 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 func-
tion 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 re-
lativity 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

character of all of the philosophical work of the eminent mathe-
matician, physicist and philosopher.   It is a rare occurrence
for one so profound in each of these lines to be also so skilled
in presenting as clear an exposition of the working of the in-
tellect.   The best criticism we can make on the book is that
no one can afford to be without it or the original.

<div align="right">JAMES BYRNIE SHAW.</div>

A Text Book of Mechanics.   By LOUIS A. MARTIN, JR. Vol. 5,
   Hydraulics.   New York, John Wiley and Sons, 1914.   12 mo.
   223 pp.

THIS is the concluding volume of a series, the earlier volumes
of which (Statics, Kinetics, Mechanics of Materials, Applied
Statics) have been previously reviewed in this BULLETIN.*

Approximately 50 pages are devoted to the discussion of
liquids at rest; the force exerted by a liquid upon a plane or
curved surface; methods of measuring pressure and locating
the centre of pressure; applications to gates, locks and dams;
floating bodies and the conditions for stability.   The remainder
of the book treats of liquids in motion, starting with an ele-
mentary discussion of the free surface of liquids moving with
acceleration.   Then comes Bernouilli's classic theorem on the
flow of liquids, followed by a treatment of flow through orifices,
various formulas for weirs of several types, flow through pipes
with applications to hydraulic transmission of energy and cal-
culation of losses in pipe lines, force exerted by a moving liquid
upon pipes and on stationary deflecting surfaces, axial or
radial flow, impulse wheels and turbines, and their design.
There is a good set of problems for a final review.

As in the earlier volumes, the exercises distributed through
the text play a vital part in the course, giving students a
chance to work out parts of the subject for themselves.   These
exercises are not too difficult, having been introduced so care-
fully as to fall within the power of average students.   We
should add that throughout the series of texts the author
presupposes practically no knowledge of physics, stating care-
fully the basic principles which are to be employed.

The mathematical equipment assumed, however, steadily
increases through the series, so that the first volume may be
studied before the first course in calculus, while this last
volume assumes a very fair knowledge of integral calculus.

* Vol. 16 (1909), pp. 144–7; vol. 21 (1914), pp. 140–3.