SHORTER NOTICES

Vorlesungen über Topologie. I. *Flächentopologie.* By B. von Kerékjártó.
  Volume 8 of the Courant Series. Berlin, Julius Springer, 1923.
  8 + 270 pp. and 60 figures.

This production, from the pen of a young Hungarian mathematician,
who is beginning to be known for his contributions to analysis situs,
is welcome for several reasons. There are altogether too few books
on the subject and one more is decidedly in place. It also gives under
one cover a fairly complete treatment of the results obtained by Brouwer
and his school on two dimensional topology, a useful thing indeed. The
many and well chosen examples and figures are another good feature.
For the sake of the average reader at least, we wish that the author
had better amalgamated his material and introduced greater unity in
his presentation. The *Topologie* will be especially useful to the reader
familiar with point sets and wishing to learn more about their geometric
applications, and also, say, in connection with Veblen's Colloquium
Lectures.

The material in the book may be essentially classified into three
groups: (a) Topology of the plane and its curves, centering around
the Jordan curve theorems and including such questions as invariance
of dimensionality and regionality, structure of regions and their boundaries,
the general closed curve, etc. (b) Combinatorial analysis situs of two-
dimensional manifolds. The treatment of this part is less felicitous than
Veblen's in Chapter II of his Lectures. The author takes advantage
of the relative simplicity of the theorems on plane Jordan curves, and
thus more or less avoids questions of straightness. Unfortunately this
method cannot be extended to three or more dimensions, and whereas
Veblen's treatment of the two-dimensional case contains in germ, that
of the more general one, Dr. Kerékjártó will be obliged to change
front in his second volume, which is to be devoted to it. (c) Continuous
transformations of surfaces (Brouwer's theorems on fixed points and
the like), continuous families of curves on surfaces. This group of
questions includes the author's more original and interesting contribu-
tions as well as the more recent results obtained by Brouwer and his
students. If we mistake not, those on continuous families of curves
are largely due to Dr. Kerékjártó himself.

The book concludes with a fair bibliography. The small number
of American titles is doubtless to be ascribed to the lack of contact
between the scientists of Central Europe and the rest of us—one of the
most unpleasant things on the scientific landscape of the last few years.

S. Lefschetz