$$ABC = \frac{\pi}{2} - (A + A') + \frac{\pi}{2} - B - \left(\frac{\pi}{2} - A'\right)$$

$$= \frac{\pi}{2} - A - B$$

$$= \pi - (A + B + C).$$

The theorem is thus proved for a right triangle, and is readily extended to an oblique triangle by dividing it into two right triangles by a perpendicular from any vertex.

In the foregoing pages no attempt is made to give an exhaustive statement of Lobachevsky's methods and results on the plane nor to indicate his extension of his methods to space.

FREDERICK S. WOODS.

MASSACHUSETTS INSTITUTE
OF TECHNOLOGY, *May*, 1900.

BURKHARDT'S ELLIPTIC FUNCTIONS.

Functionentheoretische Vorlesungen. Von HEINRICH BURKHARDT. Zweiter Theil: *Elliptische Functionen.* Leipzig, Veit and Company, 1899. 8vo., x + 373 pp.

THE theory of elliptic functions has developed so rapidly and in so many different directions in recent years that an elementary treatise of moderate compass which would afford a rapid survey of its many and heterogeneous parts has been a long felt want. The admirable little treatise by Appell and Lacour is perfect in its way, but it addresses itself only to students who do not care to go very far into the theory of functions. It makes no pretentions to satisfy the needs of another large class of students, namely those who regard the theory of elliptic functions as merely one division of a greater theory and who thus study the elliptic functions not only on account of the interesting properties they offer *per se*, but also as a means of becoming more familiar with the principles and methods of the theory of functions, or as a stepping stone to the more abstruse theories of the abelian transcendents and automorphic functions.

The present volume meets the wants of this latter class most successfully. We are so impressed with its many merits that we do not hesitate to predict for it a rapid and widespread popularity.