Bernoulli numbers — this includes all odd primes < 100, with the exception of 37, 59, 67. Ten years later he extended this to another series of exponents including these three exceptional numbers, so that the Fermat theorem was proven for all values of $n > 2$ and $\leqq 100$. Kummer received the Paris prize of 1850 for his beautiful work.

In 1909, an award of 1000 Marks was made from the Wolfskehl foundation to G. Wieferich for his proof that Fermat's equation has no solutions all prime to n unless $2^{n-1} \equiv 1 \bmod n^2$. And here the problem rests.

JOSEPH LIPKE.

Solid Geometry. By H. E. SLAUGHT and N. J. LENNES. Allyn and Bacon, Boston, 1911. vi+190 pp.

THIS book follows the plane geometry of the textbook series of the authors. It is divided into seven chapters entitled lines and planes in space, prisms and cylinders, pyramids and cones, regular and similar polyhedrons, the sphere, variable geometric magnitudes, and theory of limits.

The logical phase of the development of solid geometry, as here treated, is a great improvement over that usually found in our textbooks. Many of the more fundamental principles are formally stated as axioms. The first striking example of this is Axiom III: "If two planes have a point in common, then they have at least another point in common." This fundamental theorem of three-dimensional geometry has usually been kept as obscure as possible. In all, ten axioms are thus stated.

A brief treatment of sines, cosines, and tangents, and a few theorems on the projection of lines and of areas are introduced. Some of the theorems on trihedral angles are deferred to the chapter on the sphere, where they are related to the theory of spherical triangles. Euler's theorem is stated without proof, the usual faulty proof being inserted as an exercise in which the error in the proof is to be shown. The definition of polar spherical triangles is made completely. The proof of the theorem that the shortest path between two points on a sphere is the arc of a great circle joining the points is made to depend on the concept of the length of a curve on a sphere as the limit of the sum of the lengths of small arcs of great circles — a somewhat different notion from the limit of the sum of lengths of the chords, which has been previously used in the book for the length of a curve. In the chapter on variable geometric