of our senses and of intuition, and the world of number. Objects in the first world give occasion to form certain objects in the world of number which we strive to make as close to the original as possible. How close the copy is we can never know. Doubtless they are sufficiently approximate.

The mathematician of to-day, trained in the school of Weierstrass, is fond of speaking of his science as "die absolut klare Wissenschaft." Any attempts to drag in metaphysical speculations are resented with indignant energy. With almost painful emotions he looks back at the sorry mixture of metaphysics and mathematics which was so common in the last century and at the beginning of this.* The analysis of to-day is indeed a transparent science. Built up on the simple notion of number, its truths are the most solidly established in the whole range of human knowledge. It is, however, not to be overlooked that the price paid for this clearness is appalling, it is total separation from the world of our senses.

YALE UNIVERSITY,
February, 1899.

TWO BOOKS ON TIDES.

The Tides and Kindred Phenomena of the Solar System; the substance of lectures delivered in 1897 at the Lowell Institute, Boston, Mass. By GEORGE HOWARD DARWIN. Houghton, Mifflin & Company, 1898. 8vo, xviii+378 pp.

Leçons sur la Théorie des Marées; professées au Collège de France. Par MAURICE LÉVY. Paris, Gauthier-Villars et Fils, 1898. 4to, xii+298 pp.

IT is not often that the reviewer has the opportunity of noticing a volume containing a popular account of an abstruse and difficult subject set forth by an author who stands in the forefront as an investigator of the matters on which he writes. It is never easy for any one who spends most of his time at the confines of his science to tear him-

* Hamilton, Life, vol. 1, p. 304, writes in a letter dated 1828: "An algebraist who should thus clear away the metaphysical stumbling blocks that beset the entrance to analysis without sacrificing those concise and powerful methods which constitute its essence and its value would perform a useful work and deserve well of science.