also such apparently algebraical notions as those of irrational and complex quantities. This attempt is an outcome of the school of Weierstrass, which has done so much to banish vagueness and introduce precision into modern text-books.

Opposed to this so-called arithmetising[1] tendency is the equally emphatic view, strongly urged by the late Prof. Paul Du Bois-Reymond in his general theory of Functions, that the separation of the operations of counting and measuring is impossible, and, if it were possible (as, since the publication of his work, the fuller expositions of Kronecker and his followers have tried to show that it is), would degrade mathematics to a mere play with symbols.[2] He tries to show that such is philosophically impossible, and finds a support for his view in the historical genesis of the idea of irrational numbers in the incommensurable magnitudes of Euclid and ancient geometry. Prof. Klein in his address favours the arithmetical tendency as destined to introduce logical

[1] The term seems to have been coined by Kronecker. See Prof. Pringsheim in the 'Encyklop. Math. Wiss.,' vol. i. p. 58, note 40. Kronecker's position is set forth in Journal für Math., vol. ci. pp. 337-355, 1887.

[2] "The separation of the conception of number and of the analytical symbols from the conception of magnitude would reduce analysis to a mere formal and literal skeleton. It would degrade this science, which in truth is a natural science, although it only admits the most general properties of what we perceive into the domain of its researches ultimately to the rank of a mere play with symbols, wherein arbitrary meanings would be attached to the signs as if they were the figures on the chessboard or on playing-cards. However amusing such a play might be, nay, however useful for analytical purposes the solution would be of the problem,—to follow up the rules of the signs which emanated from the conception of magnitude into their last formal consequences,—such a literal mathematics would soon exhaust itself in fruitless efforts; whereas the science which Gauss called with so much truth the science of magnitude possesses an inexhaustible source of new material in the ever-increasing field of actual perceptions," &c., &c. ('Allgemeine Functionen-Theorie,' 1882, p. 54).