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Although we might not claim that the new theories in all cases yield a practical output equivalent to their mathematical difficulty, the judgment of the workers in these fields considers them on the whole as beneficial to their particular domain.

All this requires a re-orientation of the teaching of mathematics, in particular in secondary schools, towards which the present enquiry of CIEM may be considered as a decisive step.

## 2. PURE AND APPLIED MATHEMATICS.

Until a few decades ago applied mathematics was considered by the majority of mathematicians as second rank mathematics, notwithstanding the fact that almost all mathematicians till Laplace and Gauss, and since that time e.g. Riemann and Poincaré derived some of their most important results from the applications. This opinion expresses itself already in the word "pure" which is a (positive) "appraisal" according to Charles Morris' terminology, and is probably related to the then preponderant idealistic philosophy, mostly from German origin. It overrates greatly some special features of so-called "pure" mathematics, which, apart from a few branches like number theory and topology, almost all originated humbly from old applications (e.g. the theory of—in particular partial—differential equations and integral equations; Bessel-, Legendre-, and most other special functions). Applied mathematics seems to be like wine: it becomes pure just in course of time. With regard to mathematical rigour and generality modern applied mathematics need not be a second to the pure brand. In fact, mathematical rigour is often overdone in modern applications. A scientific theory then becomes a counterpart to the king's palace in the story of Aladdin's lamp: if a problem belongs to a scientific theory containing many points of considerable doubt and rough approximations, then to give a perfectly rigorous proof of existence of its solution in the mathematical part, is like building up one window of the palace wholly out of diamonds and rubies, whilst leaving all other ones made from plain glass.