MATHEMATICAL RIGOR, PAST AND PRESENT*

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1. *Introduction.* The Mengenlehre of Cantor, or the theory of aggregates (sets), has brought to light a number of paradoxes or antinomies which have profoundly disturbed the mathematical community for a quarter of a century. Mathematical reasoning which seemed quite sound has led to distressing contradictions. As long as one of these is unexplained in a final and conclusive manner there is no guarantee that other forms of reasoning now in good standing may not lead to other contradictions as yet unsuspected. For ages the reasoning employed in mathematics has been regarded as a model of logical perfection; mathematicians have prided themselves that their science is the one science so irrefutably established that never in its long history has it had to take a backward step.

No wonder then, that these paradoxes of Burali-Forti (1897), Russell, and others produced consternation in the camp of the mathematicians; no wonder that the foundations on which mathematics rest are being scrutinized as never before. Elaborate attempts are now in progress to give mathematics a foundation as secure as it was thought to have in the days of Euclid or of Weierstrass. Personally we do not believe that absolute rigor will ever be attained and if a time arrives when this is thought to be the case, it will be a sign that the race of mathematicians has declined. However, the aim of this paper is not to show this, but rather to pass in review some typical examples of what were regarded at the time as good mathematical demonstrations, somewhat as a

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