colleagues were notoriously difficult and in 1884 his friend, Mittag-Leffler, advised him not to publish his paper *Principien*. Cantor had to fight off opposition from the most influential German mathematicians of his day (Kronecker among others), and at a time when he considered Mittag-Leffler as virtually his only ally in the mathematical world, he took offence at his friend's advice. It is usually considered that the cool reaction of some of his colleagues and the aggressiveness of others were to blame for Cantor's mental disorders. Grattan-Guinness maintains, though, that they were stresses, his illness marked his life but did not govern it.

At the end of the paper there is a list of lost documents on Cantor's life which also proves invaluable. The work of Professor Grattan-Guinness does not need any defense for scholars of Cantor and the history of set theory and logic and, in spite of the years which have elapsed since its first publication (and the wealth of new material which has become available since then), this paper is still one that cannot be overlooked by anyone interested in this period.

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Waldegg's paper is the only work which appears in this issue of *Mathesis* which has not been published previously. It is part of the author's doctoral dissertation on the development of Cantor's theory of infinite. Its purpose is to present the origin of

Cantor's transfinite cardinal numbers and the process giving rise to the incorporation of infinity into mathematics.

The author explains very clearly the path that lead Cantor away from his purely mathematical interest in the precise characterization of real numbers (and thus from the task of discovering the essence of continuity) and towards the notions of set and power of a set. As Waldegg points out in Section 3 (pp. 86-91), the notion of power began as a *relative* one which allowed a comparison between two or more sets but did not characterize single sets. The absolute notion was introduced for the first time in 1882 and the *Grundlagen* (1883), one of Cantor's most notable works, offers a systematic treatment of the problems posed by this new notion. In essence, these problems were, as Waldegg points out on p. 87, the following three: how to assign a number characteristic for infinite sets, how to establish a criterion for comparing these number characteristics and how to produce instances of sets whose number characteristic was different from that of $\mathbb{N}$ and $\mathbb{R}$. Waldegg also stresses the distinction between cardinal and ordinal points of view for infinite numbers. Both perspectives coincide for finite sets and numbers but Cantor was well aware that this situation changes for infinite numbers and sets. This distinction is already explicit in the *Grundlagen.* Waldegg explains the three formation principles that Cantor uses for defining infinite numbers, both ordinals and cardinals, and the recourse to the power set theorem to define sets of higher cardinality.

The last section of her paper is devoted to the question of the existence and reality of mathematical entities. Waldegg focuses on paragraph 8 of the *Grundlagen* and presents Cantor's distinction between *immanent* existence and *transcendent* existence. She stresses the feature of *coherence* with the already available mathematical system that every new mathematical notion must possess to become acceptable and the analogy between the method he uses to introduce irrational numbers and the method he employs for transfinites. The *Grundlagen*, as Waldegg concludes, offers a philosophical justification for the case of the existence of transfinite numbers. This kind of philosophical support is in contrast to the appeal to usefulness by which other new numbers and mathematical techniques are justified.

Waldegg's paper gives a clear picture of Cantor's most outstanding works and discusses the key aspects of the development of his revolutionary theory.