George Cantor

1845 - 1918

George Cantor was born in St. Petersburg, Russia, the eldest of six sons of a Danish merchant, George Waldemar Cantor and a Russian musician, Maria Anna Böhm, was known for having created the modern set theory. It was from this theory that came to the concept of transfinite numbers, including the numerical classes of cardinal and ordinal, establishing the difference between these two concepts that they pose new problems when they refer to infinite sets. Cantor was also known for his work on the original representations of functions by trigonometric series (a generalized version of a Fourier series)

After early education at home from a tutor, Cantor attended primary school in St. Petersburg. In 1856 the family moved to Germany. In 1863 he join at the University of Berlin, had as a master the great Karl Weierstrass, famous for giving solid to infinitesimal analysis, having done his doctorate in 1867, with a thesis on Number Theory. In 1869 Cantor was called to teach at the University of Halle, becoming later an associate professor and in 1879 full professor.

His interest in the sets and transfinite numbers began in 1870 and shortly after he has shown that the set of rational numbers is countable. Going forward, year after year the investigation of infinite sets and the problems of continuity, Cantor Was getting results more and more surprising, not always well received by all mathematicians. For example, all were intrigued when Cantor showed that

transcendental numbers, ie those which are not solutions of algebraic equations, not only form as infinite set, but are even more numerous than the natural.

In 1874, Cantor published in the Journal de Crelle the most revolutionary article that even his publishers were hesitant to accept: he recognized the fundamental property of infinite sets and, unlike Dedekind cognized that not all were equal, going to build a hierarchy of sets according to their powers.

His work was ridiculed by many of his contemporaries. Among the critics was Kronecker, his former instructor. Among the enthusiasts of his work, had the support of Julius Richard Dedekind, with whom he maintained contact or correspondence throughout his life. When, near the end of life, Cantor began to suffer mental faculties, some have blamed Kronecker for these problems. However, today it is know that these disorders did not originate in stressful situations. Moreover, during this critical period, Cantor reached a deal with Kronecker now, if not accept, at least not to criticize his work.

Cantor had several habits, perhaps some of them generated by his physical conditions. One was to say that Shakespeare had not written the parts that say be your own.

He died of a heart attack, on January 6, 1918, in Hale.

Quotations

The essence of mathematics lies in its freedom [**George Cantor, in MacHale, Comic Sections (Dublin 1993)]**

My theory stands as firm as a rock; every arrow directed against it will quickly return to the archer. How do I know this? Because I have studied it from all sides for many years; because I have examined all objections which have ever been made against the infinite numbers; and above all because I have followed its roots, so to speak, to the first infallible cause of all created things [George Cantor]

No one shall expel us from the Paradise that Cantor has created [**David Hilbert**]

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