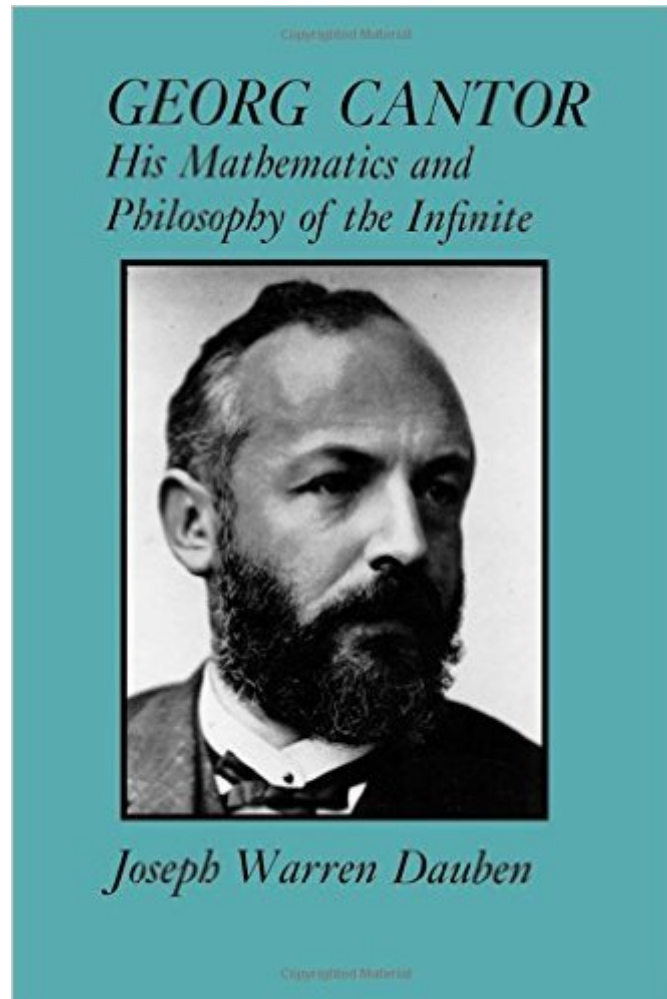# Georg Cantor: His Mathematics And Philosophy Of The Infinite

Synopsis

One of the greatest revolutions in mathematics occurred when Georg Cantor (1845-1918) promulgated his theory of transfinite sets. This revolution is the subject of Joseph Dauben's important studythe most thorough yet writtenof the philosopher and mathematician who was once called a "corrupter of youth" for an innovation that is now a vital component of elementary school curricula.Set theory has been widely adopted in mathematics and philosophy, but the controversy surrounding it at the turn of the century remains of great interest. Cantor's own faith in his theory was partly theological. His religious beliefs led him to expect paradoxes in any concept of the infinite, and he always retained his belief in the utter veracity of transfinite set theory. Later in his life, he was troubled by recurring attacks of severe depression. Dauben shows that these played an integral part in his understanding and defense of set theory.

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Customer Reviews

This is the definitive book about George Cantor, the brilliant mathematician whose work includes the groundbreaking development of both set theory and transfinite numbers.Interestingly, the author's preface says this is not a biography of Cantor, though it does include personal information, especially as it relates to Cantor's intellectual development and emotional issues. Rather, it's a thorough and rigorous exposition of his mathematical and philosopical ideas. Dauben says, "... this book represents a study of the pulse, metabolism, even in part the psychodynamics of an intellectual process: the emergence of a new mathematical theory".But, a few warnings. While both the and jacket blurb claims this is for the "general reader", it is not. It is most definitely NOT a

popularization, and I don't think the publisher tries to make that clear. It is a scholarly tract, an extension of Dauben's Harvard doctoral dissertation, and it seems he has not watered it down much. It is highly technical, with many equations, and is primarily written for academicians who are fluent in higher mathematics (clearly, not a large potential audience for the book!). Consistent with such a scholarly publication, it includes excellent index, bibliography, and notes sections, with many entries being technical, from obscure journals, and/or in foreign languages.I found that my three semesters of college calculus (though no set theory) were inadequate preparation to follow many of the mathematical arguments. If you have an undergraduate or higher degree in pure mathematics, you should have no trouble.Dauben also uses a fair amount of German, and a little French and Latin, all without translation -- you're expected to know these things.

This is a great book on the work of Georg Cantor.The new millennium brought forth a new human hope -- to unify `that which is physical' with `that which is spiritual.' This hope would unify the fields of science and theology. Currently, these fields are separated by their different beliefs and methods of truth seeking. On beliefs, many scientists do not believe in God whereas all theologians believe in God. On truths, scientists use the scientific method to express true scientific statements whereas theologians use feelings, phenomena, and scriptures to express true theological statements.I believe that all `big discoveries' unify 'that which is physical' with 'that which is spiritual.' For instance, the big discovery of Nicholas of Cusa unifies an infinite God and our finite universe. And, the big discovery of Leibniz unifies spiritual atoms with all physical things in the universe. Further, the big 1920 discovery of symbolic languages allows us to speak about God and the universe using the same symbolic language. In this book on Cantor, one earns that the mathematics and infinities of Georg Cantor is another `big discovery' that unifies God and the universe.Cantor's theory of the infinity reveals two infinities. One is the `non-genuine' infinite. This infinity is incomplete. It applies to variable magnitudes in the universe, as they either grow beyond all limits or diminishes to an arbitrary smallness. This infinity always remains finite. Cantor's transfinite numbers orders and counts all non-genuine infinities. On the other hand, the `genuine' infinity is determinate, unchanging, and complete. It is found in the complex variables used by scientists. There, the determinate infinity is the single point at infinity.

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