Selections from *Contributions to the Founding of the Theory of Transfinite Numbers*

(First Article)

"Hypotheses non fingo."
"Neque enim leges intellectui aut rebus damus ad arbitrium nostrum, sed tanquam scribæ fideles ab ipsius naturæ voce latas et prolatas excipimus et describimus."
"Veniet tempus, quo ista quæ nunc latent, in lucem dies extrahat et longioris ævi diligentia."

§ 1
THE CONCEPTION OF POWER
OR CARDINAL NUMBER

By an "aggregate" (*Menge*) we are to understand any collection into a whole (*Zusammenfassung zu einem Ganzen*) M of definite and separate objects m of our intuition or our thought. These objects are called the "elements" of M.

In signs we express this thus:

$$M = \{m\}. \tag{1}$$

We denote the uniting of many aggregates M, N, P, ..., which have no common elements, into a single aggregate by

$$(M, N, P, \ldots). \tag{2}$$

The elements of this aggregate are, therefore, the elements of M, of N, of P, ..., taken together.

We will call by the name "part" or "partial aggregate" of an aggregate M any other aggregate M_1 whose elements are also elements of M.

If M_2 is a part of M_1 and M_1 is a part of M, then M_2 is a part of M.

Every aggregate M has a definite "power," which we will also call its "cardinal number."

We will call by the name "power" or "cardinal number" of M the general concept which, by means of our active faculty of thought, arises from the aggregate M when we make abstraction of the nature of its various elements m and of the order in which they are given.