60. Conclusion.—The foregoing exposition is far from being exhaustive; it does not pretend to be a complete treatise on the algebra of logic, but only undertakes to make known the elementary principles and theories of that science. The algebra of logic is an algorithm with laws peculiar to itself. In some phases it is very analogous to ordinary algebra, and in others it is very widely different. For instance, it does not recognize the distinction of *degrees;* the laws of tautology and absorption introduce into it great simplifications by excluding from it numerical coefficients. It is a formal calculus which can give rise to all sorts of theories and problems, and is susceptible of an almost infinite development.

But at the same time it is a restricted system, and it is important to bear in mind that it is far from embracing all of logic. Properly speaking, it is only the algebra of classical logic. Like this logic, it remains confined to the domain circumscribed by Aristotle, namely, the domain of the relations of inclusion between concepts and the relations of implication between propositions. It is true that classical logic (even when shorn of its errors and superfluities) was much more narrow than the algebra of logic. It is almost entirely contained within the bounds of the theory of the syllogism whose limits to-day appear very restricted and artificial. Nevertheless, the algebra of logic simply treats, with much more breadth and universality, problems of the same order; it is at bottom nothing else than the theory of classes or aggregates considered in their relations of inclusion or identity. Now logic ought to study many other kinds of concepts than generic concepts (concepts of classes) and many other relations than the relation of inclusion (of subsumption) between such concepts. It ought, in short, to develop into a logic of relations, which LEIBNIZ foresaw, which PEIRCE and SCHRÖDER founded, and which PEANO and RUSSELL seem to have established on definite foundations.

While classical logic and the algebra of logic are of hardly any use to mathematics, mathematics, on the other hand, finds in the logic of relations its concepts and fundamental principles; the true logic of mathematics is the logic of relations. The algebra of logic itself arises out of pure logic considered as a particular mathematical theory, for it rests on principles which have been implicitly postulated and which are not susceptible of algebraic or symbolic expression because they are the foundation of all symbolism and of all the logical calculus.[1] Accordingly, we can say that the algebra of logic is a *mathematical* logic by its form and by its method, but it must not be mistaken for the logic *of mathematics*.

1 The principle of deduction and the principle of substitution. See the author's *Manuel de Logistique*, Chapter I, §§ 2 and 3 [not published], and *Les Principes des Mathématiques*, Chapter I, A.