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Louis Couturat, the French philosopher and logician, studied at the École Normale Supérieure and earned an *agrégé* in philosophy and a licentiate in mathematics. He taught philosophy at the universities of Toulouse and Caen but soon gave up teaching in order to devote all of his time to his own researches.

Couturat first attracted attention with his important doctoral thesis, *L'infini mathématique* (Paris, 1896). At a time when the mathematicians were still questioning the validity of Georg Cantor's theories and when the majority of French philosophers, led by Charles Renouvier, were resolute advocates of finitism, Couturat presented a vigorous case in behalf of an actual infinite. In opposition to the formalist theories of number of Julius Dedekind, Leopold Kronecker, and Hermann Helmholtz, he bases number on magnitude—not on a strictly spatial intuition but on magnitude considered as the object of a "rational intuition." This is why, of the various generalizations of number—the arithmetical, the algebraic, the geometrical—he regards the geometrical as the most rational. His reasoning consisted of offering the actual infinite as a new generalization of number, analogous to those that resulted in signed numbers, fractions, irrationals, and imaginaries. All of these numbers at first seemed to be arithmetical nonsense, but they took on meaning once they were recognized as suitable for representing new magnitudes and for allowing various operations on them that were hitherto impossible. The justification for infinite numbers is that they are indispensable for maintaining the continuity of magnitudes.

From this point on, Couturat's studies proceeded in three areas closely associated in his mind—the history of philosophy, logic and the philosophy of mathematics, and the development of a universal language.

After writing an essay (his Latin complementary thesis) on the myths of Plato, he devoted himself to Gottfried Wilhelm Leibniz, the great infinitist, whose reinterpretation he undertook independently of Bertrand Russell but at the same time and in the same sense. As indicated by the title of his book *La logique de Leibniz* (Paris, 1901), Couturat had at first intended simply to study the precursor of modern logistic. He soon perceived, however, that Leibniz's "logic was not only the heart and soul of his system, but the center of his intellectual activity, the source of all his discoveries, … the obscure or at least concealed hearth from which sprang so many *fulgurations*. " The manuscripts he discovered at Hanover, a copious collection of which he published in *Opuscules et fragments inédits de Leibniz* (Paris, 1903), further strengthened Couturat in this conviction. Considering only Leibniz's known, celebrated works, if we wish to find the real root of his system, we must look not to the *Monadology* or the *Theodicy* but to the *Discourse on Metaphysics,* together with the *Correspondence with Arnauld,* which is, as it were, a commentary on the *Discourse*. Taking the old formula *praedicatum inest subjecto* in all its rigor, Leibniz held that every true proposition can be resolved into identities provided one pursues its analysis to the end. Contingent or factual truths differ from the necessary truths of reason only in respect to the infinite length of the analysis, an analysis which God alone is able to complete. Couturat showed, with supporting texts, that all the theses of the Leibnizian metaphysics are obtained from this position and derive their unity from it. The system thus appears as a panlogism.

It is likewise to his interest in Leibniz that we may ascribe, indirectly, Couturat's important study "La philosophie des mathématiques de Kant," published in the *Revue de métaphysique* (1904) on the centennial of Immanuel Kant's death. In *L'infini mathématique* Couturat had already criticized the Kantian antinomies that claim to establish the impossibility of an actual infinite. He now concluded that "the progress of logic and mathematics in the nineteenth century has invalidated the Kantian theory and decided the issue in favor of Leibniz" and his ideal of a completely "intellectualized" mathematics. The majestic edifice of the three *Critiques* lacks the indispensable basement of a logic on a level with science. "The brass colossus has feet of clay."

Deploring the fact that C. I. Gerhardt, in editing Leibniz, had separated the mathematical writings from the philosophical, Couturat could not but associate himself with the task assumed by the newly founded *Revue de métaphysiqu?* of working for a *rapprochement,* unfortunately broken off in the nineteenth century, between philosophers and scientists. After the establishment of the *Revue* in 1893, scarcely a year passed when he did not publish one or more articles in this spirit (some thirty at the time of his death, plus three that appeared posthumously). Rather than present original views, he dedicated himself with great disinterestedness to making known the views of others, mainly foreigners. He explained to French philosophers the mathematical logic of Guiseppe Peano, the universal algebra of Alfred North Whitehead, and the foundations of geometry and the principles of mathematics according to Russell. He vigorously defended both the new logic (to whose diffusion he contributed with his *L'algèbre de la logique,* Paris, 1905) and the Russellian logistic. This involved him in a celebrated controversy with his former teacher Jules Henri Poincaré. Although at the time Poincaré was often able to score against his opponent, subsequent developments in logic and mathematics have been more favorable to Couturat on many points.

Couturat's admiration for Leibniz, who dreamed of a universal language; his adherence to logistic that he saw as the source of an algorithm disengaged from the contingencies and irregularities of the natural languages; his participation in the organization of the first International Congress of Philosophy (Paris, 1900); his active collaboration with André Lalande in the preparation of the *Vocabulaire technique et critique de la philosophie* (Paris, 1926); and his rationalism, which one may characterize as militant in the sense that his purpose was less to rediscover reason in things than to work to make it rule among men—all these converging concerns led him to devote himself more exclusively to a task which became a veritable apostolate for him—the creation and adoption of an international auxiliary language by the rationalization of Esperanto and Ido. He prepared himself for this mission first by studying and then by publishing, in collaboration with Léopold Léau, the *Histoire de la langue universelle* (Paris, 1903). After 1900, Couturat was the moving spirit of the Délégation pour l'Adoption d'une Langue Auxiliaire Internationale, initiated by Léau, and later of the Akademie di la Lingue Internaciona Ido. In 1908 he founded and directed until his death the monthly review *Progreso,* written in the reformed language and designed to propagate it. The opposition of many Esperantists and the death of Couturat, which happened to come at the very moment when a war that exacerbated national particularisms was breaking out, caused the abandonment of the project. His friends and admirers have often regretted that Couturat should have expended so much effort in vain and sacrificed his wide talent to a noble dream.

See also Cantor, Georg; Helmholtz, Hermann Ludwig von; History and Historiography of Philosophy; Kant, Immanuel; Leibniz, Gottfried Wilhelm; Plato; Poincaré, Jules Henri; Renouvier, Charles Bernard; Russell, Bertrand Arthur William; Whitehead, Alfred North.

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