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Introduction to the Second Issue

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We here present the second volume dedicated to a French tradition in the philosophy of mathematics, which we have titled '*La philosophie mathématique': Mathematical and Philosophical Inspirations from Brunschvicg to Granger*.

This second volume extends the reflection, with new contributions that further explore the relationship between mathematics, history, and philosophy — a relationship whose complexity resists reducing to a system, be it historicism or abstraction, and calls for renewed attention to conceptual genesis, rupture, and sedimentation.

Central to the contributions gathered here is the interrogation of the philosophical status of mathematics as a mode of thought. Pascal Bertin examines Jean Cavaillès' assertion that mathematics serves to understand what it means to think, revealing an evolving conception of thought as an unfinished, oriented process shaped through philosophical and scientific reflection.

Another strand of reflection is provided by Mario Castellana, who revisits Lautman's internal genesis of mathematical structures, moving away from external logical frameworks toward an ontology in action that conceives mathematics as a process of becoming.

Éric Audureau focuses on the notion of style within the philosophy of mathematics, showing it to be inseparable from the principle of duality, whose stability is challenged by advances in modern logic. He shows that style plays an essential, though fragile, role in a full-fledged philosophy of mathematics.

Finally, David Thomasette analyzes divergent critiques of Cartesian methodological foundations — particularly the notion of simple natures — contrasting Bachelard's ontological and evidential reading with Vuillemin's critical and intuitionist reinterpretation, which opens toward a radical philosophical decisionism.

We also take this occasion to publish the English translations of two texts by Alain Michel: "Mathématiques et 'profondeur': l'exemple de la théorie des nombres" (*Mathematics and 'Depth': The Example of Number Theory*) and "Jean Cavaillès dans l'héritage de Léon Brunschwicg" (*Jean Cavaillès in the Legacy of Léon Brunschvicg*). These two articles, presented together here for the first time, mark out key positions within a constellation of thought that has shaped the French philosophy of mathematics throughout the twentieth century. At the heart of this constellation lies a fundamental tension between two conceptions of historical development — one informed by Brunschvicg's critical idealism, the other by the structural necessity sought by Cavaillès.

An introductory study by Gabriella Crocco, which precedes the translations, offers a comparative reading of Michel's contributions and situates them within this broader philosophical field. The notion of depth, as addressed by Michel, serves as a guiding thread. Originally, this theme was to be developed in parallel with *What is a Profound Result in Mathematics?* by Gilles-Gaston Granger,[(1)] whose reflection on mathematical depth offers a contrasting but deeply resonant perspective. The prohibitive cost of reproduction rights unfortunately prevented the inclusion of Granger's article, but it remains present as a crucial point in the constellation traced by Crocco's interpretive framework. Through these texts, the reader is invited not only to rediscover a significant moment in the history of philosophical reflection on mathematics, but also to reengage with the enduring question of what it means to know.

Of course, translating philosophy is always a difficult task; but here, the difficulty is redoubled by a mode of philosophizing in which ideas must be carried by a rich, highly literal, and at times poetic language. This is both a necessity and a specificity of this French tradition, which we hope the reader will access — at least in part — through our translations. It is a philosophy of precision, articulated through a demanding, crafted, and literary language, and it is in this respect that it truly distinguishes itself.

[(1)] Granger, G.G. (1997). *What is a Profound Result in Mathematics?* In: Agazzi, E., Darvas, G. (eds) *Philosophy of Mathematics Today*. Episteme, vol. 22. Springer, Dordrecht.