

Deleuze shows that the answer to the question whether the two Leibnizian “worlds” (phenomenal and intelligible) stand in any kind of relation to each other is the same as the answer to the question how the Baroque heaven-and-earth are related to each other. They are both picturable in one picture (theory); co-present, but still different non-interacting “worlds.” (2) It shows how the timelessness of leibnizianism does not reside in any endorsable theses, but in Leibniz’s consummate expression of the baroque — multiplicity, excess, vertigo, ecstasy, scenography. (3) A scholarly and frequently illuminating book, it nevertheless offers an alternative to the biographical-contextual approach in historical studies as surely as it does to the analytical hunt for consistency and inconsistency. The translator Tom Conley’s insistence in his introduction on the importance of “geophilosophy” struck this reviewer as slightly strained, but he is to be roundly thanked for making this work available to English readers.

***Leibniz et la méthode de la science*, by François Duchesneau. Paris: Presses Universitaires de France, 1993, 413pp., 258FF pbk.**

**Reviewed by Murray Miles,  
Brock University, St. Catharines, Ontario**

This is a very impressive piece of philosophical scholarship, in the best tradition of French-language studies in the history of philosophy and science in the seventeenth and eighteenth centuries. Its theme is Leibniz’s philosophy of science, which, François Duchesneau contends, is at bottom a doctrine of method in the seventeenth-century manner of Descartes. Leibniz’s philosophy of science, however, is as antithetical to the principles of Cartesian science as to those of the “experimental philosophers,” from Boyle and Hooke to Locke and Newton. If Leibnizian *science* was all but eclipsed by the powerful legacy of Newton and his followers, Leibniz’s *philosophy of science*, Duchesneau argues, has a special relevance for contemporary discussions of the respective roles of theory and observation, the status of theoretical entities, and the logical structure of scientific theories.

The first sub-section of Chapter One is devoted to the evolution of Leibniz’s conception of a *science générale*, the place within it of a *mathesis universalis*, and the place of both within a demonstratively structured encyclopedia of human knowledge. While covering in far briefer compass much of the same material as

Chapters V through VII of Couturat's classic work, it provides a fresh perspective on the wide range of programmatic sketches produced by Leibniz in the 1670's, one not dominated (as Couturat's seems to me to have been) by the concern to demonstrate the continuity of Leibniz's thought from the early *de Arte Combinatoria* (1666) through this sequence of short works leading to the period of Leibniz's maturity.

In the second and main sub-section of the chapter Duchesneau treats of the essential complementarity (80, 102) of the methods of analysis and synthesis in Leibniz's *ars inveniendi*. This point was first stressed by Couturat (*La logique de Leibniz*, 178f. and notes) and has only been confirmed, as Duchesneau reminds us (58), by the principal interpretations since. Particularly instructive is the careful demarcation of Leibniz's position from Descartes'. While endorsing many of Belaval's conclusions in this regard, Duchesneau brings out interesting similarities between Leibniz and Pappus of Alexandria, for whom synthetic procedures were likewise 'integrated' (75) into the method of analysis. The interpretation establishes the primacy, for Leibniz, of the analytic method within the domain of empirical knowledge. The final sub-section, "Méthode analytique et science des phénomènes," is concerned in the main with Leibniz's "expansion" (86, 88) of the analytic method as a "method of hypothesis" (100) within the empirical sciences. Here we begin to discern the contours of that distinctive conception of hypothetico-deductive method which is peculiar to Leibnizian science and forms one of the principal themes of the book.

Having traced the development of Leibniz's project of subsuming "all rational and empirical disciplines under one and the same demonstrative structure" (cf. 101), Duchesneau turns, in Chapter Two, to the related question of "L'ordre des vérités," i.e. the distinction between truths of reason and of fact, or between necessary and contingent truths. As to the former, he attempts first to counter the misleading tendency (traceable, I think, to Couturat, who is not mentioned however) to interpret the analysability of *derivative* truths of reason narrowly in terms of the model suggested by the *de Arte Combinatoria*: that of a product analysable into a number of arithmetical factors. Even in the case of necessary truths, the method of analysis through substitution of equivalents *salva veritate* is more versatile than this. Included among the "diverses formes de réduction conceptuelle du complexe au simple" (109) is, for example, analysis in terms of fundamental relations of an abstract, ideal nature, themselves irreducible to the strict inclusion of the predicate in the subject (108, 166).

However, the real problem with the doctrine, as Leibniz knew only too well, lies elsewhere: how is the contingency of the truths of fact to be reconciled with their analyticity? One major impediment to the satisfactory resolution of this problem has been the tendency, more or less pronounced in a variety of interpreters (e.g. Russell, Couturat, Curley, Ishiguro) to understand ‘analyticity’ in Kantian rather than Leibnizian terms and so to treat the class of truths in question, expressly or by implication, as synthetic. Duchesneau’s critique is simple and trenchant: the Kantian notion of analyticity, though variously articulated and interpreted, is at bottom epistemological; it has to do with the content of subject- and predicate-concepts represented by a thinking subject. For Leibniz, however, the notion of the analytic is at bottom a “logico-metaphysical” (118) one having to do with “la réalité *objective* de ces connexions” (125).

In his own attempt to come to grips with the problem, Duchesneau distinguishes between the “logico-metaphysical” and the “epistemological” strategy deployed by Leibniz. The former turns crucially on the distinction between the sufficient reason “hors de la notion” of the subject (God’s choice of the best possible world) and the sufficient reason “à l’intérieur de la notion”. The latter Duchesneau treats as a logical “transcription” (122) of its metaphysical counterpart: “la notion pleine et compréhensive au fondement de toute vérité *contingente* se déploie *analytiquement* sous la forme d’une loi de détermination causale appropriée à l’objectif de rendre compte d’un objet diversifié à l’infini, en le représentant comme s’intégrant à un système d’individualités structurées suivant le plan de l’ordre optimal” (122, italics added). Thus the notion of an individual subject is analysable in terms of a system of causal determinants involving its relations to all other individuals compatible with it under a certain law of order of a concrete particular universe; and this law in turn involves “la représentation d’un décret possible dans la mesure où elle montre la raison de celui-ci, une raison de finalité qui soit déterminante pour une volonté souveraine et sage” (121). Whatever the final verdict on Duchesneau’s solution, it would seem that some such distinction as he draws between a broader and a narrow sense of ‘analysis’ and ‘the analytic’ in Leibniz must play a key role in any satisfactory resolution of this vexed question.

As its title (“Contingence et science des phénomènes”) indicates, the theme of the other section of Chapter Two is still the broadly ‘analytic’ method of constructive hypotheses by which contingent truths regarding the phenomena are, if not demonstrable in the strict sense of necessary truths, yet ‘provable’, without exception, *a priori*. The critical thrust is twofold: on the one hand, against Loemker’s suggestion that Leibniz took the opposite view in the fragment *de Libertate*; on the

other, against the suggestion (cf. Martin Schneider's Bonn dissertation, 1974) that Leibniz was seriously misled in his estimate of the analysability of the sequence of the phenomena by the very model of the analysis of mathematical series which he so confidently declared furnished the key to the problem. In what strikes me as a model of rigorous historical-philological method, Duchesneau proceeds systematically through the entire corpus of related fragments (too numerous to list), determining with exactitude both the justification and the precise limits of the analogy with the application of the calculus to infinite series. The section is hard going, but extraordinarily rich in insights and felicitous formulations.

Chapter Three, "La stratégie des hypothèses", is concerned with the apparent disparity (172) between Leibniz's 'official' definitional model of demonstration by substitution of equivalents *salva veritate*, and the much more broadly analytic method of hypothesis which permits human understanding to disclose the laws of nature in their peculiarly *conditional* necessity. In this connection Duchesneau undertakes a careful juxtaposition of the Leibnizian with the Cartesian methodology of science as expressed in the *Principles*. But the lion's share of the attention goes to Locke's empiricist conception of the role and epistemological status of hypotheses in science and to the 'corpuscularian hypothesis' and Leibniz's critique of it in particular. It is in this and the following chapter that Leibniz's peculiarly 'rationalist' conception of the hypothetico-deductive method of science emerges in full detail. The main textual support for the interpretation is the correspondence with Conring (and, to a lesser extent, that with Foucher) and the fourth part of the *New Essays*.

The fourth and final chapter, "Les principes architectoniques," is devoted to the concept of natural law in Leibnizian science, principally to the formal and material constraints (cf. 304) upon theory construction embodied in the great architectonic principles. However, throughout the chapter Duchesneau concerns himself equally with the heuristic and the critical employment of the principles of finality, the identity of indiscernibles, and of continuity. Contrary to interpretations inspired by the transcendental method of Kant, Duchesneau insists on the status of the architectonic principles as *contingent* truths (261) justifiable only *a posteriori*, "by their pragmatic ability to orchestrate the critique and discovery of laws" (378). Their application in a variety of scientific contexts is examined in minute detail, from the relatively familiar cases of dioptrics and the critique of the Cartesian laws of collision, to the less frequently considered employment of architectonic considerations in the theory of the biological sciences. In terms of sheer bulk (120 densely

argued pages) this is the major portion of the work; it is impossible even to attempt to summarize its findings in a review of this nature.

At a time when the philosophy and history of science are at the peak of their vogue, and when the hackneyed stereotypes of 'rationalists' and 'empiricists' are undergoing detailed re-examination, the task of re-drawing "le portrait de la science leibnizienne" (260) needs no particular justification. Duchesneau's own revisionist tendencies are generally restrained and judicious. Of this the patient issue-by-issue juxtaposition of the scientific outlooks of Leibniz and Locke is a reliable indication. A variety of serious distortions and over-simplifications are brought to light, many of them due, no doubt, to the resilience of received 'intellectualist' pre-conceptions. And yet the tendency is not to level off what are surely profound differences of outlook, but to throw them into higher relief through the addition of much fresh and instructive detail. If anything is apt to blur the new image of Leibniz as scientist and theoretician of science (and this I venture as a general criticism), it is perhaps a slight tendency to downplay wherever possible the metaphysical dimension of Leibniz's thought. For instance, alluding to Gerd Buchdahl's treatment of Leibniz's employment of the principle of continuity in dynamics, biology, and "as an illustration of 'divine perfection' and the importance and validity of 'final causes'", Duchesneau endorses unreservedly only Buchdahl's claim that the "essential semantic power, the technical meaning" of the principle is centred on its application to the critique of the Cartesian laws of collision (cf. 324 n.). Regarding its extension from dynamics to biology, he is more hesitant. And on its metaphysical employment he has this to say (I translate freely) : "It is by no means certain that Leibniz tends to elaborate a veritable metaphysics of nature on the basis of the principle of continuity. It would seem to me more accurate to take the epistemological reflection on continuity as a process relatively independent of metaphysics, one that is pressed into the service of metaphysics without genuine transference of the scientific idea to a different level" (324). In a similar vein, he regards the architectonic principles generally "not as metaphysical pronouncements but rather as methodological precepts" (374). Notwithstanding the careful analyses on which it rests, the interpretive tendency apparent in these remarks could, if taken too far, skew the picture again.

Though the style of the work is admirably simple and elegant, the general level of difficulty is high, due mainly to the complexity of the argumentation and to certain fairly technical passages. Synoptic introductions at the beginning and conclusions at the end of each chapter provide welcome opportunities to step back and look at the bigger picture. The footnotes, many of them in Latin, are found at

the bottom of the page, thus dispensing the reader from the necessity of reading in two places at once. A list of abbreviations might have been handy; by an oversight those provided in the section of the bibliography devoted to Leibniz's works do not include *VE*, the *Vorausedition zur Reihe VI* of the *Akademie-Ausgabe*, which is constantly cited throughout the first two chapters.

In concluding I should draw the reader's attention to Duchesneau's forthcoming *La dynamique de Leibniz* (Vrin, Paris), a work which, as he points out (11), was at the origin of the present one. It will no doubt represent an advance on Gueroult's landmark study as significant as is that of the present volume on Couturat's classic work.

***Leibniz's Metaphysics: A Historical and Comparative Study*, by Catherine Wilson. Princeton: Princeton University Press, 1989. 350 pp. + x.**

**Reviewed by J. A. Cover, Purdue University**

By now widely read, Catherine Wilson's book on Leibniz's metaphysics needs no introduction to Leibniz scholars. This volume, like its companions in the 'Studies in Intellectual History and the History of Philosophy' series, succeeds in meeting high standards of historical and textual scholarship; of special note are Wilson's remarkable grasp of the contribution that relatively minor figures (by current reckoning) made to Leibniz's thought, and her familiarity with the European secondary literature. The book is, as a consequence, broader and historically richer than other books on Leibniz in English. Contributing to this historical flavor is also a more strategic feature of Wilson's project—namely its exploration of Leibniz's metaphysics "[not] as a collection of theses and principles, but developmentally and thematically" (2). The distinction seems to imply that while one *could* view Leibniz's metaphysics as a collection of principles and theses, exactly "*which* principles and theses?" threatens to get wrongly answered: the "governing assumption" of a developmental approach is that "what the words of a [long-dead philosopher] mean cannot be determined by an internal inspection of the texts" (2). Or anyway, not precisely determined, with a high confidence of Leibniz's intentions, and for some projects this may well matter. Surely it may well matter for someone inclined—as Wilson is not—to see the largest part of Leibniz's metaphysics as a relatively unified system of theses and principles: the governing assump-