

Saturday, June 26 AM 9:00-12:00, Room 100

Session 1 (room 100): **18<sup>th</sup> Century Science**

Eric Palmer, "The Further Adventures of Pangloss"

Giora Hon, "Kant and Incongruent Counterparts: Missing the Modern Concept of Symmetry"

Predrag Sustar, "Kant's Operationalism on the Organism Concept"

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**"The Further Adventures of Pangloss (The Abb' Noël Pluche)"**

**Eric Palmer**

At the 2002 HOPOS meeting, I introduced the thesis that the primary model for Voltaire's character Pangloss was not Leibniz, but rather, the now obscure Abb' Pluche, author of a spectacularly successful popularization of science, *Spectacle de la Nature* (1732-50, 8 vols.). This presentation will detail the philosophy of science of Pluche, who was the most credulous of anthropocentric physico-theologians: for example, he argued that God had specifically placed carrion-eaters on earth as "living charnel-houses" to rid us of the inconveniences of rotting flesh, and had tossed infertile double-bloom flowers into the creation in order to beautify our homes, as well as wild beasts to teach us to defend ourselves against our neighbors. Pluche's work is worth a careful study in HOPOS because of its vivid use of teleology for explanation in natural history, and because of the very specific place that he envisioned for scientific inquiry within a general project of human enlightenment. Pluche argued eloquently for specific practical limits to scientific inquiry, based on an account of the limits of human intellect, and of God's manifest will.

Pluche's views were certainly extreme, and I have not found that they have had detectable impact upon the activities of any practicing natural philosophers. Yet his work appeared to ring true, at least to a large popular audience, even into the late 1880's, and significant introductions of divine teleology were discernible to the mid-Eighteenth Century in geology, geography, and natural history. A specific historical event, the 1755 earthquake at Lisbon, appears to have had a chilling effect on that practice.

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**"Kant and Incongruent Counterparts: Missing the Modern Concept of Symmetry"**

**Giora Hon (in collaboration with B. R. Goldstein, University of Pittsburgh)**

In 1768 Kant published a short essay in which he inquired into the possibility of determining the directionality of space. In this essay, "Concerning the ultimate ground of the differentiation of directions in space," Kant sought to undermine Leibniz's proposal for a new mathematical discipline, namely, *analysis situs*, and to

demonstrate the validity of Newton's assertion concerning the nature of space as an absolute entity: an entity that can act but cannot be acted upon. Kant's central argument invokes the strategy that if one were to demonstrate the real existence of a fundamental, essential, and unanalysable spatial quality, such as directionality, in the absence of which certain phenomena would be either unintelligible or impossible, then the relational view of space that Leibniz propounded would be refuted. This paper has been considered a major turning point in Kant's philosophical development towards his critical philosophy of transcendental idealism.

I demonstrate that Kant was very close in this study to conceiving the modern concept of *symmetry*. Indeed, his novel construction of *incongruent counterpart* [*inkongruente Gegenstück*] contains essential elements of the modern notion of *symmetry*. However, Kant does not consider the incongruent counterparts, which he designates as "Right" and "Left", symmetric; rather, he holds the French encyclopaedist view that symmetry is a kind of balance. Moreover, Kant appeals to a "feeling" that the right and left sides of the human body are different. Indeed, he seems to say that the distinction between right and left is intrinsic to nature where right has the advantage. This study convinced Kant that the solution to the problem of the nature of space lies not in mathematics but in metaphysics. He was wrong in this conclusion, at least with respect to symmetry. The solution was found within the framework of mathematics, that is, solid geometry, by revolutionizing the traditional concept of *symmetry*.

My conclusion is cautionary. I submit that before 1794—the publication date of Legendre's *Éléments de géométrie* that brought about this revolution—the modern notion of *symmetry* was not yet in place. Historians and philosophers should take heed of this negative result: analyses which impute the modern notion of *symmetry* to historical actors before this year, are flawed due to anachronism.

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### **“Kant's Operationalism on the Organism Concept” Predrag Sustar**

The scientific practice of contemporary biology constantly supplies notions that call for some sort of philosophical consideration. Most recently, this is the case with the notion of biological information (Godfrey-Smith 2000). The organism concept, however, has in that respect a more complicated history: despite its basic role in the biological sciences and presence, especially, in the period of modern philosophy, the organism concept has only recently regained attention in the philosophy of biology. In a rich agenda proposed to fill the gap on this issue, a «conceptual history of the organism» (Laubichler 2000, S259) is rightly viewed as one of the most promising philosophical methodologies.

But before going any further on the organism concept, one preliminary question should be answered: what kind of concept is the organism concept? Basically, there are

two major solutions: (1) the organism concept as a natural kind concept, in other terms, 'for every object  $x$ ,  $x$  is an organism iff  $x$  is  $y$ ', where  $y$  is taken to be a defining property of all and only the objects of the biological world; (2) the organism concept as an operational concept, i.e. the concept defined in terms of its applicability to scientific practice.

Now, in the conceptual history of the organism, Kant's considerations are at least as significant as, for instance, Descartes' and Leibniz's, both representing the solution (1). In Kant's rather ambiguous analysis (Kant 1790), we may distinguish three different definitions of the organism concept: the organism as an «organized being» (*organisiertes Wesen*), as a «natural purpose» (*Naturzweck*), and, finally, the organism as a «guiding-thread» (*Leitfaden*) of biological research.

In this paper, I analyze these three definitions and argue in favour of an operational reading of Kant's solution. Apart from being significant in the strict historiographical sense, i.e. the so-called «methodological turn» in Kant's late philosophy of science, and, more generally, for an evaluation of his transcendental philosophical project, the proposed operational reading is especially significant in the light of recent operational tendencies on the organism concept in the philosophy of biology (e.g. Wilson 2000).

#### References:

Godfrey-Smith, P. 2000. Information, Arbitrariness, and Selection: Comments on Maynard Smith. *Philosophy of Science* 67: 202-207.

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Laubichler, M.D. 2000. Symposium «The Organism in Philosophical Focus»-An Introduction. *Philosophy of Science* 67 (Proceedings): S256-S259.

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