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**SECTION 8: HISTORY OF LOGIC, METHODOLOGY AND PHILOSOPHY OF  
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..... **Mechanistic and dynamistic readings of the 'force' metaphor in Michael Faraday's philosophy of nature.**

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**ABSTRACT**

The cognitive historical approach to the history of science provides a methodological approach which makes it possible to take into account most of the factors constitutive of the formation of meaning in scientific concept formation. In this paper this approach is coupled with a methodology of metaphorical hermeneutics in order to determine the role played by so called **CreligiousC** factors in the metaphorical meaning of the scientific concept **CforceC** in the work of the British nineteenth century physicist, Michael Faraday. The notion of force could be regarded as the key concept or rootmetaphor of Faraday's scientific work. It is the elusive meaning of this multivocal concept, which he had imbued with new meaning, that I shall attempt to capture by means of the methodology of metaphorical hermeneutics. Faraday's concept of force was closely linked with his theological and religious beliefs. The fundamental question, is whether and how this theologically based and apparently **CreligiousC** convictions function intrinsically and internally in Faraday's theoretical and experimental work.

The hypothesis that provides most promise for the understanding of his use of the terms 'power' and 'force' is the Cantor-thesis which takes Faraday's injunction and strong emphasis on the literal reading of the two books of nature into consideration. It is exactly this injunction that inevitably leads Faraday into a dynamistic understanding of matter and of reality. Dynamism designates the view that all phenomena of nature, including matter, are manifestations of force. One could say he has become a victim of the literalization of both the religious and scientific metaphors of power and force, or describe his overextension of the meaning of force as **Cmetaphoric hypertrophyC**. But the fact that both the mechanistic and dynamistic metaphysical frameworks seem to be compatible with his Sandemanian religious beliefs, raises questions concerning the Cantor-thesis concerning the nature of the relationship between Faraday's religious beliefs and scientific convictions. It is argued that a more fruitful understanding of the constitutive and epistemic role

of **CreligiousC** convictions in science is to be achieved through the analysis of the role of control beliefs represented by shifts in the analogical elements imbued with priority status in the semantic field of the force metaphor. In order to demonstrate this thesis, I restrict the analysis to Faraday's explicit and implicit views on the nature of matter and the transition which takes place in his metaphorical and literal use of the religious and scientific concepts 'power' and 'force'. Attention is also given to the distinction between the role of religious factors, metaphysical frameworks, meta-scientific principles and theories in this transition. The influence of his religious convictions were mediated via scientific control beliefs which guided, steered and controlled theorizing and research. Contrary to traditional approaches the term **CreligiousC** is utilized here to identify those absolute presuppositions which fulfil a controlling or regulative function in scientific concept formation and theorizing.