

PREFACE

This issue of *Philosophica* contains five case studies in discovery and/or creativity. The next issue (volume 64) will contain general methodological studies on the same topics.

In *Inflation. Where Did that Come from?*, Gustaaf C. Cornelis describes how the so-called cosmological paradoxes induce a crisis in cosmology. A revolution occurs and a new paradigm, *in casu* big bang cosmology *annex* inflation theory (the idea that the universe grew exponentially in a split second) emerges. His main question is: where did the 'ridiculous' idea of inflation come from?

In *Discovery of Linear Perspective and its Limitations*, Ton Derksen defends an empirical, realist approach and attacks the conventionalist position (which claims that we experience a linear perspective painting as more faithful to appearances than a non-perspective painting because linear perspective has pervaded our pictorial tradition) defended by a.o. N. Goodman, M. Wartofsky, M. Krieger, N. Turner and M. Hagen.

In *Interrogative Reasoning and Discovery: a New Perspective on Kepler's Inquiry*, Mika Kiikeri argues that the interrogative model of inquiry which Jaakko Hintikka and his associates have been developing in recent years, offers a promising theory of scientific inquiry. He uses Kepler's reasoning which led to the discovery of the elliptical orbit for Mars to make support this claim.

In *Clausius' Discovery of the First Two Laws of Thermodynamics. A Paradigm of Reasoning from Inconsistencies*, Joke Meheus presents a detailed reconstruction of the process by which Clausius arrived at his theory. After that, she argues that the standard account of Clausius' contribution to thermodynamics is mistaken: Clausius' theory is *not* a simple combination of (a contraction of) Carnot's theory and Joule's view.

In *The Creative Growth of Mathematics*, Jean Paul Van Bendegem tries to bring together some elements that must be part of a description

of mathematical practices. He begins at the most general level – the mathematical community as a whole – and goes slowly down to the level of the working mathematician who is (among other things) trying to find a specific proof for a particular theorem.

Draft versions of the papers of Ton Derksen, Joke Meheus and Jean Paul Van Bendegem were presented at a workshop in May 1995, organised by the Centre for Logic and Philosophy of Science of Ghent University in cooperation with the Philosophy of Science Section of the Dutch Research School in Philosophy (NWO-onderzoeksschool Wijsbegeerte - Kamer Wetenschapsfilosofie). The paper of Gustaaf Cornelis was presented at the International Congress on Discovery and Creativity (Ghent, 14-16 May 1998) that was organised by the Centre for Logic and Philosophy of Science.

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