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EDITORIAL 3

In spite of frequent warnings by historians against adopting too Whiggish a view, the chauvinism of modern science seems to be such that past theories and chemical world-views are frequently regarded as second-rate if not plain wrong.

Such has been the fate of alchemy, for example, at the hands of most chemical textbook authors, although most are willing to admit that the alchemists isolated certain important substances or developed some useful laboratory techniques. But the philosophical importance of alchemy is almost completely negated by modern chemists. It is therefore a pleasure to include in this issue an article by Pierre Laszlo, who represents a rare example of a successful chemist who also shows great sensitivity to the historical roots of chemistry including the philosophical role of alchemy. Indeed, unlike so many other writers, Laszlo sees an almost uninterrupted lineage between the dualistic concepts found in ancient Chinese and alchemical thought and dualistic concepts which form an integral part of modern-day chemistry.

Somewhat in the same philosophical spirit, which draws upon alchemical roots, is a rather original article by the Croatian chemist Hrvoj Vančik, although this author disputes any claimed continuity between alchemy and chemistry. In the course of his article Vančik discusses the nature of chemistry, the question of reduction, the nature of chemical laws and concludes with some speculations on what he calls diminishing interactions.

Daniel Rothbart is one of a group of philosophers who see the need to extend the study of epistemology to the kind of knowledge which is provided by scientific instrumentation. He illustrates the manner in which he believes instrumental analysis should be understood, contrary to earlier positivist accounts, by reference to the classic research which revealed the structure of DNA in the 1950s.



Rothbart concludes, in a Kantian vein, that global reduction of the chemical sample, like knowledge of the 'thing in itself', cannot be maintained since the characterization of the specimen is highly responsive to the instrumental techniques utilized.

If the philosophy of chemistry has been neglected in recent years then the situation is even worse in the case of philosophy of biochemistry. In his programmatic article in this issue Roger Strand, from Norway, takes some steps to remedy the situation. Although, as he states, he is not setting out to provide a Foundation of Biochemistry he considers some philosophical issues in the field within an approach to philosophy of science which he attributes to Toulmin, Kuhn and Hacking, namely the careful attention to scientific practice rather than to formal issues. In particular, he begins his article with the problem of justifying claims about *in vivo* systems on the basis of evidence obtained *in vitro*. This is an issue which, according to Strand, is seldom addressed by practitioners within the biochemical field itself.

The brief commentary by Richard Harcourt consists of a derivation of the well-known  $2n^2$  rule for the number of electrons in a electron shell with principal quantum number  $n$ . Harcourt's approach is novel in drawing on the Heisenberg uncertainty relationship in order to arrive at the rule.

Still on the subject of electronic configuration, my own contribution to this issue consists of a critique of some writings on the periodic table and electronic configurations by the Oxford physical chemist Peter Atkins.

I must confess to having mixed feelings about airing these disagreements given that my own earliest exposure to quantum chemistry came from being assigned to read Atkins' *Molecular Quantum Mechanics* when I was a chemistry undergraduate at the University of London in the early 1970s.

Finally this issue is brought to a close with a book review of the late Bernard Pullman's book on Atomism, a theme which falls rather well within the domain of philosophy of chemistry. The reviewer William Everdell is himself the author of a very interesting and multidisciplinary history of modernism which appeared recently (Everdell, 1997).

I write this editorial having recently returned from our society's annual meeting held in Columbia, South Carolina. In spite of the cruel August heat the gathering was a great success and included a total of 35 presentations on many aspects of Philosophy of Chemistry as well as an inspiring keynote address by Ted Benfey. Let me take this opportunity to thank all the speakers and attendants and most of all the organizer Davis Baird. Let us hope that next year's meeting in Poznan, Poland will be even more successful.

#### REFERENCE

W.R. Everdell, *The First Moderns: Profiles in the Origins of Twentieth-Century Thought*, University of Chicago Press, Chicago, IL, 1997.

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