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## EDITORIAL 15

Before introducing the articles in the current issue I would like to take a moment to mention a significant development in our field. The philosophy of chemistry recently received a notable public acknowledgement at a symposium to celebrate the tenth anniversary of the Dibner Institute in Boston. I was informed<sup>1</sup> that one of the speakers, historian Trevor Levere who gave the chemistry overview, was rather gloomy, saying that few young scholars were coming into the field. One of the few bright spots he pointed to was the rediscovery and reinvigoration of philosophy of chemistry. Levere specifically pointed to the appearance of *Hyle* and *Foundations of Chemistry*, adding that philosophy of chemistry provided a lively meeting ground for historians, philosophers and chemists.

In addition it should be noted that there were far more talks on philosophical aspects of chemistry at the recent PSA/HSS meeting in Milwaukee than there were on history of chemistry, something that would have been unheard of ten or even five years ago.

## CURRENT ISSUE

The inclusion of the article by Masanori Kaji underlines once again that this journal is becoming the leading forum for historical and philosophical studies on the periodic system. Kaji is one of a small band of Mendeleev scholars who, along with Michael Gordin and Nathan Brooks, all read the original Russian works on the periodic system. These authors can hopefully begin to compensate for the great dearth of translations of numerous Russian sources on chemical periodicity.<sup>2</sup>

Kaji's article on the theme of chemical periodicity is also very timely, in view of the international conference on the periodic table which has just taken place in Banff, Canada.<sup>3</sup> As far as I know this is the first conference to be based specifically on the peri-



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odic table, apart from a meeting at the Vatican which took place in 1969, one hundred years after the publication of Mendeleev's first famous table.<sup>4</sup> Kaji's article revisits an emerging theme in philosophy of chemistry, namely the role of the abstract elements<sup>5</sup> that was also discussed in an article by Paneth, as reprinted in the previous issue (Paneth, 2003). Kaji also discusses the vexed question of the Mendeleev-Lothar Meyer priority debate and offers some new insights from the perspective of the social context of these developments.

The second article by Tami Spector, a chemist based at The University of San Francisco, is partly concerned with the pre-history of chemical periodicity in the form of tables of affinities that began to appear in the late eighteenth century. But Spector's motivation is not so much to explore these tables but to examine Dalton's atomic theory and the difficulties it encountered when it was first proposed. The slow start that Dalton's views experienced is generally written out of textbook accounts of atomic theory, which give the impression that the theory was so plausible as to be immediately adopted. As Spector mentions, one of the main reasons why the majority of chemists were reluctant to accept Dalton's atoms was the prevailing philosophical prejudice against realism and against the notion that atoms might actually exist. It is interesting to reflect how the tables have turned such that these days chemists have almost all become realists and most of them see little purpose in adopting any form of instrumentalist or anti-realistic approach.<sup>6</sup> As Spector also writes,

The deep link between experiment, visualization and aesthetics in chemistry is of fundamental importance to a science that bases its theoretical underpinnings on pictorial representations of the invisible.

She proceeds to argue that the rejection of Dalton's views by his contemporaries was based mainly on the aesthetic climate of the late eighteenth and early nineteenth centuries. Spector claims that Dalton's mixed use of symbols with icons suggested to many that he was reverting to alchemical thinking and that he further challenged the chemical aesthetics that were embodied in the use of tables of chemical affinities.

In the third article Hrvoj Vančik pursues some speculations that were the subject of a previous article (Vančik, 1999). After reviewing some other work in the field he argues for the view that

there exists a natural upper limit to complexity. This notion appears to be based on the fact that the diminishing energy associated with the formation of nuclei, chemical bonds, hydrogen bonds etc. seems to show a convergence towards an asymptotic limit. The concept of diminishing interactions, as the author terms it, is also shown to have some chemical applications such as in the study of resonance stabilization energy and the process of consecutive cyclisation in organic molecules.

The issue is completed with the appearance of two book reviews, one by Shawn Allin and the other by Paul Needham. Allin reviews Cathy Cobb's semi-popular history of physical chemistry. It has always struck me as rather curious that a field as important as physical chemistry has received so little attention from historians of science. As far as I know the only other book-length study of the history of the field is the one by chemical kineticist, Keith Laidler (Laidler, 1993). But as Allin's review indicates the book by Cobb is not a very scholarly treatment but a very good read nonetheless.

Paul Needham who is very well known to the philosophy of chemistry community gives a detailed critique of Maureen Christie's recent book concerning the ozone layer and philosophy of science.<sup>7</sup> Among other things Needham claims that Christie pays undue attention to Popper's account and furthermore that she "talks misleadingly about Popperian confirmation by failure to falsify". It will be interesting to see if Christie wishes to respond to Needham's comments. This will be especially interesting since as Needham points out, philosophical case studies which take up a predominantly chemical theme are something of a curiosity even within the growing literature in philosophy of chemistry.

#### NOTES

1. My thanks to Professor Steven Weininger for bringing this to my attention.
2. There exists a large industry in Russia based on studies of Mendeleev and periodicity in general. The most prolific author in this area has been Kedrov.
3. Two volumes based on papers given at the meeting, edited by B. King and D. Rouvray, will be published soon.
4. M. Verde (Ed.), *Atti del Convegno Mendeleeviano*, Academia delle Scienze di Torino, Torino, 1971.

5. However, I believe that Kaji may be incorrect in claiming that other authors have failed to explore the background of the abstract element concept. An obvious counter-example is the article by Paneth in which the author traces the theme of abstract elements back to the Greek philosophers.
6. Spector's own remark on this development is somewhat different than mine, as her article shows.
7. I recently learned that Maureen Christie's husband, John, has been seriously ill. John Christie is Maureen's co-author on a recent article analyzing the nature of chemical laws (Christie & Christie, 2000), I am sure that readers of this journal, especially those of us who know John personally, will want to wish him a speedy recovery.

#### REFERENCES

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