Editorial 38

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The latest issue begins with a couple of letters to the editor. Firstly, John Ogilvie makes a comment about the observation of orbitals which is being increasingly reported in the scientific press. It is worth noting that this author gained considerable notice from an article in 1990 in which was entitled, “The nature of the chemical bond—1990: There are no such things as orbitals!” (Ogilvie 1990), and which drew several responses, including one from Linus Pauling (1992). The observation or otherwise of orbitals has been discussed in many articles in the philosophy of chemistry, including a recent contribution from Peter Muldur which goes some way to explaining why there seems to be so much divergence on this question. Not surprisingly Muldur argues that the disagreement resides in differing views concerning precisely what one understands by the word “observation” (Muldur 2011).

The second letter to the editor is by Brian Sutcliffe and Guy Woolley and concerns my editorial in the previous issue in which I made some comments about the recent Stanford Encyclopedia article on the philosophy of chemistry (Scerri 2011). In their letter, Sutcliffe and Woolley emphasize that they have never claimed that molecular structure cannot be reconciled with quantum mechanics but only that they don’t know how it can be done.

The first full-length article by Rein Vihalemm from Estonia was regrettably omitted from the previous issue, even though it was mentioned in the editorial. Our apologies to Rein for this oversight. His article deals with another recurring question in the philosophy of chemistry, namely the difference between epistemological and ontological considerations in the discussion of topics such as reduction. Vihallen believes that there is no need to invoke any kind of metaphysical or ontological dimension and that one should think of the question from the point of view of ‘practical realism’.

Another major theme in the philosophy of chemistry, that of the nature of ‘element’ is taken up by Garth Kidd in the second article, in which he proposes a third sense of element in addition to the usually discussed basic substance and simple substance. Kidd’s element is what he calls the high-enthalpy short-lived un-bonded atom. In addition Kidd claims that the strength of an atom’s attractive force is proportional to the spin angular momentum of the free atom.

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Next, a frequent contributor to the journal, Geoffrey Rayner Canham from Newfoundland, Canada, discusses many examples of isodiagonal relationships within the periodic table. In addition to presenting the usual cases such as lithium and magnesium in detail, the author discusses many little known cases and considers the available explanations and definitions of isodiagonal behavior.

Richard Pagni, an organic chemist and also a previous contributor to this journal, discusses the interesting notion of merged mechanism involving $\text{S}_{\text{N}}2$ and $\text{S}_{\text{N}}1$ reactions in the work of Schleyer and Bentley. The article typifies all that is good in recent work in the foundations of chemistry, namely attention to technical detail, historical analysis and a willingness to engage in philosophical discussion.

The author of the final article, Jack Fergusson from New Zealand, sadly passed away shortly after the article was accepted. It presents a masterly review of the history of the discovery of nuclear fission and it was a privilege for me to provide some missing bibliographic details at the proof stage. I would like to dedicate this entire issue to the memory of Jack Fergusson an outstanding scholar of chemistry and its history.

The issue concludes with a review of David Fisher's book on the noble gases by Sandra Hojniak, a promising newcomer to our field from the University of Leuven in Belgium.

References

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