

## **HYLE Conference Reports**

### ***Sixth Summer Symposium of the International Society for the Philosophy of Chemistry (ISPC), Georgetown University, Washington, DC, USA, August 4-8, 2002***

***by Joseph E. Earley \****

Some say that the Washington area is excessively hot in August. Although this conference opened in hot weather, colder Canadian air soon arrived. The Conference attracted over sixty participants, one third from the local area, one third from elsewhere in the US, and one third from abroad. The list of registered attendees, program, abstracts of papers, names of the local committee and of Symposium sponsors are posted on the ISPC web-site: [www.georgetown.edu/earleyj/ISPC.html](http://www.georgetown.edu/earleyj/ISPC.html)

The general theme of the meeting was 'chemical explanation'. Plenary lectures were delivered by Joachim Schummer (Univ. of Karlsruhe, Germany), Rom Harré, (Georgetown University), Jaap van Brakel (K. U. Leuven, Belgium), Lindley Darden, (Univ. of Maryland), Eric Scerri (UCLA), Arthur Ellis and Bruce Seely (National Science Foundation) and Barbara Berrie (National Gallery of Art). Each of these speakers called attention to ways in which explanations generally offered in chemical discourse have important special characteristics.

- Schummer considered the origin and prospects of Philosophy of Chemistry,
- Harré dealt with the origin and nature of structural explanation,
- van Brakel gave a general review of the debate on 'reduction',
- Darden examined the use of 'mechanism' in biochemistry,
- Scerri claimed that much research on chemical education suffers from philosophical misunderstanding on the part of the researchers, and
- Ellis and Seely told how NSF supports philosophy of chemistry.
- At the National Gallery of Art, Berrie discussed how Chemistry and Art are two 'ways of seeing'.

There were six sessions on specific aspects of the general topic.

In a session on 'Philosophical Problems in Chemical Explanation', several speakers dealt with complexities of the relationship between macroscopic properties of objects and the microscopic constitution of those objects. Origins of differences between usual opinions of chemists and physicists on such questions, and the degree of explanatory independence of the macroscopic viewpoint, were considered.

In the 'Chemical Explanation Exemplified' session, philosophical implications of specific chemical topics (electronegativity, chirality, protein folding, organic mechanisms, analytical instrumentation) were examined.

Six papers dealt with 'Representation, Visualization and Chemical Explanation', pointing out that chemists have extensive experience with two or three dimensional representations of research objects – often condensing several other dimensions into such figures. Such techniques, however they may have originated, are now intrinsic to chemical explanation. Representation, pictorial or otherwise, is not posterior to chemical research, but constitutes that process. Mathematical representation, especially involving group theory and approaches that have been developed more recently, have deep philosophical importance to explanations in science, particularly in chemistry.

Development of present understanding was examined by four papers on 'History and Chemical Explanation'. Topics covered included: types of discourse used in the history of science, one medieval notion of chemical combination, origin of the periodic table, and development of NMR spectroscopy.

A group of papers on 'Chemical Explanation and Ultimate Concerns' showed how aspects of chemical thought and practice bear on questions of wider cultural and philosophic relevance. Among topics covered were: Polanyi's 'implicit knowledge', chemical understanding of the origin of mind, generality of chemical creativity, and relationships of chemical understanding to the thought of Teilhard de Chardin and to recent developments in Buddhist philosophy.

In the 'Explanation and Chemical Physics' session, discussion covered relationships between contemporary chemistry and specific parts of modern physics including: thermodynamics, quantum mechanics, explanation of the periodic table, and gauge theories.

The main thrust of a concluding general discussion (led by Rom Harré) was that most of the papers presented at the conference either explicitly asserted or tacitly assumed that chemical explanation has a large degree of 'autonomy'. To the extent that this is the case, chemists and philosophers of chemistry generally need not look outside chemistry for justification of their conclusions.

The proceedings of the Georgetown ISPC conference are scheduled to appear in early 2003 in a volume of the *Annals of the New York Academy of Science*, entitled *Chemical Explanation: Characteristics, Development, Autonomy*, edited by Joseph E. Earley, Sr., with an introduction by Rom Harré.

In the ISPC business meeting,

- Davis Baird was reelected to the ISPC Executive Committee, and
- Paul Needham was elected to succeed Daniel Rothbard on that body.
- The Seventh Summer Symposium on the Philosophy of Chemistry and Biochemistry sponsored by the ISPC is scheduled for August 1-5, 2003 at the University of Tartu, Estonia. For further information, contact Rein Vihalemm at [Rein.Vihalemm@ut.ee](mailto:Rein.Vihalemm@ut.ee).
- The Eighth ISPC Summer Symposium is scheduled for mid to late August, 2004 at the University of Durham, England. For advance information, contact Robin Hendry at [R.F.Hendry@durham.ac.uk](mailto:R.F.Hendry@durham.ac.uk).

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