

The Evolving Identity of Chemistry

by D. Thorburn Burns and Brigitte Van Tiggelen

A widely attended international conference of more than 110 participants gathered in Erasmushuis at the University of Leuven, Belgium, end of August (28 August-1 September, 2007) for the 6th International Conference on the History of Chemistry (6IHC) organized by the Working Party (WP) on History of Chemistry of the European Association for Chemical and Molecular Sciences (EuCheMS). A major aim of these conferences is to facilitate communication between historically interested chemists and historians of chemistry from all over Europe. The first such conference was organized in Hungary in 1991, since then the WP has fostered the creation of what is now a well connected community that now meets every two years. Previous conferences organized by the Working Party were in Budapest, September 2003, "Communication in chemistry in Europe" and in Lisbon, September 2005, "Chemistry, Technology and Society". The 2007 theme "Neighbours and Territories: the Evolving Identity of Chemistry" focused on the disciplinary identity of chemistry and its changing relationships with other fields. The Programme Committee was chaired by Prof. José R. Bertomeu-Sanchez (University of Valencia) and the Belgo-Dutch Local Committee by Dr. Brigitte Van Tiggelen (University of Leuven and Mémosciences).

Why would members of EuCheMS and of IUPAC and more generally, active practising chemists be interested? First it should be noted that many of the questions investigated by historians and philosophers are naturally rooted in their experiences, reflections and views on the present state of chemistry. The severe attacks on chemistry's public image has led for several decades to various counter-strategies, many focussed on costly advertising campaigns, others on popularizing the discipline and developing new teaching techniques. To historians the problem is not just one of image; the recent emergence of new fields (material science or biotechnology to name but two) clearly raises the question of the identity of chemistry. Putting this question in historical perspective is a good reminder that chemistry actually never held a definite and unchanging territory. On the contrary, the science of matter (chemistry) and its transformations with time is very much controlled by reactivity to changes in the scientific and social environments.

Throughout its history, chemistry has been shifting ground between different territories. From its roots in artisan technologies, pharmaceutical workshops and alchemistic philosophy, it has developed into an archetypical laboratory science of the eighteenth and nineteenth century, ultimately claiming full academic status. Chemists have invaded many new fields, from agriculture and industry, to medicine, public hygiene and pharmacology. In the twentieth century, chemistry contributed to the major scientific developments in molecular biology, quantum mechanics, environmental science and nanotechnology. They also gained key positions in the oil, plastics and pharmaceutical industries. This broad and continuous adaptation of the discipline to various fields of endeavour has brought chemistry in close contact with neighbouring disciplines and to social pressures. Time and again, chemists have needed to carve out

their own territory, to negotiate with other specialists, and to gain particular expertise in widely divergent fields. How chemists achieved this aim was a major thread in the meeting.

Despite this being a meeting on the history of chemistry many speakers brought indeed the discussions up to date, including the possible future of chemistry within the universities. That we were living in interesting times, was clear from by opening plenary on the current popular polarisation of chemistry into separate areas, namely as bio- and nano-technologies. For Prof. Bernadette Bensaude-Vincent (Université Paris X) in her opening lecture, “The New Identity of Chemistry as Biomimetic and Nanoscience”, does not erase the need for broad chemical expertise which is, and will be, more than ever needed to advance the new areas. The bright future for at least one of the current sub-disciplines was brought out, only one week later, at EUROANALYSIS XIV Antwerp, a conference of the Analytical Division of EuCheMS, again in Belgium. In the plenary lecture by Dr. P. D. P. Taylor (EU, JRC, Institute for Reference Materials and Measurements, Geel), “The global recognition of results of chemical measurements”, it was noted that a quarter of all EU legislation require analytical measurements for their implementation, thus a strong driving force exists for continuing research and professional activity in the analytical sciences. Analytical science could also play a key bridging role, to unite the bio- and nano- regions to a central chemical core in future well balanced first degree courses in Chemistry. Thus at 6ICHC there was more than mere entertainment or polite listening: chemistry and historians of chemistry have both a lot to gain from attending jointly such meetings.

The conference was attended by more than 110 participants from over 26 nations. Europe was of course well represented but what was more striking is the growing presence of overseas historians of chemistry or historically-minded chemists: some came from the fringes of Europe, Israël or Russia, others from much further away, Canada, United States, Mexico, Brazil, Taiwan and Japan. Fifty nine oral presentations were given in 18 sessions; posters were available to view throughout the conference. The wide range of material covered is indicated by the session titles of groups of papers on areas within the conference theme. Areas ranged from alchemy and early chemistry to early modern chemistry, identity and boundaries in the XVII, XIX and XX centuries, boundaries between physics and chemistry, chemistry, medicine and pharmacy, organic chemistry, biochemistry and molecular biology, the development of macromolecular chemistry, to teaching and knowledge in transit. The plenary lectures reflected the many facets of the main theme. Prof. Ana Simoes (University of Lisbon) investigated the emergence and identity of quantum chemistry in her talk “Dangerous Liaisons or Unavoidable Associations: Quantum Chemistry at the Crossroads of Chemistry, Physics and Mathematics” while Prof. Lawrence Principe (The Johns Hopkins University) showed through his lecture “Transmuting Chymistry into Chemistry: Eighteenth-Century loss of Chrysopoeia and its Repudiation” how the disappearance of alchemical pursuits at the Paris Academy of Science were triggered by the local French context with the suspicions of poisoning at the court and not so much by a shift in the aims of exact sciences. With his presentation “Close Neighbours, but Different Chemistries: Chemistry in the Low Countries 1600-1900”, Prof. Ernst Homburg (University of Maastricht) demonstrated

clearly the influence of local political, social or economical context by contrasting the development of the discipline in two very different settings.

This conference lived well up to expectations based on experience of earlier ICHC, in content, ambience, mix of participant's backgrounds, warmth of welcome and in the ensuing social programme and interactions. As usual, the conference outing was private visits to museums of interest, this time in Ghent. The first visit deserves a special mention in this report and was to the Museum for the History of Sciences of the University of Ghent which has an excellent collection of instruments used in teaching and research since its foundation in 1817. The Director, Dr. Kristel Wautier expertly introduced the main collections and the temporary exhibition of particular chemical interest she had prepared about Leo Baekeland. The chemistry section contains memorabilia of August Kekulé (1829-1896), Professor of Chemistry in Ghent 1858-1867. These include his lecture black board, research bench, glassware and models of molecules devised by him. Leo Hendrik Baekeland (1863-1944), the inventor of Bakelite, studied chemistry in Ghent under Théodore Swarts (1839-1911). On show was the Bakelite volumetric apparatus, resistant to hydrofluoric acid, which Baekeland made for his step-brother, Frédéric Jean Edmond Swarts (1866-1940). This was a most significant and useful gift to Swarts, a pioneer in the organic chemistry of fluorine. The contemplation of such chemical heritage was at least as significant and meaningful to those who devote themselves to the current practice or to the history of chemistry.

Further details of the recent and ongoing activities of the Working Party for the History of Chemistry can be found on the EuCheMS web-site, www.euchems.org.