
INTRODUCTION

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 a full academic status. Chemists have invaded many new fields, from agriculture and industry, to medicine, public hygiene and pharmacology. In the twentieth century, chemistry has contributed to the major scientific developments in molecular biology, quantum mechanics, environmental science and nanotechnology. Chemists 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 into 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.

The disciplinary changes of chemistry had been remarked upon by historians since the nineteenth-century. One of the most famous historians of chemistry, Hermann Kopp (1817-1892), regarded change in purpose, methods and tasks as a distinctive feature of chemistry and he wondered how was possible to write a disciplinary history of such a changing territory.¹ Would he have been surprised by the dramatic twentieth-century metamorphosis, nobody can say for sure, but the issue of disciplinary changes has been in the mind of many succeeding historians of chemistry.² More recently, it has become the leading thread in a very popular history of chemistry written by Bernadette Bensaude-Vincent and Isabelle Stengers. The authors pointed out that chemistry “has always been heir to a heterogeneous territory, one that defied all *a priori* definition and therefore challenged chemists to construct an identity for it”. Chemical concepts, objects and methods form “nodes or crossroads among heterogeneous areas on the map of knowledge”, thus blurring the boundaries between chemistry and other scientific disciplines.³

The meeting was intended to explore the changing territory of chemistry and the relationships with its neighbouring disciplines. 112 participants gathered in Erasmushuis at the University of Leuven, Belgium, at the end of August (28 August-1 September, 2007) for the 6th International Conference on the History of

Chemistry (6ICHC) organized by the Working Party (WP) on History of Chemistry of the European Association for Chemical and Molecular Sciences (EuCheMS). 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 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 meeting was entitled “Neighbours and Territories: the Evolving Identity of Chemistry”.

This conference lived well up to expectations based on experience of earlier ICHCs, in content, ambience, mix of participant’s backgrounds, warmth of welcome and in the ensuing social programme and interactions. This was made possible thanks to the active involvement of many people and institutions, each at their own level.

The meeting was organized by the Belgian and Dutch Chemical Societies: Koninklijke Vlaamse Chemische Vereniging (KVCV), Société Royale de Chimie (SRC) and Koninklijke Nederlandse Chemische Vereeniging (KNCV). This joint collaboration was manifested through the members of the local committee, “local” meaning a Belgian-Dutch team superseding national and linguistic boundaries and led by Dr. Brigitte Van Tiggelen (University of Louvain, Louvain-la-neuve and Mémosciences).⁴ The LC was helped by a staff of students and volunteers : Mathilde Urbain and Benjamin Palmaerts serving at the registration desk, and Tom Mortier (Katholieke Hogeschool Leuven) and Pieter Thyssen (Katholieke Universiteit te Leuven), operating the computers to ensure smooth Powerpoint presentations.

But organizing a meeting requires more than just a couple of well intended LC members and staff. A programme was needed, and this was done by a very efficient Scientific Committee, who delineated the general theme and supervised the “quality control” of the contributions under the lead of José Ramón Bertomeu-Sánchez.⁵ Though gathering to discuss content, material needs had nonetheless to be attended to: the Katholieke Universiteit te Leuven has provided conference rooms and logistical support, fundings and support has been given by the Fonds Wetenschappelijk Onderzoek – Vlaanderen, the Chemical Heritage Foundation, the Commission for the History of Modern Chemistry (DHS), Mémosciences and the Société Française de Chimie.

We were lucky enough to attract the interest of corporate sponsors who have been attracted by our programme and its scope. Evonik- Degussa even though they were undergoing internal changes accepted to be our Platinum sponsor and

Janssen Pharmaceutica, a Belgian pharmaceutical company, and a division of Johnson and Johnson joined as silver sponsor. Thanks also to DSM who joined us afterwards as a Bronze sponsor this edition of the proceedings was secured. It is an immense pleasure to thank these sponsors who have also shown their dedication to their own corporate histories.

We would like to thank our industrious Working Party chairman Ernst Homburg, and also our Portuguese colleagues, especially Maria Elvira Callapez and Isabel Malaquias who have generously shared their experience gained during the 5th ICHC. Their readiness to help allowed us to maintain the very high standards they had set for the Estoril-Lisbon meeting in 2005.

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 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. Leo Hendrik Baekeland (1863-1944), the inventor of Bakelite, studied chemistry in Ghent under Théodore Swarts (1839-1911). On show were 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. Another impressive item was Kekule's blackboard, surrounded by many instruments and a working bench from that period, including a models of molecules devised by him. It is indeed during his professorship in Ghent (1858-1867) that August Kekulé (1929-1896) published his famous hypothesis on the structure of benzene.

The plenary lectures reflected the many facets of the meetings main theme. Prof. Bernadette Bensaude-Vincent (Université Paris X) gave the opening lecture about "The New Identity of Chemistry as Biomimetic and Nanoscience", in which she analysed the recent trends of biomimetic chemistry within the long tradition of chemistry challenging nature through the artificial creation of life. Through a survey of various strategies for mimicking biological materials and biological processes, she argued that nanotechnology is revitalising the chemists' ambitions to answer the big questions about the origin of life and the universe. Prof. Ana Simões (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”. She showed how the history of quantum chemistry illustrates one of main characteristics features of twentieth-century science, namely the exploration of frontiers and the crossing of disciplinary boundaries, reinforced by the mediation of many new instruments and tools. Moving some centuries back, 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 the 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, the southern and northern Low Countries, now Belgium and the Netherlands.

The conference was attended by 112 participants from over 26 nations. Europe was of course well represented but what was more striking was the growing presence of overseas historians of chemistry or historically-minded chemists: some came from the fringes of Europe, Israel or Russia, others from much further away, Canada, United States, Mexico, Brazil, Taiwan and Japan. Four workshops were organised by groups of historians and chemists on specific topics related to the main theme: “Early Modern Chemistry and Mechanical Philosophy”, “Chemistry Courses and the Construction of Chemistry”, “Chemistry in Relation to Physics in the xxth Century” and “Foundation and Development of Macromolecular Chemistry”. The other submitted papers were organized in fourteen sessions dealing with a broad range of topics. Two sessions included papers dealing with the identity and boundaries of chemistry from xviith to xxth century. Other sessions analysed the processes that make possible a scientific discipline: research institutions and societies, teaching, scientific communication, specific literature, chemical careers and professional life. Another group of sessions analysed the changing relationship between chemistry and other areas such as physics, medicine, pharmacy, engineering and industry.

One of major aims of the Working Party on History of Chemistry of EuCheMS is to facilitate communication between historically interested chemists and historians of chemistry from all over Europe. This conference lived well up these expectations. The broad range of topics, problems and methods of the papers attests to the different background and interests of the participants in the meeting. The meeting proved to be useful in bridging the gap and securing a space for dialogue

between historians and chemists, which seems to be crucial for enlarging the numbers of those studying the history of chemistry.

Readers of these proceedings will however perceive the “two-cultures” gap –the chemical and the humanities– in the different narratives, rhetorical styles, main focus and, despite editors’ efforts, in the references and notes. The editors have chosen to leave the final decision to the contributors. The key-note lectures will be found in the first part whereas the second part is devoted to symposia. In the call for papers, this edition of ICHC had indeed introduced a new kind of session, organised by one or more colleagues on a specific theme. These symposia are preceded by a short introduction. In the third part, papers and posters have been organised in a thematic order, inspired by the programme^{vi}, slightly improved by merging posters and papers. This option has allowed the editors to do full justice to the quality of contributions and the intensity of scientific discussions that took place during the meeting, standing in front of posters as well as during sessions or coffee breaks. Indeed the Scientific Committee had a hard time in selecting from a large number of good abstracts, and only logistic restrictions forced to make a distinction between papers and posters. The presentation herein thus reflects better the actual richness and diversity of this fruitful meeting.

This huge amount of work to produce this volume would not have been possible to achieve in a short time without the active participation of all contributors, many of whom have squeezed an already more than full teaching and research schedule time to provide their papers. We are also grateful to the Chemical Heritage Foundation for providing good quality illustrations, out of their splendid collections, for a few papers. But the final and crucial work was achieved by Vicente Zorrilla-Palau (Instituto de Historia de la Medicina y la Ciencia “López Piñero”, Valencia, Spain), who has done a great job in producing the final copy for the printer, using his expertise to solve the many problems associated with the layout of around eighty papers coming from computers from all over the world.

Merging the diversity and managing to achieve some kind of coherence, technically and most importantly also intellectually was a challenging task. These features have been at the heart of the editors’ work, who have enjoyed greatly their collaboration and share of different cultural and educational settings. The team hopes that the present book will not only reflect the pluralism and the vitality of meeting, but also provide a snapshot of the present state of the art among the growing community with interests in the history of chemistry.

JOSÉ RAMÓN BERTOMEU-SÁNCHEZ
DUNCAN THORBURN BURNS
BRIGITTE VAN TIGGELEN

Notes

¹ “Die Chemie unterscheidet sich von den meisten anderen Wissenschaften in Bezug auf ihre Entwicklung wesentlich dadurch, dass ihr Zweck zu verschiedenen Zeiten ganz verschieden aufgefasst wird [...] Bei dieser Wissenschaft [Chemie] wechselt nicht allein die Wahl der Hilfsmittel und die Anwendung, sondern auch die ganze Aufgabe, die Bedingung der Existenz der Wissenschaft. Kann dann aber von der Geschichte der Chemie, als der Geschichte einer Wissenschaft, die Rede sein?”. Cf. Hermann Kopp, *Geschichte der Chemie* (Brunswick: F. Vieweg und Sohn, 1843-47), vol. I, p. 4-5.

² “La chimie a toujours été héritière d’un territoire dont la multiplicité déborde toute définition *a priori* et impose le défi d’une identité à construire. Parce que leurs concepts et leurs méthodes formaient des noeuds ou des carrefours entre des espaces hétérogènes, parce qu’ils tenaient des lieux stratégiques mais disputés, les chimistes n’ont cessé de défendre l’autonomie et la rationalité spécifique de leur science”. Bernadette Bensaude-Vincent, Isabelle Stengers, *Histoire de la chimie* (Paris : La Découverte, 1992), p. 9. English translation taken from Bernadette Bensaude-Vincent, Isabelle Stengers, *A History of Chemistry* (Cambridge, MA: Harvard University Press, 1996), p. 5.

³ Some examples of this feature of chemistry are investigated in Mary J. Nye, *From Chemical Philosophy to Theoretical Chemistry* (Berkeley: University of California Press, 1993). Jonathan Simon, *Chemistry, Pharmacy and Revolution in France, 1777-1809* (Aldershot and Burlington: Ashgate, 2005); Carsten Reinhardt (ed.), *Chemical Sciences in the 20th Century. Bridging Boundaries* (Weinheim: Wiley-VCH, 2001).

⁴ Members of the local committee were Kenneth Bertrams (Université Libre de Bruxelles), Hendrik Deelstra (Universiteit Antwerpen, honorary chairman), Ernst Homburg, (Universiteit Maastricht), Bernard Mahieu, Université catholique de Louvain, Belgium), Adriaan Minderhoud, (Chemiehistorische Groep KNCV), Geert Vanpaemel (Katholieke Universiteit Leuven), and Brigitte Van Tiggelen, (Université catholique de Louvain, Mémosciences asbl. (chairwoman)).

⁵ Members of the scientific committee were Marco Beretta (Università di Bologna, Italy), José Ramón Bertomeu-Sánchez, (Universitat de València, Spain (chair)), Ana Carneiro, (Universidade Nova de Lisboa, Portugal), Ursula Klein (Max Planck Institut für Wissenschaftsgeschichte, Berlin, Germany), Laurence Lestel (Conservatoire National des Arts et Métiers, Paris, France), Anders Lundgren (Uppsala Universitet, Sweden), Peter Morris (Science Museum, London), Carsten Reinhardt (Universität Regensburg, Germany), Soňa Štrbáňová, (Ústav pro soudobé dějiny, Akademie věd České republiky, Prague, Czech Republic) and Brigitte Van Tiggelen (Université catholique de Louvain, Mémosciences asbl.).

⁶ Information pertaining to the meeting can be found on the webpage <<http://www.6ichc.be>>, as for the programme <<http://www.6ichc.be/6ICHC-Programme.pdf>>.