1919-1939: The First Life of the Union

by Danielle Fauque

In April 1919, delegates of five allied nations gathered in Paris, at the initiative of *the Société de Chimie Industrielle* (SCI-F) and the French Federation of Chemical Associations (FNAC) to decide on the creation of an interallied confederation for pure and applied chemistry. The delegates were following up on a proposal made by the Interallied Conference of Scientific Academies that had met in London and Paris in 1918. Each country was asked to create a national body in each discipline, and these entities would be united into a Union, at first an interallied then international union when the wounds of war healed. The whole structure was to be headed by an International Research Council (IRC) [1].

An international organization devoted to pure chemistry had been created before the First World War, the International Association of Chemical Societies (IACS) [2]. Nothing of this kind existed for applied chemistry [3]. The Society of Chemical Industry (SCI-UK) and its French counterpart, *the Société de chimie industrielle* (SCI-F) both supported an endeavor that would coordinate all aspects of chemistry. Indeed, this had been the topic of informal discussions, during a SCI meeting held in London in November 1918 attended by Paul Kestner (1864-1936), the founding president of the SCI-F. He was an assiduous member of the SCI-UK, and a close friend of its president Henry Louis (c.1856-1939) [4].

The two men were eager to continue into peacetime the fruitful exchanges between the sister societies that had been initiated during the war. The SCI-UK had also fostered the creation of the British Federal Council for Chemistry chaired by Sir William J. Pope. The example of these two societies was followed by American chemists affiliated with the American Chemical Society (ACS). By March, a Belgian national committee had been created and the founding of an Italian committee was underway.

In Paris, on 14 April 1919, 49 chemists coming from these five countries approved the creation of an interallied confederation for pure and applied chemistry [5]. They stated the principles for the statutes, and a special commission chaired by Charles Moureu (1863-1929), was set-up to write them. The morning after, the statutes were discussed and approved. Moureu, president of the FNAC, was elected president of the confederation, on the proposal of William J. Pope (1870-1939). Pope was at that time vice-president of the SCI-UK and president of the Chemical Society—he was later to play an important role in the Union.

The second interallied conference was hosted by the SCI-UK in London, during the SCI-UK annual meeting from July 14 to 18. The statutes were once again discussed, taking into account several proposals made by American chemists. A delegation led by Moureu travelled from London to Brussels on 18 July to submit the application of the chemistry confederation to the IRC [5, p. 128, n. 60].

The third interallied conference of scientific academies took place between 18 and 28 July in the *Palais des Académies* in Brussels that had been restored after the depredation incurred during the war. The

Attendees of the 1st Interallied conference held in Paris on 14 April 1919 *(reprint from Chimie & Industrie, Vol. 2, No. 5, p. 501, May 1919).* ***Pope and Moureu are 3rd and 4th sitting from the left; standing on the far left is Jean Gérard.***

dissolution of all international organizations existing before the war was confirmed, and all the new unions established without the Central Powers would be put under the IRC authority.

On 22 July, the confederation became a Union. After having pronounced the termination of the IACS by a majority of societies from allied and neutral countries, its president Albin Haller (1849-1925) gave its seat to Charles Moureu, signifying that the Union was to replace the IACS, even though structure and aims were different as noted above [5, p. 129-130]. Two days after, the executive committee of the IRC agreed on the statutes, and on 28 July, the International Union of Pure and Applied Chemistry was accepted as a member of the IRC, along with the International Astronomical Union (IAU), the International Union of Geodesy and Geophysics (IUGG) and the International Union of Radio Science (URSI).

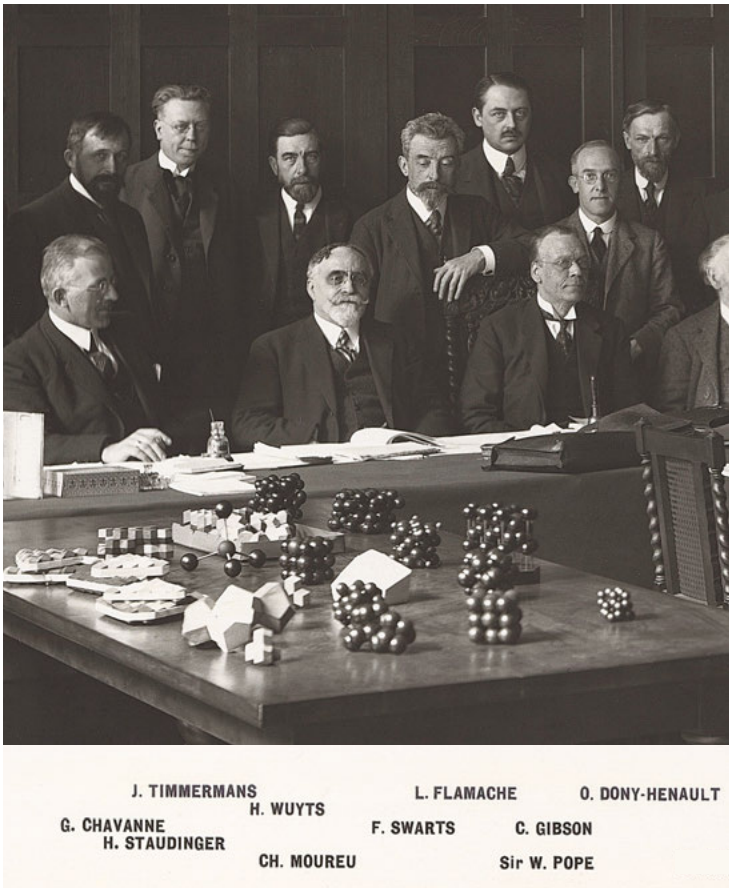
Created on paper on 28 July 1919, IUPAC needed to materialize. The first years were devoted to defining the international perspective and the next courses of action. All the while, difficulties emerged due both to individual trajectories and geopolitical evolution.

Finding its feet: The Union between 1919 and 1925

While the founders themselves refer to the International Association of Chemical Societies (IACS) as the Union forerunner [2], IUPAC was in fact an entirely new entity, in its conception and extent. In particular, the IACS was a federation of chemical societies, chosen as national representatives of the respective communities, whereas the Union is constituted of national adhering organisms, represented by a national committee, a science academy, a national federation, or even sometimes the government. Furthermore, the IACS focused on pure chemistry while the Union aimed at representing chemistry in all its dimensions.

Chemists, either academic or industrial, had united in the war effort and discovered the mutual benefit their collaboration could bring in times of peace. The necessity of a rational, scientific, and technical reorganization of the afterwar world became a discussion to which governments lent a watchful ear. More than ever, chemistry presented itself as unique, being both a science and an industry, pure and applied. It was thus pressing to establish the regulation of the Union, and install the first commissions for the most urgent questions.

Apart from the successive presidents in the first 20 years of the Union, all deeply involved in the development of IUPAC, one man was key: the young secretary general, Jean Gérard (1891-1956) who was



Eminent chemists -some closely related to IUPAC-meeting in Brussels in April 1925 for the 2nd 'conseil de Chimie' of the Solvay International Institute.
Source: La Digithèque <http://ladigitheque.ulb.ac.be/items/show/999>.

only 28 as he started his term. He proved to be an exceptional organizer and administrator. The Union was physically based in a business district of Paris, in the headquarters of the *Société de Chimie Industrielle* and the French national federation adhering to the Union, both of which Jean Gérard was also secretary general. These circumstances offered a permanent secretariat to the new Union that allowed it to function as a corporate enterprise in the interwar period.

The other members of this first Bureau consisted of the president, Charles Moureu (France), and the vice-presidents representing the founding nations, among which Sir William J. Pope (UK) who would become the second president. According to the statutes, the Union was to act through a Council supported by an administrative secretariat and the *Office international de Chimie* (a kind of international agency for chemistry) (art.3). In addition to the Council, which consisted of the Bureau and the delegates of the

adhering nations (art. 6), an Advisory Council was instituted, gathering representatives from each branch of pure and applied chemistry (art. 11). French was the official language (art. 18) and the Council, the commissions and the delegates met during an annual conference, each year in a different country (art. 8).

In 1920, at the first international conference of chemistry (ICC, or CIC in French, equivalent to today's general assembly) in Rome, a proposal for a regulation was discussed, amended, and eventually adopted. This regulation clarified the management and operating of the *Office International de Chimie*, the permanent commissions, the Advisory Council and the conference. The *Office* would be in charge of organizing international congresses, as well as a basis for international chemical documentation (directories or important textbooks). The *Office* would be financed by national contributions independent from the Union's and prearranged by international convention [6, 7].

Once the regulation was established, a report on the former state of the Union was made to the assembly. It included the goal of standardizing chemical analysis; the creation of an Institute of chemical standards in Brussels (*Bureau des étalons chimiques*); the recapitulation of the International congresses of applied chemistry before the war; the issue of the use of sealed envelopes for patents; and last but not least, a report of the *International Commission on Atomic Weights*.

The next year in Brussels, the Union had progressed considerably on nomenclature and publication standards for chemical abstracts. The applied aspect of chemistry was also dealt with dynamically by the Union's activities: at the ICC in Lyon in 1922, technical commissions focused on food (bromatology), ceramic products, and combustibles, as well as industrial hygiene, and all remained active in the following years. But the autonomy in the composition and the management of commissions created instability, and for some of them, unproductivity. A stricter frame of reference was instituted in 1925 with the introduction of titular members, and each commission president was accountable to the Bureau. A better result would soon follow.

Through tensions and reforms: 1925-1930

Pope succeeded Moureu, but other founding nations had to wait longer to be represented in the presidency of the Union (Italy in 1934, USA in 1938, and Belgium in 1977). This was linked to tensions that forced the Union to evolve beyond the principles that formed the basis of its creation. Hereafter we detail what appeared to be the two most important issues: the German question and the holding of Congress.

The German Question

The embarrassing but haunting question was that of the return of Germany among the represented nations [1]. The question was discussed in all scientific unions; inside IUPAC, it was raised in particular by Dutch colleagues as early as 1922. Some days before the third ICC in Lyon in June, Ernst Cohen (1869-1944) invited the German chemists at Utrecht who were clearly contemplating joining the Union. At that time vice-president, Cohen's involvement became key as he was elected president in absentia at the sixth ICC in Bucharest in 1925; he initiated internal discussions on the German question as well as informal contacts with German chemists [8]. The last step was to convince the IRC to modify its statutes [1].

From then on, the Union established a more open correspondence with the German chemists, and the international celebration surrounding Marcellin Berthelot's centennial provided the opportunity for France to officially invite German and Austrian delegations to Paris in 1927 [9]. Exchange between chemical societies from France and Germany started again as if they had never been interrupted. At the ninth ICC in The Hague, in 1928, German chemists participated actively in the discussions.

The necessity of reforming the statutes had been put forward in Copenhagen in 1924, and the changes were accepted in The Hague in 1928. The conferences would from then on be biennial, and commissions that had accomplished their tasks were terminated. The regulation was deeply modified. The Advisory Council disappeared, and its job transferred to the future IX congress. With the Council, several technical commissions dealing with industrial products, including patents and industrial ceramics, also disappeared, as well as two commissions on combustible products. The commission for documentation had been ended in 1927; the *Office International de Chimie,* finally created in 1927, would continue its work [7].

The Union thus had a completely new face at the conference in Liège in 1930. The German delegation received a standing ovation from all the delegates. The session also started with a simple, yet significant, modification: a change of name [10]. The Union was now the International Union of Chemistry (IUC). At the core of its activities were nomenclature, atomic weights, radioactive constants, and thermochemical data. The *Bureau des étalons physico-chimiques* (Bureau for Physico-Chemical Standards) was confirmed and the affiliated commission

of the *Tables of constants* remained attached to the Union. The "applied" component had disappeared from the structure though, and it was left to the Congress to carry that dimension of chemistry.

The problem with the Congress

According to Cohen, while the commissions were working productively, the dust was accumulating on their publications. It was thus necessary to reflect on connecting to the world at large, and revising the workings of the Union, which had been achieved with the reform of the statutes. The next issue was the holding of a congress. The Advisory Council had been asked to provide a recommendation, but in 1926, nothing had yet been decided, two years after this Advisory Council was terminated. Several groups demanded insistently that the IX congress be held as soon as possible (the XIII and former Congress took place in Washington in 1912). In Cohen's opinion, the prestige of the Union depended on it: "Coming events cast their shadows before them!" he said at the ICC meeting [11, p.11]

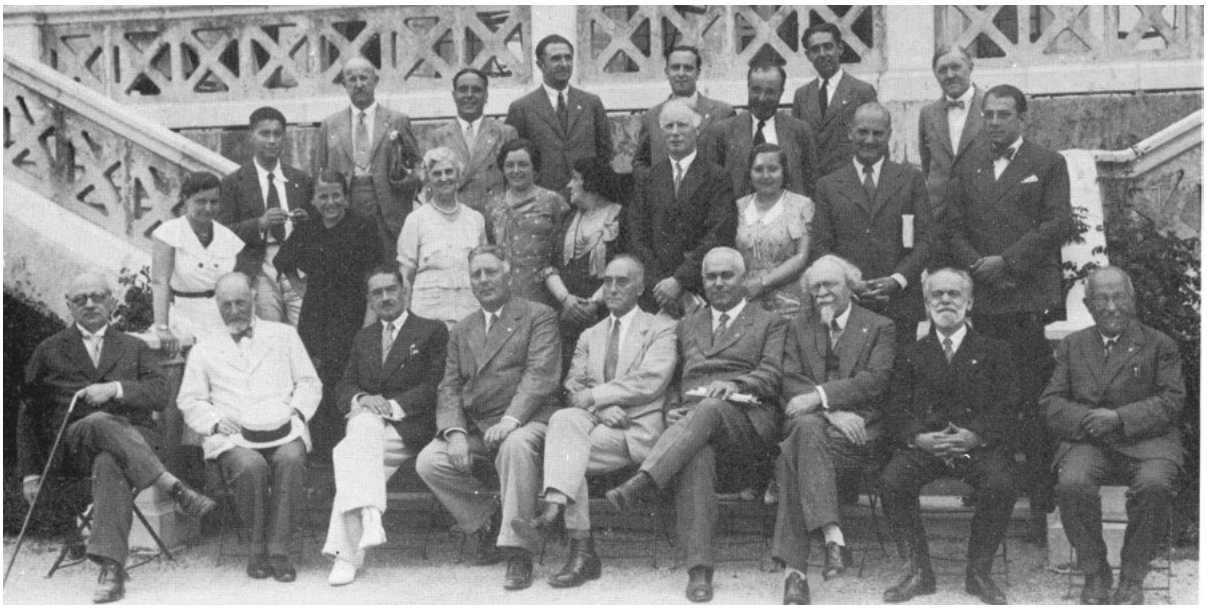
The Spanish proposal for hosting the 1932 Congress in Madrid was thus enthusiastically accepted. The minutes of the Liège ICC reveal a feeling of hope, and a breath of fresh air. Reconciled at last, all chemists were fully members of a truly international community. The nomination of Fritz Haber as vice-president was the most visible symbol of this new momentum.

Working through financial and political challenges 1930-1938

The 1930s are affected by the impact of the 1929 crash, and the competition of the Union with the International Institute for Intellectual Cooperation (IIIC) projects, but all the while, the commissions demonstrated a burst of productive activities.

The financial crisis

The 1929 financial crisis and its economical aftermaths reached Europe in the following years. Until mid-December 1931, the holding of a congress in 1932 seemed assured, but then the financial situation deteriorated in several countries. It became hard to acquire foreign currencies, and thus to travel, and the governments were no longer securing funding. Correspondence exchanged between members of the Bureau and Spanish colleagues display the worries of holding



During eleven days (from Wednesday 9th to Sunday 20th August 1933) a meeting to prepare the eleventh ICC (or General assembly) and the IX IUPAC Congress (Madrid, 5-11 April 1934) took place in the "Universidad Internacional de verano de Santander". The participants pictured in the front of The Magdalena were: (from left to right), seated: Fritz Haber (NP 1918), Richard Willstätter (NP 1915), Hans von Euler-Chelpin (NP 1929), Einar Biilmann (IUPAC President), E. Cohen, Nicola Parravano, Camille Matignon, E. Hauser, Fritz Fichter; first row: Mrs Cohen, Mrs Ribas, Mrs Seidel, Mrs del Campo, Mrs Calvet, George Barger, Mrs del Fesno, Jean Gérard (IUPAC Secretary General), Paulo E. de Berrédo Carneiro; second row: Fernando Calvet, Angel del Campo Cerdán, Augusto Pérez Vitoria, Enrique Moles, Carlos del Fresno, Antonio Madinaveitia, Ignacio Ribas, and Atherton Seidell. *(reproduced from Chem Int Nov-Dec 2008, ref. 13)*

a meeting to which few chemists had registered. At an extraordinary meeting of the Bureau and Spanish organizers, held in Paris on 22 January 1932, it was decided to adjourn the congress and the conference, and to ask for the full power of the Council to be transferred to the Bureau until the situation would allow for a plenary meeting of the Union [12, p. 11-12].

In summer 1933, the Spanish committee was allowed to commit to 1934, and a meeting was held in Santander (Spain) in August to prepare the congress [13]. Commissions were moving slowly, some of them even encountered problems. For instance the Commission for the Nomenclature of Biological Chemistry was in conflict with the Commission of Organic Chemistry. And the Inorganic Chemistry Commission had not been able to meet in Berlin as planned.

In fear of a massive devaluation, financial decisions were made to secure the Union's reserves [12, p. 19]. In April 1934 in Madrid, the Italian Nicola Parravano (1883-1938) succeeded the Dane Einar Biilmann (1873-1946), president since 1928. Switzerland hosted the conference in 1936, and while dues were still payed with delay, the financial situation was improving.

The question of scientific terminologies

A new tension had appeared as early as 1932 on the subject of scientific terminology. The IIIC connected to the International Committee for Intellectual Cooperation (ICIC), and thus to the League of Nations, insisted on taking charge of scientific terminology, its underlying methodology, and the accommodation to different languages. The Bureau of the Union sent observers to the meetings, but remained skeptical, and even opposed to the project of the IIIC. How would an international general organization pretend to achieve a consensus whereas specialists in each discipline had difficulty to reach an agreement? Also this incursion in what the Union considered to be its purview raised concerns in the Union, despite the necessity to adapt. A mode of collaboration was established in 1936, that protected the Union's authority, and the merging of the two commissions of physico-chemical symbols and terminology reinforced the liaison with IIIC [12, p. 14 and 14, p. 20].

The successes of the Union: the productive years 1930-1938

The scientific commissions—which had been reduced to 5 or 6 since the Liège Conference—worked more effectively. Publications followed at a regular pace between 1931 and 1938: *Tables annuelles des poids atomiques* (on annual tables of atomic weights), *Rapports sur les isotopes stables* (Report on the stable isotopes), *Etalons physico-chimiques organiques* (on organic physico-chemical standards), *Tableaux des réactifs pour l'analyse minérale* (on tables of reactants for mineral analysis). The latter publication, in three languages, was the first report of a new commission, created in 1934, *Réactions et réactifs analytiques nouveaux* (Reactions and new analytical reactants), a wish that the analytical section had expressed at the Madrid Congress.

This wasn't the only innovation elicited by the Congress, and it demonstrated that limiting the Union's activities to the scientific commissions was untenable. Several international organizations representing applied chemical activities requested the Union's approval of analytical methods, or specific nomenclature, and the Union could not refuse. This is how other commissions were created and international commissions affiliated, among others, one devoted to fats. Gathering a meeting under the auspices of the Union was a way to secure international authority.

The 1938 activity report appeared very encouraging, showcasing the achievements of a very successfully operating Union. In between conferences, commissions met, often at the new head office of the Union, located at the *Maison de la Chimie* managed by Jean Gérard, in Paris, since 1934 [7].

But shadows were on the horizon. In 1936, Austria had committed to host the fourteenth conference in 1940 [14, p. 30]. But in Rome, in May 1938, it became clear this was out of the question, after Austria had been annexed by Germany in March of that year. Both Germany and Great Britain volunteered, and the diplomatic resolution was to approve both invitations, with two successive meetings; one in London in spring 1941 and one in Berlin in the fall of 1942 [15]. During the Rome meeting, the Bureau elected its first American president, Marsten Taylor Bogert (1868-1954) for a 1938-1942 term. But his task was to be eventually achieved in the difficult time of the political turmoil that culminated with the outbreak of the Second World War.

References

1. See Robert Fox, The International Research Council and its unions, 1919-1931, infra. p. 7
2. Brigitte Van Tiggelen and Danielle Fauque, The formation of the International Association of Chemical Societies, *Chem Int* 34(1), Jan-Feb 2012, pp. 9-11 ; https://doi.org/10.1515/ci.2012.34.1.8

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