

Introduction

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With this volume, we come to the end of a six-year collaboration under the auspices of the *Deutsche Akademie der Naturforscher Leopoldina*, the *Académie des Sciences*, and the *Royal Society* on the role of scientific academies during and immediately after the Great War. The collaboration has been structured around three conferences, held successively in Halle (2014), Metz (2017), and London (2018). Papers arising from the Halle and Metz conferences have appeared in volumes 68 and 75 of the *Acta Historica Leopoldina*.¹ The present volume brings together seven of the papers from the London conference, hosted by the Royal Society on 13 September 2018.

Papers in the earlier volumes ranged widely over the place of science and technology in the war efforts of the various belligerent countries. This broad focus was intentional, if only to avoid any suggestion that the “Krieg der Gelehrten”, a war of the learned to which scientists and engineers made an unprecedentedly important contribution, could be studied exclusively from the standpoint of academies and their members. Nevertheless, bringing the role of academies to centre-stage allowed us to fashion a novel perspective. This embraced not only the strictly scientific and technological contributions of academicians but also their role in the parallel war of ideas and culture that threatened the traditional ideal of a universal world of learned culture detached from national interests and frontiers. In this parallel war, the mutual recriminations engendered by the destruction of the library of the University of Louvain, the call of the 93 German intellectuals to the civilized world, and the use of gas warfare on both sides fostered divisions that left their mark on the academies of all nations. The result, as Matthias BERG’s paper in this volume and contributions arising from the conferences in Halle and Metz show, was a saga of charges and counter-charges that coloured the decisions of academicians everywhere on the emotive question of their relations with members of their own and other academies who were citizens of enemy countries.

The papers at the London conference explored the passage from the state of military hostilities that ended with the Armistice of November 1918 to a peace that proved hard to win and maintain. As an extensive secondary literature has demonstrated, animosities between the Allies and the Central Powers ran deep, and they continued to weigh heavily in the moves towards at least some measure of normalization that proceeded fitfully through the 1920s. In science, many of the most challenging difficulties in these post-war years arose from the decision of the scientific communities of five leading Allied countries to exclude the former Central Powers from the new structure for international science that was formalized in a series of

¹ ECKART and GODEL 2016, DEBRU 2019. See also the edited collection of speeches and other documents relevant to the project: “Europäische Wissenschaftsakademien im ‘Krieg der Geister’” (BERG and THIEL 2018).

three interallied conferences in 1918–19. It was at the last of these conferences, in Brussels in July 1919, that France, Belgium, Britain, the USA, and Italy, represented by their national scientific academies, established the International Research Council, along with the first three of the IRC's associated disciplinary unions, for astronomy, geodesy and geophysics, and chemistry. At the same conference, it was decided that while nations that had been neutral during the war might be considered for membership, Germany, Austria, Bulgaria, and Turkey would not be admitted either to the IRC or to the unions until a review planned for 1931. Even the use of the German language was effectively outlawed by the adoption of French and English as the only admitted languages for IRC purposes.

From an early stage there were differences of emphasis, even between the Allied nations. While the representatives of France and Belgium in the IRC tended to maintain a hard line in their support for the exclusionist principle, the USA and, to a lesser extent, Britain and Italy grew increasingly impatient with what they saw as French and Belgian obduracy in the face of the inevitable eventual reintegration of German scientists in the international community. The divisions became still deeper as the “neutrals” – Sweden, Denmark, the Netherlands, and Switzerland, in particular – assumed ever greater prominence in the IRC and tilted the balance in favour of abandoning the boycott as quickly as possible.

Underlying the mounting disquiet with the Allied vision for post-war science was the incongruity of a supposedly international structure in which Germany and Austria, both of them established leaders in world science before 1914, had no place. The incongruity is a central theme of the contribution by Danielle FAUQUE and Robert FOX, who see it as a source of tension that was only resolved (and then only partially) when the Locarno agreements of 1925 and Germany's admission to the League of Nations in the following year quite suddenly gave the process of reconciliation new momentum. What FAUQUE and FOX also show, however, is that even in the darkest days of continued tension in the early 1920s, personal and professional contacts between scientists and groups of scientists often worked against the politically motivated sanctions and hence against the guiding principles of the IRC and its unions. The small group of British and American chemists who attended an “International Chemical Reunion Conference” in Utrecht in 1922 were making just such a gesture, in support of an attempt at bridge-building with their German and Austrian peers conceived and executed by the Dutch chemist and committed internationalist Ernst COHEN (1869–1944).²

Another striking example of scientists' unease with the Allied conception of internationalism is explored in Florian LAGUENS's study of correspondence between the British astronomer Arthur EDDINGTON (1882–1944) and the Swedish-born president of Germany's *Astronomische Gesellschaft* Elis STRÖMGREN (1870–1947). In their letters, dating from 1919 to 1922, EDDINGTON and STRÖMGREN articulated their opposition to the divisions engendered by the war. At the very height of the conflict, in 1916, EDDINGTON had gone against the prevailing British mood by articulating the case for international cooperation, from a position rooted in his Quaker-inspired pacifism. And, with the war over, he was able to give practical expression to his principles in the observational verification (by a British team) of the prediction by Albert EINSTEIN (1879–1955, a German) of the bending of light passing close to the sun in May 1919. Supportive though EDDINGTON and STRÖMGREN were of Germany's speedy integration in an enlarged international community of science, they recognized the delicacy with which such a move would need to be managed. It clearly pained EDDINGTON to have to caution

² SMIT 2014.

that it might be premature for German astronomers to attend the centenary celebration of the Royal Astronomical Society in London in 1922. But four years later, as LAGUENS shows, the climate had been transformed: there was no impediment to EDDINGTON's presence at the meeting of the *Astronomische Gesellschaft* in Copenhagen in 1926. It was then, but only then, that EDDINGTON's unflagging confidence that "international science is bound to win" was finally vindicated.

In contrast with the verification of EINSTEIN's theory, some attempts to cross the divide between former enemies had compelling practical incentives. Meteorology was a case in point. As Giuditta PAROLINI demonstrates, the postwar Commission for Agricultural Meteorology, which functioned as a technical committee of the International Meteorological Organization, responded to needs for data and techniques that made unfettered collaboration between the once hostile nations essential if memories of wartime food crises were not, once again, to become a reality. Yet even on a matter of such urgency and in a field that depended so heavily on the free transmission of observations and expertise among meteorologists, agronomists, and botanists of all nations, the ideal of cooperation was impeded by the principles that governed the Allies' reordering of postwar science. German and Austrian scientists could still not attend the IMO's congress in Utrecht in 1923, and it was not until the Zurich congress of 1926 that full integration was achieved. The parallels between the gradual opening of the IMO and the chronology of eventual reconciliation charted in LAGUENS's study of the resolute internationalism of STRÖMGREN and EDDINGTON are striking.

From very different perspectives, these and other contributions to this volume point to the progressive weakening of the control to which the five national academies had attached such importance when they founded the IRC in 1919. This is not to say that such academies lost all influence on the international stage. A national academy could represent a country on the IRC, and France, Belgium, and Britain were among the nations that chose to be represented in this way. But with other bodies and even governments themselves also eligible to fulfil the role, academies found their power diluted. In this respect, the IRC was a very different body from the pre-war International Association of Academies, to which only academies and appropriate national societies could and did belong.

Although studies of science during the war and its aftermath have understandably focused mainly on academies of national standing, we also have much to learn from the experiences of academies that were more circumscribed in their geographical focus. Matthias BERG's paper examines how one of Germany's smaller regional academies – the *Bayerische Akademie der Wissenschaften* – adjusted to the transition between war and peace. Between 1916 and 1924, as BERG shows, Munich's "quiet academy" had to weather a political storm that exposed it to the November Revolution, the Bavarian Soviet Republic, and the first National Socialist putsch attempts. BERG concludes that while the academy was not profoundly changed by these circumstances, it was affected by the war to the extent that, for example, it devoted particular attention to the language of soldiers and soldiers' songs. As ever more people died, the question of genetic inheritance too became a favoured topic, alongside peacetime projects dating from the pre-war period, which continued to be developed as long as funding was still possible. Despite considerable budget cuts and its diminished post-war significance, the academy survived as a local institution dedicated to serving the habitus and educational mandate of the educated middle classes.

By the mid-1920s, academies big and small, national and regional, had to face the reality that the international landscape of science had been transformed as scientific communities

everywhere struggled to determine what could and should be salvaged of the once powerful notion of an undivided world of learning. As settings in this ongoing debate, the IRC and its unions were a prime focus. But they were not alone. An important new setting was the International Committee on Intellectual Cooperation (ICIC or, in its French abbreviation, CICI), a committee of a dozen or so leading intellectuals that the League of Nations established in 1922 as a specialist section to promote international exchanges and partnerships between scientists and scholars. Jonathan VOGES's study of the ICIC brings out forcefully the determination of the League to position itself as a unifying force for scientific communication between the populations of the previously warring countries. Aligning themselves with the League's pragmatic liberalism and a mission of creating a new platform for international cooperation, figures of the stature of Marie CURIE (1867–1934), Albert EINSTEIN, Salvador DE MADARIAGA (1886–1978), and Gilbert MURRAY (1866–1957) assumed the role of diplomats as well as the creators of knowledge. VOGES shows, however, that the ICIC also served as a platform for “nation branding” and the promotion of national performance as part of a more or less pronounced cultural imperialism. In this way, the League was linked at once with the intellectual competition of the pre-war years and with the quarrels and exclusionist mechanisms that arose in the immediate aftermath of the war. This is particularly illustrated by, for example, the conflict between Albert EINSTEIN and the Italian ICIC member Alfredo ROCCO (1875–1935), and the divergence between the very different cultural foreign policies of France and Germany with regard to Eastern and Central Europe. Through the history of the ICIC, in fact, we can see how new international cooperation was possible at the same time as other, old front lines were being retraced.

Among the many changes that characterized the 1920s, one of the most far-reaching was the emergence of the USA as a scientific giant. The impact of America had its roots in the cooperation with its European allies that had begun with the country's declaration of war on Germany in April 1917. Now, in the new post-war order, American influence was especially evident within the IRC and the unions, generally as a force for reconciliation with the former enemies. But it took other forms as well. Brooke PENALOZA-PATZAK's study of the Emergency Society for German and Austrian Science and Art points to the role of the USA as an international source of funding for research at a time when money was relatively plentiful in the “roaring twenties” at home but desperately short in much of Europe, not least in a Germany ravaged by inflation and political instability. Originating in a circle centred on the anthropologist Franz BOAS (1858–1942) and with Berlin, Vienna, and Munich as its main initial beneficiaries, the Emergency Society disbursed some \$100,000 between its foundation in 1920 and its liquidation in 1927, with an increasing focus on the biological sciences and ethnology. By comparison with the far larger sums that the Rockefeller Foundation made available in these same years in support of medical education and research in central Europe, it was a modest contribution. But the donations had a significance beyond their immediate impact on science and scholarship. They conveyed the determination of the society's members to sustain what they saw as a distinctive entity of “German” science and learning, now threatened not just by extreme material hardship but also by the cultural consequences of the politically and strategically motivated separation of Germany from Austria as part of the dismemberment of the German and Austro-Hungarian Empires.

There can be no doubt that the Allied boycott, aggravated by post-war economic and social problems, had consequences in the harm it did to the high standing that German and Austrian science had enjoyed before 1914. But the harm was tempered not only by American aid of the kind that PENALOZA-PATZAK describes but also by the resourcefulness that the scientific

communities of Germany and Austria showed in pursuit of alternative ways of reasserting their status. They did this both through their bonds with the former neutral nations (many of them profoundly indebted to German traditions in science) and through alliances to the east, notably with the Soviet Union: a German-run bacteriological research station in Moscow and a number of other German-Soviet conferences and collaborations paid dividends, not least in providing a context for the continued, if now restricted, use of the German language.³

Andrea VON HOENTHAL's comparative study of German and British psychology during the war and through the inter-war years throws light on a particular area of undiminished German strength. Before 1914, psychology was recognized in neither Germany nor Britain as belonging to the canon of academic disciplines; it was considered rather as a sub-section of psychiatry or occupational physiology. During the war, however, specialist skills in psychology were considered beneficial and were put to use. This took place both in military psychiatry, which was fundamentally concerned with war-related trauma, and in psychotechnics, which were used in the form of sensory physiology in the context of, for example, distant reconnaissance, particularly on the French and Belgian fronts. The primary focus of VON HOENTHAL's paper, though, is on the consequences of these wartime applications for the institutionalization of psychology as an academic discipline in the 1920s and 1930s. What occurred can be traced, in Germany, through the founding of an Association for Psychotherapy, and in Britain with the establishment of the privately organized National Institute of Psychology. A notable aspect in both countries was the military's growing interest in psychological methods, especially with respect to testing intelligence and strength of will. While the use of psychological selection procedures by the British Army did not, in the short term, lead to the uncoupling of psychology from military psychiatry, in Germany these methods contributed to psychology's establishment as an independent theoretical and practical discipline in universities, technical universities, and *Hochschulen* of applied science. What can certainly be said is that in both Britain and Germany the war led to a lasting rise in the importance of psychology, whether in the context of psychiatry or as an independent academic discipline in society as a whole.

Such a conclusion invites questions about the impact of the conflict on other sciences, not least in public and governmental perceptions of their nature and relevance to national interests. Both chemistry and physics benefited conspicuously from evidence of their usefulness in warfare as well as from their rising intellectual stature, and it is no coincidence that Britain's Department of Scientific and Industrial Research and the USA's National Research Council were created during the war precisely to strengthen the union of science with industry. The effect was to set science firmly in the apparatus of the modern state and sow the seeds of what we recognize as the age of Big Science in which we still live, with its ever-escalating investment in laboratories and research, both pure and applied. If, in the process, academies lost something of the international influence they had had before 1914, we should beware of discounting the functions they continued to fulfil and still fulfil today. Election to a national academy is as much an honour as it always was, and academies have never been more active in their efforts to build bridges between national communities, regardless of the political and strategic interests that do so much to divide us. A joint conference of the Royal Society and the American Association for the Advancement of Science on "New frontiers in science diplomacy" a decade ago exemplified a will to adapt to the changing circumstances of our twenty-first century and, in the process, to reaffirm the place of science in the quest for peace

3 WEINDLING 1992, especially pp. 177–189; GROSS SOLOMON 2006, ECKART 2016.

and understanding.⁴ That conference and the current interest in science diplomacy that it has helped to promote among historians and policy-makers suggest that we may at last have come full circle in seeing science for what it surely is and should always be: a force for unity not conflict between nations.

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⁴ *New Frontiers in Science Diplomacy* 2010.