

## DISZIPLINGESCHICHTE *HISTORY OF GEOGRAPHY*

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### IMPERIAL SCIENCE, UNIFIED FORCES AND BOUNDARY-WORK: GEOGRAPHICAL AND GEOLOGICAL SOCIETIES IN VIENNA (1850–1925)<sup>1)</sup>

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*Initial submission / erste Einreichung: 07/2020; revised submission / revidierte Fassung: 11/2020;  
final acceptance / endgültige Annahme: 12/2020*

with 4 figures and 3 tables in the text

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<sup>1)</sup> The work presented in this paper is part of the project "Brüche und Kontinuitäten – (Natur)wissenschaftliche Gesellschaften zwischen dem Ersten Weltkrieg und Roten Wien" [Breaks and Continuities – (Natural) Scientific Societies Between the First World War and *Red Vienna*] conducted at the Working Group for the History of the Austrian Academy of Sciences (1847–2022) and financed by the "Kulturabteilung der Stadt Wien (MA 7)" [Cultural Department of the Municipality of Vienna]. The project team consists of Johannes MATTES (lead-er), Sandra KLOS MA, Ottilie MANEGOLD, and Daniel GUNZ.

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## Summary

*Scientific societies are among the most influential modes of scientific organisation. Emerging as bourgeois associations, mainly in the second half of the nineteenth century, these societies saw themselves as communication platforms for scholars and practitioners from diverse educational backgrounds. The boom of scientific societies in the capital of the Habsburg Empire during a period of great economic upswing led to both disciplinary differentiation and an increase in membership. Associations such as the Imperial-Royal Geographical Society (1856), the Club of Geographers at the University of Vienna (1874) and the Geological Society (1907) brought together members from all the crownlands of the monarchy. At their height, these societies were among the leading European players in their field, holding and administering funds and running expeditions. The outbreak of World War One offered them new scope to innovate and adapt, but the political dynamics of its aftermath, together with the loss of financial reserves, the erosion of traditional research fields and the cessation of scientific exchange with non-German-speaking countries, ultimately caused their long-term decline. The crisis of bourgeois society in the 1920s was closely bound up with the crisis of the bourgeois scientific societies, which were increasingly dominated by state research institutions; subsequently, some of these societies became rallying points for political radicalism.*

*Based on archival research and statistical analysis, this paper will examine the correlation of scientific and political processes between 1850 and 1925 and their impact on the empire's geoscientific research landscape. Particular attention will be paid to (1) the relationship between associations, state and public in the context of imperial statehood, bourgeois self-empowerment and disciplinary transformations, and (2) the impact of regime change, territorial reconfiguration and social upheaval on the societies' practices of knowledge production and dissemination after 1914.*

*Keywords: Scientific societies, Imperial-Royal Geographical Society, Geological Society, geography, geology, Habsburg Empire, First Austrian Republic, boundary-work, geographies of science, World War One*

## Zusammenfassung

### IMPERIALE WISSENSCHAFT, VEREINTE KRÄFTE UND DISZIPLINÄRE GRENZZIEHUNGEN: GEOGRAPHISCHE UND GEOLOGISCHE GESELLSCHAFTEN IN WIEN (1850–1925)

*Wissenschaftliche Gesellschaften zählen zu den einflussreichsten Formen der Wissenschaftsorganisation. Als bürgerliche Vereinigungen vornehmlich in der zweiten Hälfte des 19. Jahrhunderts entstanden, dienten sie als Kommunikationsplattformen für Gelehrte und Wissensträger aus unterschiedlichen Feldern. Der Boom wissenschaftlicher Gesellschaften, der sich in der Reichs- und Residenzstadt der Habsburgermonarchie während der Gründerzeit vollzog, hatte eine fachliche Differenzierung der Vereine und Vervielfachung ihrer Mitglieder zur Folge. Vereinigungen wie die k.k. Geographische Gesellschaft*

(1856), der Verein der Geographen an der Universität Wien (1874) oder die Geologische Gesellschaft (1907) integrierten Mitglieder aus allen Kronländern der Monarchie, verfügten über Stiftungsmittel, initiierten Expeditionen und zählten zu den führenden europäischen Akteuren in ihrem Feld. Während der Erste Weltkrieg für einzelne Vereinigungen neue Handlungsspielräume eröffnete, bedeutete die politische Dynamik der Nachkriegszeit zusammen mit dem Verlust von finanziellen Ressourcen, traditionellen Forschungsgebieten und dem wissenschaftlichen Austausch mit dem nicht-deutschsprachigen Ausland einen nachhaltigen Bruch. Die Krise der bürgerlichen Gesellschaft in den 1920er Jahren stand in engem Zusammenhang mit der Krise ihrer gelehrten Vereine, die von staatlichen Forschungseinrichtungen vereinnahmt und teils zu Reservoirs radikalen politischen Denkens wurden.

Auf Grundlage von Archivrecherchen und statistischen Auswertungen beschäftigt sich der Beitrag mit dem Zusammenhang von wissenschaftlichen und politischen Prozessen zwischen 1850 und 1925 und deren Auswirkung auf die geowissenschaftliche Forschungslandschaft der Habsburgermonarchie. Im Besonderen werden dabei (1) das Verhältnis zwischen den Vereinen, dem Staat und der Öffentlichkeit im Kontext imperialer Herrschaft, bürgerlichen Selbstbewusstseins und disziplinären Wandels sowie (2) die Auswirkungen von Regimewechsel, territorialen Veränderungen und sozialen Umwälzungen auf die Vereine und ihre Praktiken der Wissensproduktion und -verbreitung nach 1914 untersucht.

Schlagwörter: *Wissenschaftliche Gesellschaften, k.k. Geographische Gesellschaft, Geologische Gesellschaft, Geographie, Geologie, Habsburgermonarchie, Erste Republik, Grenzarbeit, Geographien des Wissens, Erster Weltkrieg*

## 1 Introduction<sup>2)</sup>

*“For a few years now, the fashion for popular scientific lectures has been on the rise. Indeed it is spreading not only through Vienna, but also through the provincial towns; it can almost be said that this fashion has an epidemic character – it is contagious.”<sup>3)</sup>*

(Anonymous 1860a)

In the second half of the nineteenth century, scientific societies were one of the most influential modes of scholarly organisation. Their emergence coincided with the growth of a civil society, urban spaces and a publishing sector. The capacity to establish an association conferred considerable institutional power on their founding members. Bringing together professionals, practitioners and sponsors, these societies saw themselves primarily as

<sup>2)</sup> Quotations from German-language sources have been carefully translated into English. More extensive quotations are also given in the German original in the footnotes.

<sup>3)</sup> Original German version: *“Seit ein paar Jahren ist die Mode populärer wissenschaftlicher Vorlesungen im Steigen, ja sie verbreitet sich nicht nur über Wien, sondern auch über Provinzialstädte – sie nimmt, fast könnte man sagen, einen epidemischen Charakter an, – sie wirkt ansteckend.”*

communication hubs providing favourable framework conditions for achieving the goals defined in their statutes. Since the associations at their origins did not clearly differentiate between science and popularisation, they can serve as key indicators for understanding a number of science-related and broader, knowledge-based developments.

In Vienna, the centre of Habsburg power, the emergence of learned societies began as early as the “Vormärz” period (1814–1848) and considerably accelerated in the subsequent decades. The reform of the universities and of the central administration (1849–1860) and the establishment of state-owned research facilities, followed by a legal act on associations that was revised in a socially liberal direction in 1867, stimulated the founding of new associations. Between 1862 and 1912, the number of societies in Vienna shot up from 18, with about 9,000 fellows, to 191 with tens of thousands of fellows (k.k. Statistische Central-Commission 1864, p. 391; Gemeinde Wien 1918, p. 732). Associations such as the Imperial-Royal Zoological-Botanical Society (*k.k. Zoologisch-Botanische Gesellschaft*) were able to assemble more than 1,000 members (including institutional members such as research facilities, schools, and municipalities) from different parts of the monarchy and beyond.

In contrast to academies, the activities of the societies were largely founded on private initiatives and voluntary labour. They fostered public awareness of research and promoted a comparatively inclusive approach to science. Regular meetings and publications gave them a stable internal identity and structure. The societies provided the infrastructure to facilitate knowledge dissemination and channel the discussion between their members to the outside world. A sophisticated system of literature exchange connected their journals and book series with the publications of related societies worldwide. Members volunteered for large-scale projects, built enormous collections, applied research outcomes in practice, administered scientific trusts, organised overseas expeditions and hosted popular lecture events. Scientific societies unified their efforts in order to bring various scholars, institutions, practices and geographies – including an emerging international research landscape – into connection. This is particularly true for the empire’s geographical and geological societies, which supported research and education and fostered wider public understanding of their field. Among the 355 societies in Cisleithania around 1890, 72 were located in Vienna and either maintained branches in the crown lands or, at the least, occupied a privileged role in the cross-national system of scientific interactions (k.k. Statistische Central-Commission 1892).

This article builds on the premise that the majority of societies in Vienna were important agents of imperial science and, at the same time, acted as catalysts of a development that transformed research into a broader social practice. While the state relied on a variety of scientific, spatial, social, juridical and administrative knowledge gathered, surveyed and exchanged by scholarly institutions, these institutes gained prestige and funding by fulfilling imperial tasks and became vital embodiments of statehood and territoriality (ASH and SURMAN 2012; COEN 2012; KLEMUN 2020a). Unlike their equivalent associations in Germany, the identity and activities of which tended to be strongly bound up with the regions in which they were founded, a considerable number of the learned societies in Vienna saw themselves as “central nodes” and fostered social, disciplinary, national and scientific-political unity (OTTNER 2008). In this way, they not only associated themselves

with a supranational concept of the state, but they also co-produced the geographies of science in which research was done (COEN 2018).

Similarly, learned societies are an apt point of departure for research into negotiation and delineation processes within and between different fields of knowledge, institutions and social actors. The structural aim of “boundary-work” (GIERYN 1999) of this type is not just to distinguish between science and the public, or between individual scientific disciplines. More to the point, it gives selected people the authority to speak in the name of research, allocates the roles of “mediator” and “data collector”, and endows individuals with the right to take a seat in the auditorium. The founding of bourgeois societies, the emergence of popular periodicals and an increased division between employed scholars and “non-professionals” are all recognised as significant indicators of increasing boundary-work.

My study aims to contribute to a better understanding of how these scientific, (geo)political and social processes interlocked at the association level and is therefore addressed to historians of science and geographers alike. In its broad scope, this article provides an in-depth discussion of the transitions, breaks and continuities in the activities of Viennese geographical and geological societies between approximately 1850 and the early 1920s. Including the period from 1900 to 1925 further develops our understanding of how rising nationalism and political extremism came into play in these associations’ scientific and popularising initiatives. It is my contention that the learned societies and those active in them have a great deal to tell us about broader contemporary issues.

Before 1914, these societies were in the global vanguard of their disciplines. However, the political dynamics of World War One and the loss of financial deposits, research areas, and communication networks with non-German-speaking countries resulted in a long-lasting structural rift – both internal and external. Once known as reliable strongholds of state and bourgeois interests, some of the societies even became rallying points for (radicalised) political thought. The geopolitical reconfiguration of Central Europe after 1918 impacted not only the infrastructure, actors and practices of knowledge dissemination, but also, as this article argues, the disciplinary epistemes and their associated geographies of science.

In HABERMAS’ widely discussed treatise “The structural transformation of the public sphere” (1962), the author argues that, during the eighteenth century, public spaces of sociability such as salons fostered the emergence of a bourgeoisie outside of state control. When considering the Habsburg Empire around 1850, however, some noticeable differences have to be taken into account. The identification of the educated bourgeoisie with the holders of state power created close ties between science and state (ASH and SURMAN 2012; KLEMUN 2012; AREND 2020). Joint research endeavours in geography, geology, botany, zoology and history aimed to settle national rivalries and legitimise the empire’s territorial framework as a natural and cultural unit. The mutual functionalities of science and empire, analysed by COEN (2018) through the lens of climate science and its roots in the politics of empire-building in Central and Eastern Europe, can also be seen at work in the activity of scientific societies.

Scholarship at the crossroads of history of science, geography, and allied disciplines has broadened our understanding of the significance of the spatial setting for scholarly

knowledge production (LIVINGSTONE 1995; THRIFT et al. 1995). Since the 1990s, the interest in geographies of science has produced a broad range of literature on a variety of entities, such as field sites, institutions, museums, laboratories, gardens, libraries, even summerhouses. This “*embracing of the spatial*” (TURNBULL 2002 p. 273), which is evident across science studies as a whole, is closely tied to the sociology and material basis on which science “in situ” acts and receives “*credibility*” (SHAPIN 1995).

The geographical approach to science asks how a specific site of research is constituted through social practices while simultaneously co-producing the very socio-geographical order in which it constitutes itself (POWELL 2007; FINNEGAN 2008). This becomes particularly evident with regard to scholarly associations: knowledge is concurrently “translated” and co-produced between different publics and sites (PHILLIPS 2003; FINNEGAN 2005; SECORD 2007; WITHERS 2010; REUBI 2011). In his article “The Field, the Museum and the Lecture Hall”, NAYLOR (2002, pp. 498, 508–509) analysed the intersecting geographies of natural history societies in Victorian Cornwall and the understanding of science as a “*group endeavour; its use as a set of institutional spaces for collective and associational scientific inquiry*”. Alongside the arranging of museum exhibitions, field excursions, journal series, private sociability and conversation, societies also played a key role in “*defining an agenda for regional scientific study*” by “*educating members in [...] scientifically comparable techniques of collection and recordings*” rather than by their voluminous publication projects.

In addition, a growing interest in the relationship between science and civil society draws our attention to social interactions within architectural structures and urban spaces as mutual sets of spatial constellations where knowledge is negotiated, exchanged and mediated to other contexts. Recent scholarship that addresses issues of science communication and practices of social exclusion and inclusion between actors and various forms of publicity with specific reference to Vienna and Berlin includes studies by ASH and STIFTER (2002), DAUM (2002), FELT (2000), MATTES (2020; 2021), STIFTER (2015) and TASCHWER (1997; 2005). A recent book by ASH (2021) addresses processes of interurban and transnational knowledge exchange in the metropolis of Vienna between 1848 and 1918. The research of HYE (1988; 2006) into the political and legal framework of bourgeois societies in Lower Austria from a socio-historical perspective is also noteworthy.

Considerably less research has been done on the epistemic and social power of geographical and geological societies operating on a (supra-)national scale. The ongoing project “Geographical Societies 1821–1914 in International Comparison” directed by WARDENGA (2019a/b) at the Leibniz Institute for Regional Geography in Leipzig is pioneering in this regard. This large-scale analysis of as many as 30 journal series explores how geographical organisations contributed to the establishment of new spatial formats and orders. One seminal outcome of this project is a recent article by GEORG and WARDENGA (2020, p. 77), in which the authors argue that “*the Geographical Societies, from their cities, countries, empires and transnational networks around the world, supported certain spatial formats and opposed others, they co-determined [...] which spatial formats rose to impose on at least parts of the globe a certain spatial order*”. LICHTENBERGER (2009), SVATEK (2015a), HENNIGES (2017a) and KLEMUN (2017), among others, have provided overviews of how these fields developed in the Habsburg Empire.

In the case of the Viennese geographical and geological societies, comprehensive accounts of their *longue durée* development were often published on the occasion of anniversaries serving identity-building purposes (e.g., SPREITZER 1957; KRETSCHMER and FASCHING 2006; KRETSCHMER 2007; BRAUMÜLLER 1983; CERNAJSEK and SEIDL 2007). Traditionally, the activities of the societies have mostly been described as the sum of individual members' contributions. Lesser attention has been paid to the societies' own impact on knowledge production and dissemination and to the interlocking of scientific and political processes, particularly in periods of geopolitical transformation. By employing a comparative approach, this article aims to fill this lacuna while also drawing parallels between territorial and scholarly boundary work, as suggested by recent studies on the relationship between geographical societies and World War One (HEFFERNAN 1996; GYÓRI and WITHERS 2019).

By examining the sites and spaces where (popular) science was practiced and organised at different social levels, this article seeks to further explore the historical geographies of geoscientific scholarly work in the Habsburg Empire. The Viennese societies furnish a novel perspective on both large- and small-scale processes of knowledge production and dissemination. My study therefore contributes to a growing body of literature dedicated to the interplay between science, politics and civil society, and connects this extant research to recent scholarship in the history of geography.

This article is structured around two main focal points. Firstly, examining the relationship between associations, state and public in the context of imperial statehood, bourgeois self-empowerment and disciplinary transformations: To what extent were the associations an instrument for creating social and political cohesion in science? Secondly, exploring the impact of regime change, territorial reconfiguration and socio-political upheaval on the practices of the societies after 1914: In what respect did World War One influence their infrastructure, actors, and tools of knowledge production and dissemination?

To ensure a representative sample, I have selected three geoscientific associations, all significant for the historical research landscape but different in their professional, legal and social frameworks: the Imperial-Royal Geographical Society (*kaiserlich-königliche [k.k.] Geographische Gesellschaft*)<sup>4)</sup>; the Club of Geographers at the University of Vienna (*Verein der Geographen an der k.k. Universität Wien*); and the Geological Society (*Geologische Gesellschaft*). In methodological terms, my paper is based on a source-critical and statistical investigation of extensive archival holdings and publications. This encompasses public and semi-public communication formats, such as the societies' journal series, as well as newspaper articles and correspondence with other institutions. I have also taken into account sources for internal use (including meeting protocols and correspondence) preserved in the archives of the Austrian Geographical Society, the Geological Survey of Austria, the University of Vienna, the Austrian Academy of Sciences and the Austrian State Archives.

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<sup>4)</sup> The official names of the Geographical Society were: 1856–1867: k.k. Geographical Society; 1868–1918: k.k. Geographical Society in Vienna; 1919–May 1959: Geographical Society in Vienna; May 1959–to date: Austrian Geographical Society.

## 2 Scientific societies as imperial agents in the Habsburg Empire

In the founding meeting of the Geographical Society, its main initiator Wilhelm von HAIDINGER (1795–1871), director of the Imperial-Royal Geological Survey (*k.k. Geologische Reichsanstalt*), outlined the institutional framework of the new association:

*“A union of like-minded people gives [us] this power. It overcomes the obstacles at which the individual falls. It is [...] the imperial motto ‘viribus unitis’, to which we owe all that is beautiful, great and elevated in our recent history. [...] ‘It is necessary for the natural sciences to unite their efforts, etc.’ [...] Even the [members of the former association] ‘Friends of the Natural Sciences’, established immediately before the founding of the Academy, had to direct their efforts in every direction. Fortunately, we have passed through those desert-like times when individual researchers and collections were scattered like oases.”*<sup>5)</sup> (HAIDINGER 1857, p. 3)

During the “Vormärz” period, authoritarian governance, state surveillance and monitoring of private associations and the press, delayed higher education reforms and the employment of nearly all scholars as bureaucrats in the state administration all gave rise, not to isolation, but to new modes of knowledge processing and discipline formation compared to other parts of Europe. The entanglement of state and scientific interests in the Habsburg Empire and the state’s coordinated support of “patriotic-economic” projects such as mining, geognosy, cartography, agriculture, meteorology and medicine increased the demand for intensified scholarly cooperation and sociability.

The establishment of the Vienna Geographical Society in 1856 did not take place in isolation from international developments. After the founding of the first geographical societies in Paris (1821), Berlin (1828) and London (1830), the Vienna association was the twelfth of as much as 170 associations established worldwide. The vast majority, however, were founded between 1870 and the turn of the twentieth century (GEORG and WARDENGA 2020, p. 70). By around 1910, the Vienna society had over 2,000 members: as many as the Geographical Society in Paris (*Société de Géographie*) and about twice as many as its “sister organisation” in Berlin, but less than half the membership of the Royal Geographical Society in London. However, it had fewer financial reserves than any of them (KOLLM 1909, p. 415). While the powerful London society could rely on the donations of the wealthy bourgeoisie, the Vienna Geographical Society was dependent on cooperation with the state, other (research) institutions and sponsors from the high aristocracy.

A comparison with the Imperial Russian Geographical Society (*Imperatorskoye Russkoye geograficheskoye obshchestvo*), which displays strong similarities to the Viennese

<sup>5)</sup> Original German version: *“Eine Vereinigung der Gleichgesinnten gibt diese Kraft. Sie überwindet die Hindernisse, an welchen der Einzelne scheitert. Es ist [...] der kaiserliche Spruch ‘Viribus unitis’, dem wir in unserer neuesten Geschichte alles Schöne, Hohe und Große verdanken. [...] ‘mit vereinten Kräften gilt es für die Naturwissenschaften zu wirken u.s.w.’ [...] Auch die, noch vor der Akademie der unmittelbar darauf folgenden Zeit angehörigen ‘Freunde der Naturwissenschaften’ mussten nach allen Richtungen streben. Wir sind glücklich über jene Zeit hinüber, die man wohl treffend einer Wüste vergleicht, innerhalb welcher einzelne Forscher, einzelne Sammlungen, wie Oasen zerstreut lagen.”*



society in its social composition, shows that the existence of a vibrant bourgeois culture was not necessary to the founding of scientific societies. Established in 1845, even before the “Great Reforms” under Tsar Alexander (1861–1874) eased censorship and granted more autonomy to the universities, the St. Petersburg association was even more closely tied to the government (WEISS 2007). Because it was promoted and supported by the imperial administration and family, the association pursued liberal goals only to a limited extent. Like scientific societies in the Habsburg Empire, it carried out political tasks while also serving as “[an institution] of civil society building” (BRADLEY 2009, p. 36; 2017).

## 2.1 The Geographical Society as promoter of social, spatial and disciplinary unity

In Vienna, bureaucratic delay to ambitions for the establishment of a state-owned body unifying all the branches of science – what would become the Imperial Academy of Sciences (*kaiserliche Akademie der Wissenschaften*) – gave rise to internal division and the creation of alternative strategies. Although the authorities never officially signed off on the statutes of the private association “Friends of the Natural Sciences”, founded by HAIDINGER at the Vienna Mining Museum (*Montanistisches Museum*) in 1845, it essentially became a counter-project to the Imperial Academy. While the “Friends” advocated for a transdisciplinary approach, social inclusivity and public accessibility, the Academy was a more bureaucratic entity, based on an exclusive circle of established scholars and their (partly secret) meetings.

Although HAIDINGER’s “Friends” dispersed after HAIDINGER himself and many of the members were integrated into the newly established Geological Survey (1849), the association inspired new forms of scientific organisation. Its former fellows created several (popular) learned societies – for example, in Vienna, Bratislava, Budapest and Brno– all of which can be traced back to the same blueprint: the “Friends”. The most powerful of the follow-up organisations, the Geographical Society, even explicitly responded in its statutes to a call for reform of the Academy of Sciences that HAIDINGER had unsuccessfully presented at its general assembly in 1848.

On an institutional level, the new society promoted an inclusive approach, openly published the minutes of its meetings in newspapers and, in accordance with its statutes, even mandated the annual renewal of its entire board. Due to the rivalry between the Geological Survey and the Academy of Sciences and their (often overlapping) networks of associates (1860–1861) (KLEMUN 2020b), the Geographical Society lost members, fell into financial arrears and became part of HAIDINGER’s institutional line of defence against the absorption of the network of ex-“Friends” into the Academy’s sphere of control; meanwhile, its co-founders Friedrich SIMONY (1813–1896) and Adolf SCHMIDL (1802–1863) were rejected as Academy members. Newspaper articles reported on the Academy’s plan, which had already received Imperial approval but ultimately failed due to public pressure:

*“The Geological Survey has never followed the principle of centralistic levelling and swallowing up independent analogue circles. [...] Most of the scientific associations that have emerged since 1847 originated from the same starting point:*

*the Friends of the Natural Sciences and partly, too, the direct influence of the men affiliated to the Geological Survey. [...] This is how the national-economic division of labour and the real 'Viribus unitis' in the institution's history is represented to the outside world!"*<sup>6)</sup> (Anonymous 1860b, p. 5).

With the reform of its statutes and the tenure of Ferdinand von HOCHSTETTER (1829–1884) as president from 1867 to 1882, the Geographical Society was able to stabilise internally and began searching for new alliances (KRETSCHMER 2006, pp. 75–76). In the aftermath of 1848/49, the well-educated and economically strong middle class once again relied upon, and was supported by, the state. This renewed coalition was facilitated through the far-reaching concessions of the Thun-Hohenstein University Reforms and the establishment of public research institutions such as the Imperial-Royal Central Institute for Meteorology and Earth Magnetism (*k.k. Central-Anstalt für Meteorologie und Erdmagnetismus*). By applying the emperor's motto "Viribus unitis" "not only to the political, but also to the scientific life of the Austrian Empire" (SCHULLER 1849), the newly established research infrastructure and its practitioners embodied the common need for cooperation of the bourgeoisie and the political elite (OSTERKAMP 2018; AREND 2020).

This strategic alliance, analysed by KLEMUN (2012) with reference to the scientific practices of the Geological Survey, was part of a broad transdisciplinary endeavour to settle national rivalries within the empire and to legitimise it as a historical, ethnographical, zoological, botanical, geological and geographical unit. Maps visualising the spatial distribution of natural or cultural phenomena, such as SONKLAR's chart of precipitation in the monarchy (1860) published in the first issues of the Geographical Society's journal, were useful tools for displaying multinational unity. Similarly, large-scale projects like the "Third Mapping Survey of Austria-Hungary" (1869–1887) carried out by the Imperial-Royal Military Geographical Institute (*k.k. Militärgeographisches Institut*) depicted the empire as a unified spatial entity (JORDAN 1996). Regional identities represented by state museums – founded in the crownlands since 1811 – were not negated but integrated into the concept of a cooperative state.

The Geographical Society promoted the monarchy's idea of "unity in diversity" (COEN 2018, pp. 49–50) by putting it into practice: socially, through their institutional frameworks; epistemically, through the promotion of meta-disciplinary exchange; and spatially, through their publication strategies and membership. The Society embodied this claim to political and scientific unity by binding together professionals and practitioners from the urban middle class, military officers, politicians, businessmen, map publishers and members of the high aristocracy and imperial family (Figure 1).

The emblem of the monarchy and the emperor's motto were even represented on the cover of the society's journal. Protectors from the imperial family, such as emperor Max-

<sup>6)</sup> Original German version: "Die geologische Reichsanstalt hat nie dem Grundsatz centralistischer Nivellirung und Verschlingung selbstständiger analoger Kreise gehuldigt, sondern solche überall vielmehr angeregt und gefördert. [...] [Es] knüpfen sich fast die meisten seit 1847 entstandenen wissenschaftlichen Genossenschaften an denselben Ausgangspunkt – der Freunde der Naturwissenschaften und zum Theil an den direkten Einfluß der Männer, welche der geolog. Reichsanstalt affiliirt waren. [...] So findet sich die national-ökonomische [sic!] Theilung der Arbeit und das echte viribus unitis – in der Geschichte der Anstalt nach Außen vertreten!"



Sitting, from left to right: Richard Hasenöhr, Carl Haradauer von Heldendauer, Emil Tietze, Christian von Steeb, Eugen von Poche-Lettmayer, Ernst Gallina, Ferdinand von Buschman, Philipp Paulitschke; – standing, from left to right: Gustav A. Koch, Fritz Kerner von Marilaun, Adalbert von Fuchs (?), Carl Radler, Johann Palisa, Emil Jettel von Ettenach, Carl von Sax, Jerolim Benko von Boinik, Franz Heger, Carl Diener, August Böhm von Böhmersheim, Friedrich Umlauf, Josef Jüttner, Carl Zehden

Source: Archive, University of Vienna, Austria

Figure 1: Board Meeting of the Imperial-Royal Geographical Society in Vienna during the presidency of Christian von STEEB, director of the Military Geographical Institute, around 1898

imilian of Mexico (in service between 1863–1867), Crown Prince Rudolf (1874–1889) and Archduke Rainer (1896–1913), brought the society public recognition and attracted donors. However, unlike the officially authorised curators of the Academy of Sciences, they had no powers laid down in the statutes and had only an indirect influence on the society's activities. However, by bringing together articles on the various crownlands and publishing a detailed annual summary of all activities accomplished by the monarchy's geography-related institutions, the Society wrote the empire's unity into being (SEGER 2006). So all-encompassing was the need for a display of consensus that the members of the Geographical Society strictly refused to found distinct internal scientific commissions, a practice deemed less controversial in other bodies such as the Academy and the Zoological-Botanical Society (HINGENAU 1858, p. 90).

It was not until the late 1860s that the Society began to subsidise scientific commissions like the Oriental Committee (1869) and the Special Committee for Danube Studies (1890) and fund research projects such as the continuation of SIMONY's investigations of Lake Hallstatt and the Dachstein glacier. Often, these endeavours relied heavily on the cooperation

of a great number of practitioners. Founded by the former minister of education, Joseph von HELFERT (1820–1910), the Oriental Committee aimed to pool initiatives for transdisciplinary research in the Balkans, conducted research expeditions, published the results and standardised geographical nomenclature via a network of collaborators across South-Eastern Europe. After the consolidation of 1867, the establishment of this committee marked the beginning of a period of intense scientific interest in the Balkans, driven by commercial and power-political interests in the weakened Ottoman Empire (FEICHTINGER 2018).

Even the diversity of natural geographies within the empire listed in HAIDINGER's founding speech (1857, p. 13) – the “*Limestone Alps [...] and their glaciers*”, the “*jungle-covered high plateaus of the Bohemian forest*”, the “*steppe sands [...] of the river Theiss*” and the “*wild valleys of our still-untouched north-eastern Carpathians*”<sup>7)</sup> – was imagined as a universal landscape within a single, unified supranational frame (COEN 2010, p. 873). The monarchy, the European continent's second largest state after Russia, offered “*like no other country in Europe such a wealth of geographical problems*” of “*universal importance and concern*” (HELLMANN 1907, p. 105). However, the Geographical Society's activities were not limited by the borders of the state. The main targets of its numerous expeditions – the Arctic, Central Africa, the Far East and the “Orient” (which usually meant the Balkans, the Ottoman Empire, Persia and North Africa) – appear in symbolic relationship to the empire's own geographies: places in which the various scientific, political and commercial claims discussed at the Society's meetings converged (WALLISCH 2006).

The metropolis of Vienna, with its spatial proximity to the imperial family and bureaucracy, was purposefully chosen as the Society's headquarters. Nevertheless, a deliberate effort was made to avoid giving it “*the character of a mere Viennese association, so as not to lose two thirds of potential cooperators*”.<sup>8)</sup> With a lively exchange of manuscripts and publications between Vienna and the crownlands, within a few years the Geographical Society recruited hundreds of members from all parts of the monarchy who actively participated in the idea of a “*voluntary point of unification*” (“*freiwilliger Vereinigungspunkt*”) (HAIDINGER 1857, p. 13).

It is important to note that nearly everybody involved in research work was employed as civil servants: for example, secondary school teachers, administrators, physicians, military officers and professional scholars. This meant that, in the course of their careers, they usually had to move between the provincial towns spread across the monarchy. This explains the cost-intensive printing of detailed membership lists: These brought the society's fellows virtually – if not personally – together. From 1869, the membership also included institutions, such as secondary schools, municipal administrations and even military units. For these institutions, geography meant hegemonic knowledge, relevant for the execution and administration of imperial power (FASCHING 2017).

Geography at this point was not a strictly defined discipline, but an open, interconnected field of research, practiced by various actors around the globe long before geographical

<sup>7)</sup> Original German version: “[...] unsere herrlichen Kalkalpen durchwandert und ihre Gletscherwelt bewundert oder er mag die mit Urwald bedeckten Hochplateaux des Böhmerwaldes durchstreift haben”, “die Steppensande [...] der Theiss”, “die wilden Thäler unserer noch jungfräulichen nordöstlichen Karpathen”.

<sup>8)</sup> Original German version: “den Charakter eines blossen Wiener Vereins, denn in diesem Falle würde sie sich selbst zweier Drittheile mitarbeitender Kräfte berauben”.

societies came into existence. Scholars such as Alexander von HUMBOLDT (1769–1859), Carl RITTER (1779–1859), Friedrich RATZEL (1844–1904) and Paul VIDAL DE LA BLACHE (1845–1918) took major steps towards establishing the field as an academic discipline. Under the influence of RITTER, who co-founded the Geographical Society (*Gesellschaft für Erdkunde*) in Berlin and held the world's first chair of geography at the University of Berlin, the field was closely connected with those of history and statistics (HENNIGES 2017a). As such, in the 1848 revision of the Habsburg Empire's secondary-school curriculum, geography was still part of the history rubric.

The discipline of physical geography achieved greater recognition with the establishment of the first chairs of geography at the University of Vienna (1851) and the Polytechnic Institute (*k. Josephs-Polytechnicum*) in Budapest (1857) – for a period after RITTER's death, the only ordinary chairs of geography in the Habsburg Empire and the German-speaking countries – and the respective appointments of SIMONY and SCHMIDL.<sup>9)</sup> From the early 1870s onward, German geography was increasingly influenced by geological concepts and methods originating from British earth scientists (SCHIMKAT 2008). In the Danube monarchy, the close connection between geography and geology developed considerably earlier.

Decisive in this respect may have been the field research practices taught by the Geological Survey, which was housed at the Geographical Society, and its influence on the transformation of earth sciences from mineralogy-guided geognosy to geological and paleontological interest in long-term historical processes (BACHL-HOFMANN et al. 1999; KLEMUN 2017; HÄUSLER 2018; SEIDL 2019). The socially and disciplinarily inclusive approach of the “Friends” may have also played a significant role. The “Friends” conceptualised physical geography as the fusion of “*earth magnetism, mapping and topography, orography, elevation measurements, glacier and ice cave [research], hydrography*” (MARSCHALL 1849, p. 234).

The Geographical Society's embodiment of this motto of “unity in diversity” was formative to the emergence of geography as a research discipline:

*“Geography is regarded as the central node, because all branches of the natural sciences are closely related; it is inconceivable without reference to geology, astronomy, meteorology and other scientific research. On the other hand, however, geography has numerous connections to ethnography, language research, and statistics. Traveling combines the knowledge of individual objects in space [...].”*<sup>10)</sup>  
(HAIDINGER 1857, p. 9)

<sup>9)</sup> Although SCHMIDL was hired as a professor of commercial geography, statistics and history, outside his official duties he mainly conducted research on physical geography issues and explored the caves of the Bihar Mountains (Hungary) during the summer months.

<sup>10)</sup> Original German version: “*Geographie wird genannt als Mittelpunkt, denn alle Zweige der Naturwissenschaften hängen innig mit einander zusammen, keine Geographie ist denkbar ganz ohne Rücksicht auf Geologie, auf Astronomie, Meteorologie und andere naturwissenschaftliche Forschungen, andererseits aber ist Erd- und Völkerkunde untrennbar mit den zahlreichen Berührungen der Ethnographie, der Sprachforschung, der Statistik. Reisen verbinden die Kenntniss der einzelnen Gegenstände im Raume, selbst die bezüglichen Abschnitte historischer Raten kann man nicht ausschliessen, welche die Verbindung in der Zeit herstellen.*”

State-owned research facilities dedicated to astronomy, geology and meteorology existed from 1851 onwards, whereas the Geographical Society, as the Survey's "sister institute", was supposed to bridge the gap between these more established disciplines while maintaining transdisciplinary cooperation. The status of "k.k." (Imperial-Royal) approved organisation, an honour granted to federal institutions before 1867, specifically conveyed the idea of creating a "central node" of political, disciplinary and social union.<sup>11)</sup> This under-studied but highly influential form of research organisation, which pre-dates the monarchy's first privately owned scientific institutes, included more than a dozen societies (e.g. in the fields of agriculture, medicine, photography and meteorology) and often required an official protector from the imperial family. As such, these associations functioned as private–public interfaces and hybrid forms of science organisation. They served as advisors for state authorities, issued expert opinions and campaigned for improvement of the school curriculum.

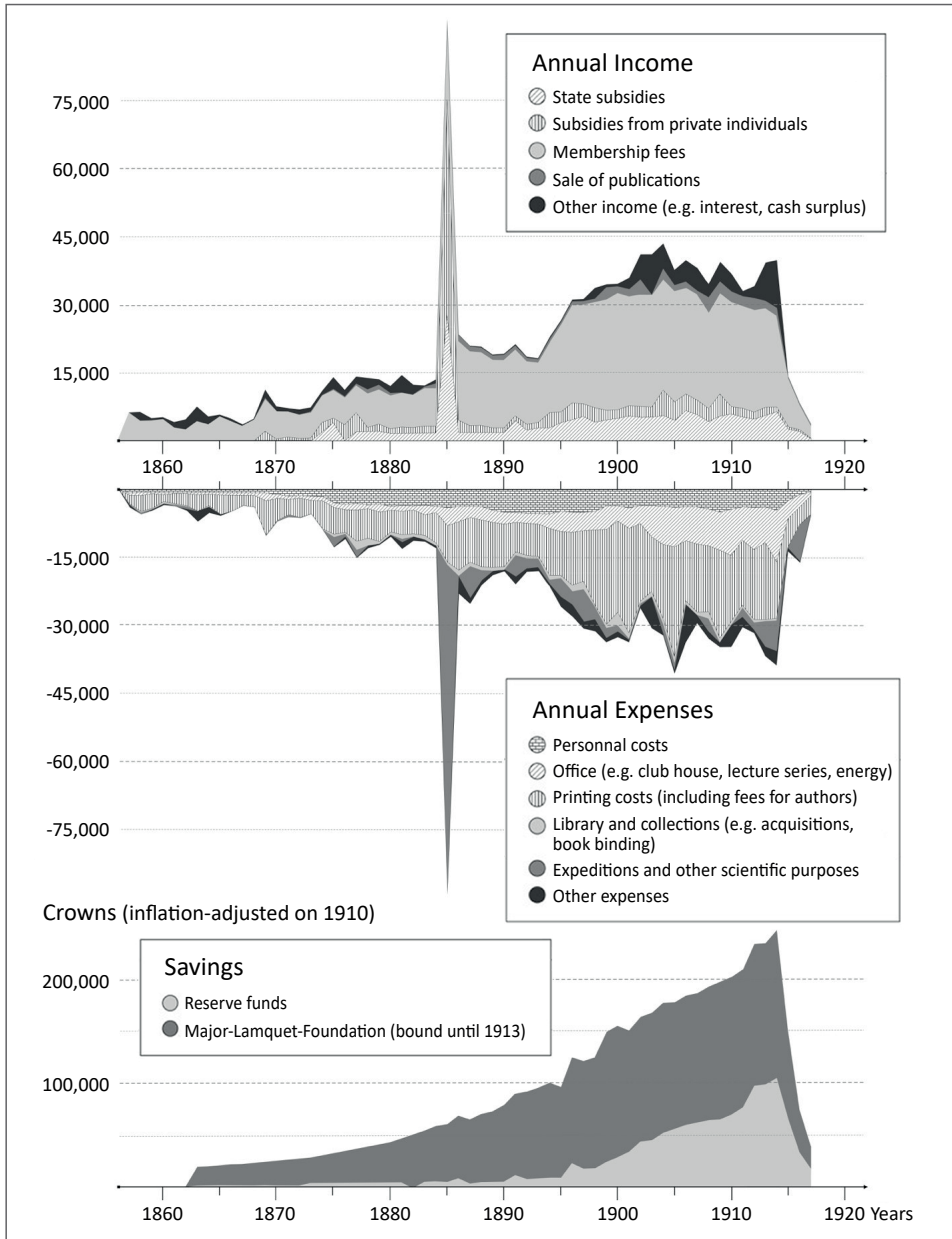
## 2.2 Private and state interests in the light of the Geographical Society's finances

A long-term evaluation of the Geographical Society's financial conditions (Figure 2) furnishes more detailed insights into its institutional framework and significance as a powerful scientific communication and publication enterprise. With regard to the Society's earnings, we can see that, at first, these depended entirely on membership fees. Although the association was largely founded on the basis of private initiative, its founders – Haidinger in particular – unsuccessfully attempted to secure state privileges before the sovereign finally approved the statutes (Commission für Vereinsangelegenheiten 1856). The Society was ultimately granted no more than the Imperial-Royal title and a postage exemption for correspondence with public authorities. Besides the administration's distrust of associations in the aftermath of 1848/49, the existence of the Military Geographical Institute as a centre of expertise for large-scale mapping projects may have been decisive in the Society's failure to obtain state privileges; the Institute's existence meant that the Society did not have its own cartographic section or office, unlike other geographical societies such as that in London (HERBERT 2018).

Whatever the reason, the denial of state privileges to the Geographical Society is all the more remarkable because the Zoological-Botanical Association, which supplied the monarchy's educational institutions with natural collections, had been receiving state subsidies equivalent to 10–20 percent of its expenses since 1855: three years before it was granted the title of Imperial-Royal Society in 1858. Initially, the Geographical Society did not receive this kind of support; and it could not make any meaningful profit from its journal, since this was distributed to members free of charge and exchanged on a voluntary basis with other societies around the world. Its "Treatises" book series (*Abhandlungen der k.k. Geographischen Gesellschaft*, 1899 onwards) brought in more income, but this came with higher printing costs (FASCHING 2006a).

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<sup>11)</sup> However, at its own request, the Austrian Meteorological Society (*Österreichische Meteorologische Gesellschaft*), founded in 1865, was granted the title of an Imperial-Royal approved association in 1904.



Source: Compiled according to the cash reports provided in its journal; own design

Figure 2: Annual income, expenses and savings of the Imperial-Royal Geographical Society in Vienna until 1917. Afterwards, no cash reports were published. For the annual inflation rates see HUBMANN et al. (2020, pp. 74–77)

In comparison with the wealthy, mainly private or state-run geographical societies in London and St. Petersburg, the Viennese Society was a hybrid entity that aimed to balance both private and state interests. Unlike the more bureaucratic Academy of Sciences, which was financed exclusively by the state until the 1890s, scientific societies were individual, autonomous institutions in which members who were loyal to the monarchy voluntarily coordinated their efforts to fulfil imperial tasks. There is no record of subsidies from state agencies or individuals from the imperial family and high aristocracy until the Austro-Hungarian Compromise of 1867.

After this point, the increase in newly established learned societies in the Habsburg nations meant that financing associations that showed loyalty to the empire (such as the Geographical Society) was a wise investment in the supranational identity of the monarchy as a whole. At the same time, exchange and cooperation intensified between the various geographical societies, raising the collaboration between them to a new, international level; as more societies were founded around the world, this collaboration increased. Therefore, supporting and subsidising the societies active in Vienna only strengthened the profile of the Habsburg monarchy and its geographical and hegemonic claims in international scientific and political discourse.

Once Crown Prince Rudolf became its protector in 1874, the Geographical Society received funding from the Imperial-Royal Ministry of Education (*k.k. Unterrichtsministerium*). Notably, the establishment of the Czech Society of Agriculture (*Česká společnost zeměvědná*, from 1920 the Czechoslovak Geographical Society) brought the Viennese society a further increase in subsidies. Around 1895, the Geographical Society's annual income was approximately 25 percent (and the whole of its financial reserves approximately 100 percent) of the state's annual budget for the Academy of Sciences. In addition to subsidies from the sovereign and the government (including the Ministries of Education, Foreign Affairs, Railways and Trade), the provincial parliaments (*Landtage*) of Upper and Lower Austria, Bukovina, Istria and Moravia as well as the municipality of Vienna provided financial support from the turn of the twentieth century onwards.

Before the 1870s, the funds of the Geographical Society were used almost exclusively to cover the journal's printing costs. The employment of a servant, a clerk and a librarian and the repeated relocation of the Society's seat (1861/73, 1903) – initially to rooms at the Academy of Sciences originally intended for the Geological Survey, then to the Academy's main building and finally to expensive temporary quarters – resulted in a long-term rise in expenditure. It should be noted that expenditure for expeditions and travel research was surprisingly low, excepting only the cost of printing travel reports, remuneration for lectures and two small funds: the *Balkans Fund* (established in 1898) and the *Boleslawski Fund* (established in 1906 for those traveling to Africa). Expeditions supported by the Geographical Society were generally carried out in cooperation with other research institutions and with state agencies, and were funded by a combination of subsidies from the sovereign, the Academy of Sciences, aristocratic donors, ministries, other learned societies and/or the participants themselves.

One remarkable exception was the high income and expenses around 1885 (Figure 2), caused by an expedition to Central Africa. This expedition to the newly founded Congo Free state, privately owned by King Leopold II of Belgium, was undertaken in 1885–1887



by the Society's secretary general Oskar LENZ (1848–1925) and the geography student Oskar BAUMANN (1864–1899) (PLANKENSTEINER 2008, pp. 229–233). In contrast to other research trips, the expedition was not only intellectually and financially supported by the Geographical Society but was also exclusively organised within the Society and carried its name. The expedition pursued trade and resource interests as well as scientific goals; it offered the Empire an opportunity to belatedly enter the imperialist “scramble for Africa” (LENZ 1885; k.k. Geographische Gesellschaft 1885a; WALLISCH 2006, pp. 275–276), thereby combining private and state interests.

Unlike other imperial powers, Habsburg foreign policy founded its colonial claims on international cooperation rather than competition. To avoid political/military conflict with other states, the monarchy concealed its involvement; instead, “*indirect attempts at colonisation*” (“*indirecte Colonisationsversuche*”, HOLUB 1884, p. 23) were carried out by loyal scientific societies and commercial enterprises. As early as 1876, the Geographical Society responded to a call by King Leopold to form national committees under the umbrella of an association headed personally by him, and to cooperate closely in the colonisation and exploitation of Central Africa. The African Society (*Afrikanische Gesellschaft*) (1876–1885), founded as part of the Geographical Society, was the first of these committees and financially supported Leopold's project as early as June 1877.

LENZ's journey, undertaken years later, was funded mainly by government agencies, the imperial family and Viennese high finance. It attracted significant publicity and increased the society's membership by almost 60 percent (k.k. Geographische Gesellschaft 1885b). Although the expedition did not achieve its primary goal of crossing the uncolonised area between the Congo River and the Sahara, nor publish a monograph summarising its results, it remains a prime example of a research trip conducted exclusively by a Viennese learned society.

### 2.3 Increasing boundary-work and the foundation of the Club of Geographers and the Geological Society

Around 1870, the political and spatial dimensions in which geographical societies carried out their ventures began to change. While many of these societies had been powerful driving forces behind the nationalisation of geographical research, they came to play a decisive role in establishing new forms of internationalism in their fields. This development is illustrated by the increased exchange of knowledge, the founding of international commissions, and a vibrant congress culture that broke new ground in the second half of the nineteenth century by establishing institutional forums for international collaboration (CRAWFORD 1992, pp. 38–43). The “International Geographical Congresses” epitomise the way in which this novel internationalism brought together colonial, military, pacifist and cosmopolitan interests. These congresses were held at regular intervals after the first meeting in Antwerp in 1871 and featured large-scale exhibition areas where countries competed against each other to win the greatest number of the official prizes (SHIMAZU 2015; 2020).

We can see similar developments in the case of the Geographical Society in Vienna. While its activities were, at first, largely limited to the territory of the monarchy (excepting

the preparation of instructions for the circumnavigation of the world by the ship “Novara”, 1857–1859), the Society expanded its scope of research to other geographical areas from the 1870s onwards. This expansion included founding an Oriental Committee and supporting the “Austro-Hungarian North Pole Expedition” (1872–1874; SCHIMANSKI and SPRING 2015). The Society also organised and coordinated exhibitions – for example, at the International Geographical Congress in Venice in 1881 – sent delegations abroad and established itself as an actor on the international stage by inviting renowned explorers to lectures and celebratory events.

In the Habsburg Empire, the transformation of the research landscape on an international level was accompanied by increasing nationalisation of the associations and the projects they supported. Both phenomena posed a considerable challenge to the supranational impetus of the Geographical Society. However, its claim to centralism remained intact even when, due to increasing national tensions, two further geographical societies were established in Budapest (1872) and Prague (1894): the Hungarian Geographical Society (*Magyar Földrajzi Társaság*) and the aforementioned Czech Society of Agriculture.<sup>12)</sup> These societies published their communications – “Geographical Announcements” (*Földrajzi Közlemények*) and “Proceedings of the Czech Society of Agriculture” (*Sborník České společnosti zeměvědné*) – in Hungarian and Czech only, though sometimes with French abstracts. Rather than intensifying cooperation between Vienna and the crownlands, the societies soon transformed into heterogeneous communities existing in competition, rather than cooperation. This, in turn, encouraged the migration of members to the new associations and further undermined the supranational claim of the Geographical Society in Vienna.

Meanwhile, the higher education reforms of education minister Leo von Thun-Hohenstein had transformed the University of Vienna into a fully-fledged research institution with a growing influence on the scholarly landscape (AICHNER and MAZOHL 2017). Two other learned societies were founded in Vienna during this period, each taking a notably different approach: the “Club of Geographers” (1874–1925), formed by geography students at the University of Vienna, and the “Geological Society” (1907–present day).

Although both organisations remained loyal to the idea of a supranational empire and were therefore able to obtain state subsidies, the imperial family, as a symbol of this unity, played only a secondary role. While the Geographical Society was founded on professional, social and spatial diversity, the other two associations drew their members primarily from university staff and students and only later expanded their remit to other regions of the monarchy. This meant that they were less inclusive and more representative of the increasing differentiation between academic subjects.

In particular, the membership and goals of the Club of Geographers were connected to the development of geography as a university subject. The Club intended to establish a series of geographical lectures, set up a library and support extracurricular excursions, along the lines of the disciplinary associations that already existed for natural history and mathematics (LEX 1899). By publishing a short periodical, attracting sponsors and

<sup>12)</sup> Around 1910, the Hungarian Geographical Society had half and the Czech Society of Agriculture about one-fifth of the members of the Geographical Society in Vienna.

integrating university alumni along with current students, the Club built up an extensive publication exchange with research institutions, learned societies and associations, and its membership grew to 200 geographers in Vienna and the crownlands. It is striking that there was hardly any personnel overlap or cooperation with the Geographical Society. The club's institutional counter-model even became spatially visible, since the student association was housed first in an auditorium at the University, then in the anteroom of the Geography Department (*Geographisches Institut*) facing the Academy building where the Geographical Society had its seat.

Under the influence of Albrecht PENCK (1858–1945), one of the two successors to SIMONY after the geography chair was split in 1885, the club became a testing ground for the relationship between physical and historical geography – with physical geography gaining the upper hand – and a place where new teaching methods, such as excursions, were put into practice (HENNIGES 2014; SVATEK 2015a). In this way, the Club gradually developed from a student organisation formed under SIMONY's professorship into a society of its own, which, under PENCK's supervision, published scientific contributions and positioned itself in opposition to the Geographical Society.

In the surviving protocols from 1885, the Vienna Geographical Society did not comment on the splitting of the geography chair: a practice later adopted by the universities of Berlin and St. Petersburg. In the following year, the 28-year-old Albrecht PENCK, who was new to the Society, and Wilhelm TOMASCHECK (1841–1901), the chair-holder in historical geography, were elected as board members. This development was overshadowed by growing demarcation processes between discipline-focused scholars, who held positions at research facilities, and representatives of a more cosmopolitan, bourgeois understanding of science. These demarcations had already emerged in Vienna's learned associations between 1860 and 1880. Various integrative endeavours and the representation of both parties on the Society's board, where they worked together on an equal footing, were intended to reduce rising tensions between them.

However, from 1868 onwards, the powerful position of secretary general was occupied by “non-professionals” such as the (ministerial) officials Hugo Glanz von EICHA (in service 1875–1877), Emil JETTEL (1877–1882) and Franz von LE MONNIER (1884–1889). Due to their service as journal editors, they had a significant influence on the Society's scientific output. The climax of the dispute between supporters of a discipline-focused versus a broad approach was the election of the geologist Eduard SUESS (1831–1914) as president of the Geographical Society in 1889. Unlike his predecessors, who included the politicians Leo von THUN-HOHENSTEIN (in post 1860–1861) and Hans von WILCZEK (1882–1889) and the military commanders Bernhard von WÜLLERSTORF-URBAIR (1861–1862) and Franz HAUSLAB (1864–1865), SUESS was the first professor from the University of Vienna to serve as president (Table 1).

The conflict was sparked by a resolution written by PENCK (1887), who proposed nothing less than the complete rebuilding of the Society's structure. This was prompted by dissatisfaction with the publication of unreviewed reports and the influx of new members from the Viennese middle class, such as tradesmen, (primary) school teachers, railroad officials and even artisans and shopkeepers. The unequal distribution of subsidies between high-profile, well publicised expeditions to the polar regions and Africa and lesser-

Year	President	Vice-Presidents	Secretary	Editor of the Journal
1856–1857	HADINGER W., <i>Geological Survey</i>	CHMEL J., <i>State Archives</i> ; CZOERNIG K.; FLIGELY A., <i>Military Geographical Institute</i> ; KREIL K., <i>Central Institute of Meteorology</i> ; LANCKORONSKI-BRZEZIE C., <i>Chamberlain Office</i> ; REDEN F. (†1857), <i>Statistician</i>	FOETTERLE F., <i>Geological Survey</i>	FOETTERLE F.
1857–1858	SALM-REIFFER-SCHEID-KRAUTHHEIM H., <i>Reichsrat</i>	CHMEL J. (†1858); FLIGELY A.; HADINGER W.; HELFERT J., <i>Ministry of Education</i> ; LANCKORONSKI-BRZEZIE C.; STEINHAUSER A.	FOETTERLE F.	FOETTERLE F.
1858–1859	CZOERNIG K., <i>Ministry of Trade</i>	HADINGER W.; HELFERT J.; HIETZINGER K.; KINTZL L., <i>Army</i> ; SALM-REIFFER-SCHEID-KRAUTHHEIM H.; STEINHAUSER A.	FOETTERLE F.	FOETTERLE F.
1859–1860	HIETZINGER K., <i>Ministry of War</i>	BECKER M., <i>School Admin.</i> ; BERGMANN J., <i>Imperial Cabinet of Coins and Antiques</i> ; CZOERNIG K.; FLIGELY A.; KINTZL L.; SALM-REIFFER-SCHEID-KRAUTHHEIM H.	FOETTERLE F.	FOETTERLE F.
1860–1861	THUN-HOHENSTEIN L., <i>Ministry of Education</i>	BECKER M.; BERGMANN J.; CZOERNIG K.; FLIGELY A.; HADINGER W.; HIETZINGER K.	FOETTERLE F.	FOETTERLE F.
1861–1862	WÜLLERS-TORF-URBAIR B., <i>Navy</i>	HADINGER W.; HAUSLAB F.; HIETZINGER K.; KOTSCHY T.; PECHMANN E.; THUN-HOHENSTEIN L.	FOETTERLE F.	FOETTERLE F.
1862–1863	PECHMANN E., <i>Military Geographical Institute</i>	FLIGELY A.; HOCHSTETTER F.; SIMONY F., <i>University of Vienna Chair of Geography</i> ; DUKE OF WÜRTTEMBERG W., <i>Army</i> ; THUN-HOHENSTEIN L.; KOTSCHY T.	FOETTERLE F.	FOETTERLE F.
1863–1864	KOTSCHY T., <i>Natural History Museum</i>	DUKE OF WÜRTTEMBERG W.; FLIGELY A.; HOCHSTETTER F.; PECHMANN E.; RUTHNER A., <i>Austrian Alpine Club</i> ; SIMONY F.	FOETTERLE F.	FOETTERLE F.
1864–1865	HAUSLAB F., <i>Ministry of War</i>	HAUER F.; HINGENAU O., <i>University Chair of Mining Law</i> ; KOTSCHY T.; PECHMANN E.; STEINHAUSER A.	FOETTERLE F.	FOETTERLE F.
1866	STEINHAUSER A., <i>Publishing House Artaria</i>	FRIESACH K., <i>Army</i> ; PECHMANN E.	FOETTERLE F.	FOETTERLE F.

Year	President	Vice-Presidents	Secretary	Editor of the Journal
1866–1882	HOCHSTETTER F., <i>Technical College Chair of Geology and Mineralogy</i>	HELFERT J.; HOFMANN L. (1866–1867, since 1876), <i>Ministry of Finance</i> ; STEINHAUSER A. (until 1876); LORENZ-LIBURNAU J. (since 1877), <i>Ministry of Agriculture</i>	FOETTERLE F. (1866); BECKER M. (since 1867); PAYER J. (1875), <i>Military Geographical Institute</i> ; GLANZ-EICHA H. (since 1875), <i>Ministry of Foreign Affairs</i> ; JETTEL E. (since 1877), <i>Ministry of Foreign Affairs</i>	FOETTERLE F. (1867); BECKER M. (since 1868); Committee / CHAVANNE J. (since 1875), <i>Central Institute of Meteorology and Earth Magnetism</i>
1882–1889	WILCZEK H., <i>Reichsrat / Patron of Sciences and Arts</i> ; SUSS E. (1889), <i>University of Vienna Geology Department</i> .	HELFERT J.; HOFMANN L. (†1885); LORENZ-LIBURNAU J.; HAUER F. (since 1885)	JETTEL E. (1882); LENZ O. (1883), <i>Geological Survey</i> ; LE MONNIER F. (since 1884), <i>Ministry of Education</i>	Committee (1883); HAARDT V. (1884), <i>Publisher Hölzel</i> ; LE MONNIER F. (since 1885); LORENZ-LIBURNAU J. (1889); RODLER A. (1889), <i>University Geology Department</i> ; STAPF O. (1889), <i>University Botany Department</i>
1889–1897	HAUER F., <i>Natural History Museum</i>	ARBTER E. (†1895), <i>Military Geographical Institute</i> ; LORENZ-LIBURNAU J.; SCHWEGEL J. (until 1891), <i>Ministry of Foreign Affairs</i> ; KALMÁR A. (1892–1894), <i>Military Geographical Institute</i> ; LEHNERT J. (1894–1896), <i>Navy</i> ; DAUBLEBSKY-STERNECK R. (since 1896), <i>Military Geographical Institute</i> ; TIETZE E. (since 1896)	BUSCHMANN F., <i>Physician</i> ; GALLINA E., <i>k.u.k. Privat- und Familien-Fonds-Güter-Direktion</i> (since 1895)	JÜTTNER J., <i>Gymnasium Teacher</i>
1897–1900	STEEB C., <i>Military Geographical Institute</i>	DAUBLEBSKY-STERNECK R.; POCHE-LETTMAYER E., <i>Landowner</i> ; TIETZE E.	GALLINA E.	JÜTTNER J.; BÖHM-BÖHMERSHEIM A. (since 1898), <i>Natural History Museum</i>
1900–1908	TIETZE E., <i>Geological Survey</i>	BENKO-BOINIK J. (until 1903), <i>Navy</i> ; HASENÖHRL R., <i>Ministry of Trade</i> ; POCHE-LETTMAYER E. (†1904); FRANK O., <i>Military Geographical Institute</i> (since 1903); OBERHUMMER E. (since 1904)	GALLINA E.	BÖHM-BÖHMERSHEIM A.

Year	President	Vice-Presidents	Secretary	Editor of the Journal
1908–1915	OBERHUMMER E., <i>University of Vienna Geography Department</i>	BRÜCKNER E.; FRANK O.; HASENÖHRL R.	GALLINA E.; LEITER H., <i>College of World Trade</i> (since 1914)	MACHATSHECK F., <i>University of Vienna Geography Department</i> ; LEITER H. (1914)
1915–1921	BRÜCKNER E., <i>University of Vienna Geography Department</i>	FRANK O. (†1916); HASENÖHRL R. (†1917); OBERHUMMER E.; TROLL C., <i>Ministry of Defense</i> (since 1917)	LEITER H.	MACHATSHECK F. (1915); LEITER H. (since 1916)
1921–1926	OBERHUMMER E.	BRÜCKNER E.; HEIDERICH F. (†1926), <i>College of World Trade</i> ; TROLL C. (†1926)	LEITER H.	LEITER H.

The high number of (former) ministers and ministry officials among the Society’s vice-presidents is striking. Names at first mention are accompanied by their institutional affiliation.

Source: Own compilation

Table 1: Officers of the Vienna Geographical Society until 1926

sponsored research travel to the Balkans and Asia Minor may also have played a decisive role. The establishment of a railroad connection between western Europe and Constantinople (1883) brought what was called the “Orient” into public view and boosted scientific and economic interest in the Ottoman Empire.

According to PENCK (1887), the new goals of the Geographical Society should therefore be limited to “*scientific endeavours which concern the monarchy and the Orient*”. Its journal should only consider “*truly new and scientifically correct achievements*” and should be subject to “*severe scientific criticism*”, while researchers in the crownlands, mostly university and technical college professors, were to act as reviewers. As the new president, SUESS adopted parts of PENCK’s proposed reforms, intending to employ a university-trained researcher as journal editor and to discontinue the position of general secretary. Unsurprisingly, the majority of the board opposed SUESS. Ultimately, this led to the resignations of SUESS and several board members, including PENCK, who was accused of using SUESS as “*nothing but the curtain*” (“*nur als Vorhang*”) to hide behind (k.k. Geographische Gesellschaft 1889a/b; Anonymous 1889). The dispute between the two groups continued until PENCK’s appointment as professor of geography at Berlin. In 1900, once again, this same dispute led to the resignation of the Society’s president and vice-president, both of whom had tried and failed to integrate university geography into the Society:

*“In particular, I [the president Christian von STEEB, see Figure 1] did not succeed at all in our goal of ‘coming closer to the professional geographers’. The situation in this respect has become even more difficult. When I elected the new editor, I set the condition that he should not be an opponent of Professor Penck. Dr. von Böhm complied with this condition – but only for a few weeks. He is now a fierce enemy*

*of the aforementioned professor, and it will be impossible to prevent this from being reflected in our publications.*"<sup>13)</sup> (STEEB 1900)

Like the Club of Geographers, the Geological Society saw itself mostly as an academic stronghold. However, while the Club was founded by students, the Society was primarily created by professors (Table 2). Its board organised a series of lectures and excursions, but was unable to conduct its own expeditions before 1914 due to the lack of financial reserves held in trust. The surprisingly late date of its foundation, in 1907, must be understood in context. Historically, its research remit had already been covered by the scope of other associations, especially the Geographical Society. Meanwhile, the existing geological association – the Geological Survey – had a wide network of correspondents and the practical support of talented individuals from the middle class, which for a long time enabled it to serve similar purposes to a learned society; many of its “correspondents” were autodidacts and unaffiliated researchers (MATTES 2020, p. 357).

Only the loss of the Survey’s social and professional integrative power towards the end of the nineteenth century finally ended its ascendancy and created space for a new society to emerge. Nevertheless, due to its affiliation to the university, the Geological Society’s aim of bridging the fragmented “*meta-disciplinary science [of geology], a higher-order science*”<sup>14)</sup> (FUCHS 1907, p. 2; UHLIG 1907, pp. 4–12) succeeded only to a limited extent. Further indications of the Society’s competitive relationship to the Survey, and the differences in their approaches, are its board’s initial rejection of a proposal to exchange its journal with the Survey and the late entry of Emil TIETZE (1845–1931), president of the Geographical Society and the Geological Survey, who joined the Geological Society only in 1912.

In the course of the 1890s, the Geographical Society had already responded to increasing disciplinary boundary-work and science professionalisation by reducing the exchange of “non-geographical” publications and excluding specific literature from its library. A year after PENCK’s call to Berlin and the suspension of the Club of Geographers’ periodical in 1906, the Society even introduced “*discipline meetings*” (“*Fachsitzungen*”) in the lecture hall of the Geography Department, to which only professional scholars were admitted. Its continued efforts to involve the “*educated lay public*” (“*das gebildete Laienpublikum*”, TIETZE 1907, p. 81) in its activities generated conflict with this new idea of a “*dual nature*” (“*Doppelnatur*”) within the Society, based on a fundamental distinction between interested laypeople and professional researchers. However, the necessity of maintaining the association’s material capabilities – mostly funded by its socially diverse membership, which ranged from the wealthy middle class to the high aristocracy – explains the Society’s unwillingness to adopt a more exclusive membership policy. By the turn of the

<sup>13)</sup> Original German version: “*Besonders ist es mir gar nicht gelungen in dem einen unserer Programmpunkte ‘Annäherung an die Berufsgeographen’, einen Erfolg zu erzielen. Die diesbezüglichen Verhältnisse sind eher noch mißlicher geworden. Bei der Wahl des neuen Redacteurs stellte ich die Forderung: es soll kein Gegner des Professor Penck sein. Dr. von Böhm hat dieser Bedingung entsprochen – aber nur durch wenige Wochen. Er ist jetzt ein erbitterter Feind des genannten Professors und es wird nicht zu vermeiden sein, daß dies in unseren Publikationen zum Ausdruck kommt.*”

<sup>14)</sup> Original German version: “*Sammelwissenschaft, eine Wissenschaft höherer Ordnung*”.

twentieth century, the imperial idea of socially, spatially and disciplinarily “unified forces”, adopted by its societies, had lost its integrative power.

Year	President	Vice-President	Secretary	Editor
1907–1910	UHLIG V., <i>University Geology Department</i>	FUCHS T., <i>Natural History Museum</i>	SCHAFFER F.	UHLIG V., DIENER C. (1908), SUESS F. (since 1909)
1910–1912	DIENER C., <i>University Paleontology Department</i>	UHLIG V. (†1911)	SUESS F.	UHLIG V. (†1911), DIENER C., SUESS F.
1912–1914	SUESS F., <i>University Geology Department</i>	GATTNAR J.	SCHAFFER F.	DIENER C., SUESS F.
1914–1916	GATTNAR J., <i>Mining Administration</i>	DIENER C.	SCHAFFER F.	DIENER C., SUESS F.
1916–1918	DREGER J., <i>Geological Survey</i>	GATTNAR J.	SCHAFFER F.	DIENER C., SUESS F.
1918–1920	ARTHABER G., <i>University Paleontology Department</i>	DREGER J.	SCHAFFER F.	DIENER C. (1918), SUESS F.
1920–1922	HAMMER W., <i>Geological Survey</i>	ARTHABER G.	TRAUTH F., <i>Natural History Museum</i>	SUESS F., TRAUTH F.
1922–1924	SCHAFFER F., <i>Natural History Museum</i>	HAMMER W.	TRAUTH F.	SUESS F., TRAUTH F.
1924–1926	KERNER-MARILAUN F., <i>Geological Survey</i>	SCHAFFER F.	TRAUTH F.	SUESS F., TRAUTH F.

Names at first mention are accompanied by their institutional affiliation.

Source: Own compilation

Table 2: Officers of the Vienna Geological Society until 1926

### 3 World War One and transformation of the associations’ scientific culture

Since the 1990s, scholarship in the history of science has argued that the impact of warfare on research is not limited to the development of weapon technologies or a one-sided instrumentalisation of scientists by the state or the military. Wars as cross-social phenomena – particularly in their impact on research – are not limited to the battlefield but are considered fundamental to the development of science throughout modernity (MATIS et al. 2014). The same applies to the public perception of scholarship. Wars do not automatically lead to a decline in the popularisation of science; often, changes to the public media landscape in wartime result in a higher profile for the scholarly associations and their lecture series. According to ASH (1996, p. 69), the impact of war on science includes, among other things,

*“a loss of inhibition in interacting with nature; the industrialization of warfare, including specialization and professionalization within the military; a loss of in-*



*hibition in viewing other human beings, including noncombatants, as resources for war; aided in part by the employment of scientific metaphors in the service of nationalistic ideologies; [...] attempts to use governments as resources for research projects that would not have been conceived, let alone funded, in peacetime.”*

The outbreak of World War One was perceived very differently by the various associations in Vienna. Since many of their student members were conscripted, the events, lectures and excursions of the Club of Geographers came almost completely to a standstill by 1915. Meanwhile, the Geological Society – which, seven years after its foundation, was still in its institutional infancy – had just received its first funds and was still trying to recruit members both inside and outside the Habsburg Empire. In accordance with its self-description as a “*non-political, completely peaceful*” association, the Society tried to remain on the sidelines of political processes by emphasising its ideal of “value-free” science:

*“The war [...] should not crush human solidarity in the drive for higher knowledge and humanity. It is the duty of science to bring minds from the lowlands of whipped-up popular hatred back to the bright uplands of humanity and to healing peace, to rebuild the deeply undermined foundations of the global bourgeoisie.”*<sup>15)</sup> (GATTNER 1914, p. 317)

These critical words, spoken in the Geological Society’s first meeting after war was declared, stood in contrast to the vehement pro-war rhetoric in the Geographical Society. The internment of congress and expedition participants staying in hostile or, sometimes, neutral countries was strongly opposed. The Geographical Society’s president, the historical and political geographer Eugen OBERHUMMER (1859–1944) – a known advocate of German nationalist thinking – compared the warfare waged by Austria-Hungary and the German Empire against “*barbarism from the east and west*” to the “*heroic struggle of the Hellenes against the Persians*” (OBERHUMMER 1914, p. 492). Bolstered by the fact that the assassinated heir to the throne, Archduke Franz Ferdinand, had been an honorary member of the Society and holder of its highest distinction, the Geographical Society strongly supported the declaration of war in its public addresses as well as its journal.

In the following, I will analyse how political processes during World War One influenced the learned societies in Vienna and how the different ways of processing knowledge transformed geographical and geological research and its social context. I will then examine the impact of the war on the societies’ 1) disciplinary, 2) practical, and 3) personnel and financial resources in connection with related spatial and scientific boundary-work processes.

<sup>15)</sup> Original German version: “*Der Krieg [...] soll jedoch die Solidarität der Menschheit im Drange nach höherer Erkenntnis und Humanität nicht erdrücken. Es ist der Beruf der Wissenschaft, die Geister aus den Niederungen des aufgepeitschten Völkerhasses, wieder in die lichten Höhen der Menschlichkeit und zum heilenden Frieden zurückzuführen, die stark untergrabenen Fundamente des Weltbürgertums neu aufzurichten.*”

### 3.1 Disciplinary shifts

The territorial changes, claims to power, political, economic and social upheavals that followed 1914 had a long-term, significant impact both on the learned societies of Vienna and the foundations of the disciplines they represented. Scholars frequently reacted to political developments, but in some cases they also actively tried to influence political decisions. In attempting to argue against, for instance, the splitting-up of the Habsburg Empire or the reorganisation of the post-war economic market, some of the societies' lectures and publications indirectly anticipated future political decisions. They were already addressing issues that would be revisited in even more radical form in the 1920s and 1930s.

With reference to MEHMEL (1995) and WARDENGA (1995), who investigated the ideologisation and (dis)continuities of university geography in Germany during and after World War One, similar processes can be observed in the Habsburg Empire. While the decline of oceanographic research and physical geography that began with PENCK's departure for Berlin accelerated after 1914, economic, political and anthropological issues became more prevalent, combined with practical questions. With a weakened supply chain at hand, economic geography publications were encouraged to scientifically justify the alliance with Germany (HEIDERICH 1916, p. 162).

Alongside this far-reaching shift from geomorphology to human geography, topographical information became increasingly valued. The relevance of geographical data for military operations and politics, combined with the insufficient ability of conscripted soldiers to make accurate use of this information, became an important argument for investing in geography as a discipline. Spatial terminology became increasingly ideologically charged. For example, HASSINGER (1917) used the term "Mitteleuropa" (Central Europe) as a basis on which to argue for Austria's political, economic and territorial claims to power (SVATEK 2017; 2019).

A "War Conference of German University Teachers of Geography", held in Heidelberg in 1916, resolved that the role of geography in school and university curricula should be expanded in view of its increased significance in wartime (SCHELHAAS and HÖNSCH 2001). The two Austrian participants – Eduard BRÜCKNER (1862–1927) and Eugen OBERHUMMER, who alternated as presidents of the Geographical Society between 1908 and 1933 – reported that the designated function of the associations was a propagandistic one. In order to counteract the "*uncertain political judgement among the German people*", the learned societies were primarily supposed to promote the "*dissemination of geographical knowledge and understanding through the spoken and written word*"<sup>16)</sup> (BRÜCKNER 1916, p. 638). Accordingly, at the general assembly of the Geographical Society, BRÜCKNER was able to announce in his capacity as president that the field had adapted to the "*state of war [...] and this is reflected in the life of our Society*"<sup>17)</sup> (BRÜCKNER 1917a, p. 263).

According to research by HENNIGES (2015; 2017b), the beginnings of "*folk and cultural soil research*" ("*Volks- und Kulturbodenforschung*") at the University of Vienna

<sup>16)</sup> Original German version: "*unsichere politische Urteil im deutschen Volke*", "*Verbreitung geographischen Wissens und Verstehens durch Wort und Schrift*".

<sup>17)</sup> Original German version: "*Kriegszustand [...] und das spiegelt sich auch im Leben unserer Gesellschaft wieder*".

date back to the turn of the twentieth century under the pedagogical influence of Albrecht PENCK. The World War only gave it new momentum. In addition to these developments, which seem to have unfolded in parallel, we can also see differences between the two states of Germany and Austria-Hungary. In Germany, special commissions on regional geography (“*Länderkunde*”) investigated the occupied territories with governmental and military support. In Austria-Hungary, meanwhile, the focus of regional geographical research largely remained confined to the Empire’s own territory and its diversity of languages, ethnic groups and identities. The impossibility of disentangling geographies from the social groups living in the territory under study gave rise to border studies that were not limited to the monarchy but, in accordance with (primarily) nationalist ideologies, dealt with the entire territory of the Austro-Hungarian state.

Approaching the transformation of geographical disciplines during this period requires a critical awareness of the scientific metaphors and contexts in which these research fields and their protagonists operated. Due to the broad impact of its publications, the Vienna Geographical Society in particular played an important role in the reorientation of research that was brought about by the war. The renationalisation of the research landscape during the war years created a free space where radical ideas could spread and questions of demarcation develop – albeit not yet at the territorial level. New symbolic investment in existing terminology, such as “culture” and “race”, had given rise to an emphasis on national antagonisms within the monarchy; but without explicitly using the term “nationality”. In order to preserve the legitimacy of the dual monarchy after the end of the war, the Society’s members turned to categories of “culture” and “race” and avoided terms that seemed to promote national separatist movements. Accordingly, Arthur HABERLANDT (1889–1964) argued in a lecture on “Cultural and National Borders in Austria” for a clear distinction:

*“Higher culture shows a greater capacity for expansion than primitive culture. [...] Sometimes a lack of cultural ability in the population outweighs the effect of the environment in a negative sense (karst lands). Nationality groups, in the current sense, are therefore by no means uniformly constituted cultural groups. [...] All science and politics based solely on the modern principle of nationality must therefore be considered mistaken. Rather, the guidelines of cultural development are revealed by studying the historical shift of cultural borders. In Austria, this has always taken place from West to East. The cultural mission of Austria lies in the continuation of this movement using the modern means of a large-scale state.”*<sup>18)</sup> (HABERLANDT 1914, p. 496)

<sup>18)</sup> Original German version: “*Höhere Kultur zeigt größere Expansionsfähigkeit als primitive. [...] Bisweilen überwiegt mangelnde Kulturfähigkeit der Bevölkerung das Wirken der Umwelt in negativem Sinne (Karstländer). Nationalitätengruppen im heutigen Sinne stehen somit keineswegs auch als einheitlich geartete Kulturgruppen vor uns. [...] Alle einseitig vom heutigen Nationalitätenprinzip ausgehende Wissenschaft wie Politik muß somit als verfehlt bezeichnet werden. Die Richtlinien der Kulturentwicklung ergeben sich vielmehr aus der Betrachtung der historischen Verschiebung der Kulturgrenzen. Diese ist in Österreich zu allen Zeiten in westöstlicher Richtung erfolgt und in der Fortsetzung dieser Bewegung mit den modernen großstaatlichen Mitteln ist die Kulturmission Österreichs zu suchen.*”

While the concept of “*cultural borders*” (“*Kulturgrenzen*”, HANSLIK 1907) already offered the possibility of hierarchical distinction between cultural groups, “racial characteristics” were deemed more “objective”. For this reason, in the Society’s lectures and publications, greater prominence was accorded to anthropological studies on prisoners of war that dealt with the “*racial purity*” (“*Rassenreinheit*”) of ethnic groups (PÖCH 1916, p. 10). Likewise, in a lecture on “*Races, Peoples, Languages*”, OBERHUMMER (1915, pp. 115–117) argued that language (or nationality) must be clearly separated from “race”. He claimed that a fusion of two ethnic groups, such as the “*stronger blond population in Greece*” – responsible for the construction of the Acropolis with the “*non-Indo-Germanic population*” could cause a “*weakening of the creative force*” (“*Erlahmen der schöpferischen Kraft*”).

In response to the shifting relationships between nationality, territory and state, individual groups resorted to increased boundary work and an emphasis on supposed anthropological “characteristics” – shot through with racial prejudice – as ways of building identity. For instance, an “Oriental Commission” (*Keleti Bizottságának*), founded in 1916 within the Hungarian Geographical Society, was intended to “*trace the origin of the Magyars [...] as an ethnographically separate tribe*” and scientifically confirm the cultural superiority of the Magyars over Slavic ethnic groups by constructing a foundational history dating back to the Migration Period (PECK 1916, pp. 284–285; TELEKI and CHOLNOKY 1916, pp. 109–113).

The actions of the Geological Society in Vienna, in contrast, were significantly more reserved. As late as 1915 the Society constructed the idea of “*scientific bodies in the secured hinterland*”, which would pursue their “*peaceful scientific activities*” there “*almost free from anxiety*” (GATTNER 1915, p. 129). The difference between the two associations can also be explained by the diverging epistemes of the fields they represented, their international connections, and the associated political values. Before 1914, the reputation of earth sciences in Vienna was largely founded on Eduard SUESS and his multi-volume work “*Das Antlitz der Erde*” (1883–1909, “*The Face of the Earth*”), in which he created a “worldwide synthesis” and “globalised” his tectonic concepts, originally based on fieldwork in the mountain ranges of the Alps. This international orientation corresponded to a cosmopolitan, German liberal outlook which, in the tradition of HAIDINGER, regarded the scientist as a co-responsible part of civil society. By contrast, university geography in pre-war Vienna leaned more towards Germany both in its political-national convictions and in its scholarly exchange. Moreover, the majority of research topics – including, in particular, regional studies and the investigation of karst areas, which are often positioned on linguistic borders – had a distinctly nationalist background.

The entry of Italy into the war and the shortage of raw materials finally banished any remaining reservations on the part of the geological community about making a direct contribution to the war effort. In the course of the war, the concept of “military geology” – coined in 1913 by the German officer Walter KRANZ (1873–1953) – was adopted by geologists in the Habsburg monarchy, although it was usually altered to “war geology” (“*Kriegsgeologie*”). It was not until February 1918 that a War Geology Department (*Referat für Kriegsgeologie*) was established under the command of the Imperial and Royal War Surveying Service (*k.u.k. Kriegsvermessung*) (ANGETTER 2009; ROSE 2019). In its meetings, the Geological Society also discussed the new wartime expectations concerning

geology, seeing the transformation of the discipline as an opportunity to establish distinguished chairs of war geology at the military academies of the empire:

*“In no previous war were all the university sciences [...] placed at the service of warfare as they are in the present world war. [...] [This war is] not, as in earlier periods, conducted exclusively on the surface of the earth and on the sea, but also in the air, in the sea and under the sea, and to an outstanding degree underground in trenches and from fortress-like earth and rock caves, especially in the karst mountains, for which reason our science, geology, [...] was also used for warfare. [...] After all, the new term ‘war geology’ will lose its current strangeness [...] when one considers how many practical hints the military pioneering departments [...] receive for [...] the construction of trenches, underground cavities, mine tunnels, [...] for the supply of the increased demand for iron [...] when imports are blocked, by opening new, previously abandoned mines and developing new, little-known deposits.”*<sup>19)</sup> (GATTNER 1915, pp. 130–131)

In the years that followed, the Society focused on resource exploration; surprisingly, military geology was not addressed. The attempt of the board to distance the Society from the events of the war can be seen in the fact that the lectures and publications dealt primarily with issues concerning the territory of the later First Austrian Republic; reports about the war were limited to the obituaries of members.

### 3.2 New collaborations, (inter)national orientation and public impact

Territorial shifts, increasing political ties to the German ally and changes in financial and human resources had a lasting impact on scientific practices and the (inter)national orientation of learned societies. At the same time, however, new opportunities arose to make up lost ground in terms of public presence and to enhance the involvement of the societies and their members in academic research increasingly dominated by holders of university chairs.

At the national level, the war rendered the scientific societies increasingly reliant on state institutions. The Club of Geographers, whose activities largely stagnated apart from the holding of plenary meetings and one single excursion, became even more dependent

<sup>19)</sup> Original German version: *“In keinem vorangegangenen Kriege wurden in so hohem Maße alle Fakultätswissenschaften [...] in den Dienst der Kriegsführung gestellt, wie in dem gegenwärtigen Weltkriege. [...] Dieser wird nicht wie in früheren Zeitläuften ausschließlich nur auf der Erd- und auf der Meeresoberfläche, sondern auch im Luftmeere und unterseeisch und in ganz, hervorragendem Maße unterirdisch in Schützengräben und aus festungsartig hergerichteten Erd- und Gesteinshöhlen, zumal im Karstgebirge, geführt, daß auch unsere Wissenschaft, die Geologie [...] der Kriegsführung zustatten kam. [...] Immerhin wird der neue Begriff ‘Kriegsgeologie’ das augenblicklich Befremdende verlieren [...], wenn erwogen wird, wie viele praktische Winke das militärische Genie- und Pionierwesen [...] gewinnen kann, für die [...] Anlage von Schützengräben, unterirdischen Hohlräumen, Minengängen, [...] für die Versorgung des gesteigerten Bedarfes an Eisen [...] bei gesperrter Einfuhr, durch Eröffnung neuer, bisher brach gelegener Bergbaue und Erschließung neuer, wenig bekannter Lagerstätten.”*

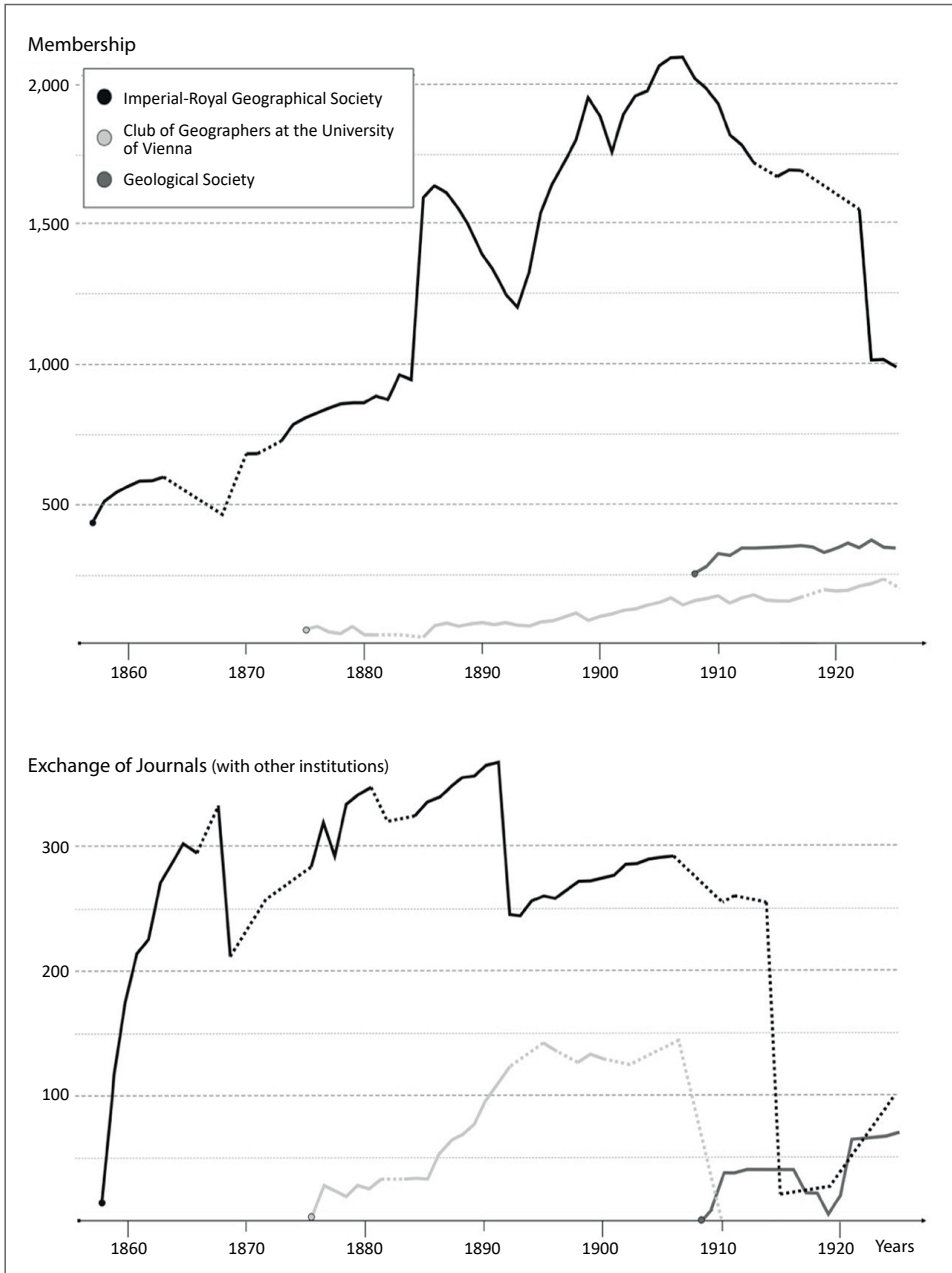
on the Geography Department; or, so to speak, the “breeding ground for the efforts of the association”<sup>20)</sup> (LICHTENECKER 1922, p. 4). Increasingly regarded as a student-led addition to the Geographical Society, the club lost further autonomy after its annual reports were integrated into the periodical “Annual Geographic Report from Austria” (*Geographischer Jahresbericht aus Österreich*) (1907). Meanwhile, the Geological Society tried to normalise its relationship with the Geological Survey by establishing an office at the Geology Department of the University of Vienna. In 1916, the Society elected Julius DREGER (1861–1945), the Survey’s chief geologist, as its president and even officially visited the Survey’s headquarters the following year.

After losing financially weaker cooperation partners such as the “Natural Science Oriental Society” (*Naturwissenschaftlicher Orientverein*) and the “Club for the Promotion of Natural Research on the Adriatic” (*Verein zur Förderung der naturwissenschaftlichen Erforschung der Adria*), the Geographical Society relied on state institutions such as the Academy of Sciences and the army for its scientific endeavours. Difficulties in finding a location for its library – the largest publicly accessible collection of geographical literature in the Habsburg monarchy – led the Society to relocate to the Geography Department (FASCHING and FRITZ 2006; KRETSCHMER 2006, p. 88). Thus, from 1915 onwards, all three associations studied in this article were affiliated with the university. At the same time, the Vienna “Institute for Cultural Research” (*Institut für Kulturforschung*) (1915–1934) became an adversary of the Geographical Society. Founded by the geographer Erwin HANSLIK (1880–1940) and the orientalist Edmund KÜTTLER (1884–1964), the institute rejected the cultural hegemony of Western Europe and intended to “bridge the gap between East and West” by combining science and avant-garde art (HENNIGES 2015, pp. 1332–1335). HANSLIK (1917, pp. 122–123, 168), a private university lecturer, spoke out against the doctrine of western superiority by arguing that the Central Powers did not represent a “unified cultural area” (“*einheitlicher Kulturraum*”) but were defined by “social diversity” (“*soziale Mannigfaltigkeit*”).

In short, as cooperation at home intensified, international contacts were widely neglected. This was particularly true for the international exchange of publications (Figure 3). Although the Geographical Society had already overhauled its literature exchange in reaction to the shift in disciplinary boundaries in 1870–1890, the outbreak of the war resulted in the exclusion of practically all Austro-Hungarian and German scientific societies and institutions from the international scientific discourse. While initially only the exchange of knowledge with institutions in hostile states was affected, relations with societies in neutral nations also came to a gradual halt. This meant that, eventually, the Viennese societies and their scientific impact were mostly restricted to the German-speaking discourse.

The effects of this new isolation can also be seen in the key practices of learned associations: the organisation of public lectures and the editing and publishing of series. Increased travel costs and the inability to invite foreign lecturers meant that the scope of available speakers was to a large extent limited to scholars living in Vienna. This included the members of the societies’ executive boards as well as more junior scholars such as

<sup>20)</sup> Original German version: “*Nährboden für die Bestrebungen des Vereines*”. For the role of LICHTENECKER see STAUDIGL-CIECHOWICZ (2017, pp. 831–834) and SVATEK (2021).



Source: Compiled from the information in the societies' journals (for the membership of the years 1924–1925 see Geographische Gesellschaft 1939)

Figure 3: Development of the membership and exchange of publications up to 1925

Othenio ABEL (1875–1946), Gustav GÖTZINGER (1880–1969), Hugo HASSINGER (1877–1952), Norbert KREBS (1876–1947) and Josef WENINGER (1886–1959), who used the war as an opportunity to further their careers. The same applied to the publication series of the societies, which, with the exception of the suspended “Treatises” (*Abhandlungen*) of the Geographical Society, continued to be published annually but were now mostly written by authors associated with the University of Vienna.

However, since universities were seriously affected by the conscription of students and academic staff, the majority of learned societies in Vienna were temporarily able to regain their former role as scholarly hubs and cross-social points of integration. Although the Geographical and Geological Societies only hosted about one lecture per month, their meetings were very well attended and included members of the high aristocracy. Since university professors headed several societies at once, these associations were able to reunite academic research and rekindle popular approaches to science. At the same time, their stable financial reserves ensured that their publication series continued to appear during wartime and that professional scholars were still able to publish their research. The societies and their communication platforms thus became a place for processes of disciplinary negotiation, and popular “*questions from broad circles of the population were [...] given greater attention than [had] usually been the case to date*” (BRÜCKNER 1917b, p. 25).

The decline of cosmopolitanism in the societies was both exemplified and accelerated by the selection of lecture topics which, due to the difficulty of conducting research abroad, mainly concerned the Austrian crownlands of the monarchy and the occupied territories in the Balkans. These included, above all, anthropological studies on prisoners of war as well as ethnographic, geographic, geological and cartographic studies of the Balkan region, with special attention given to the localisation and development of ore deposits in Serbia, Montenegro and Albania. The lecturers only dealt with other geographical areas when evaluating the results of pre-war expeditions or addressing supposed “German settlement areas”, as Rudolf MUCH (1918) did in his talk on “*totally Germanic colonies*” (“*urgermanische Kolonien*”).

However, the activities of the societies were not limited to the theoretical legitimisation of expansionary tendencies in the Balkans and the popularisation of war economy knowledge. The war had transformed geographic spaces and their people into vital resources to be described, surveyed, mapped, categorised, and ultimately rendered usable for military purposes. Accordingly, the Geological Society formed a committee – albeit only in the final months of the war – to carry out preparatory work for the establishment of a cadastre (land register) of Austrian Mineral Resources. The Geographical Society, for its own part, had loftier ambitions. However, the military mobilisation of Austria-Hungary in the summer of 1914 interfered with the departure of the Austrian Antarctic Expedition, which was supposed to be the second research expedition carried out exclusively by the Geographical Society (KOSTKA 2016, p. 329). This was essentially a counter-project to SHACKLETON’s “Endurance Expedition”: an expedition intended to establish a research station in South Georgia, financed primarily by the “Major Lamquert-Foundation”, a 50-year bound trust held by the Geographical Society and accessible since 1913.

The failure of this ambitious project opened up new opportunities for research. Military support, which had already financed numerous expeditions by the Geographical So-



ciety, meant that research ventures could be sent behind the lines on the Balkan Peninsula. Destinations included Serbia – inaccessible before its occupation by Austria-Hungary in December 1915 – and Albania, which had been the objective of a number of research expeditions before the war but had not yet been geologically surveyed (HAMMER 1918; GOSTENTSCHNIGG 2018, pp. 626–649). Since scientists from various disciplines were rushing to be the first to investigate this “unexplored territory” after the cessation of hostilities in the spring of 1916, the Geographical Society, too, clearly had to join the race. In addition to an expedition organised by the Ministry of Education in cooperation with the Court Library and the Academy of Sciences, which was intended to conduct archaeological, ethnographic, linguistic and art-historical research in the occupied territories of the Balkans, the Academy equipped three further expeditions dedicated to zoological, botanical and geological research in the area.<sup>21)</sup>

Similarly, the “Serbian Expedition of the Imperial-Royal Geographical Society”, carried out at the suggestion and under the leadership of Norbert KREBS, engaged in the work of geographical and geological surveying. In addition to the interest from the “Lamquert Foundation”, the Academy’s “Treitl Fund” also financed the participation of the paleontologist Othenio ABEL (1917) in the Serbian expedition. In this respect, it was helpful that BRÜCKNER and OBERHUMMER were both academy members. The expedition, equipped with soldiers and guides by the military administration, had clear economic objectives: to identify agricultural resources, ore and coal deposits, and to propose methods for their extraction. Thus, even before KREBS (1916, p. 614) undertook a second expedition to southern Serbia during the summer of 1916, he was able to state that “*Serbia is an extremely rich country, which still has many reserves despite the long wars and devastating epidemics, and that it is possible to make good use of its resources under the tight, purposeful, well-organised administration of our military authorities*”<sup>22)</sup>. Apart from travel reports and the economic-geographical and geological evaluation of the country published in the respective series of the Geographical Society and Academy, the scientific results of the expedition were rather insignificant. This was also due to the fact that, from 1917 onwards, there were no longer sufficient funds available to publish the outcomes of the expedition in book form, and after the end of the war there was no longer any use for the results.

### 3.3 Personnel and financial resources in transition

Besides the changes (outlined above) to the societies’ research fields and (inter)national orientation, their financial and personnel bases were also subject to significant transformation. This also helps to explain the political radicalisation of scientific discourse in this

<sup>21)</sup> These were Arnold PENTHER’s zoological expedition to Serbia and Montenegro, Ignaz DÖRFLER’s botanical expedition to Northern Albania and Hermann VETTER’s and Fritz KERNER VON MARILAUN’s geological expedition to Albania.

<sup>22)</sup> Original German version: “[...] Serbien ein überaus reiches Land ist, das trotz der langen Kriege und der verheerenden Seuchen noch viele Vorräte besitzt und unter der straffen, zielbewußten Verwaltung unserer Militärbehörden an eine gute Ausnutzung seiner Hilfsquellen schreitet.”

period and the societies' efforts to obtain state support for economically useful research projects and so secure a favourable starting position for the aftermath of the war.

Of particular significance was the number of paying members (Figure 3), which accounted for a large part of the societies' earnings. The Club of Geographers, about one-third of whose members resided outside Vienna, was able to increase its membership in the course of the war. This was largely due to the growing number of women, specifically students, who already made up 25 percent of all members in 1914 but who, at that point, were not yet represented on the board. The membership of the Geological Society, on the other hand, was highly stable: hardly any new members joined during the war years and presumably, as with the Club of Geographers, defaulting members were not expelled (Geologische Gesellschaft 1912).

As for the Geographical Society, the composition of its board changed significantly during the war years. The economic geographer Hermann LEITER (1882–1958), a former leading member of the Club of Geographers and a student of PENCK and OBERHUMMER, replaced the civil servant Ernst GALLINA (1838–1915), long-term secretary general and unifying figure for both university researchers and “non-professionals”; the latter were increasingly considered in more pejorative terms as “amateurs”. Similarly, outgoing board members were replaced by young, ambitious scholars predominantly associated with the Geography Department, who represented a narrower view of the research field (e.g., KREBS, HASSINGER, PÖCH). This transition process was accompanied by considerable shifts in the member base (Figure 3).

Despite the growing boundary-work between science and its popularisation, on the one hand, and university geographers, professional scholars in other fields and non-academics on the other, the Society had been able to increase its membership throughout the nineteenth century. This was mainly achieved through high-profile expeditions, price reductions for train and ship travellers (from 1894) and support from diplomatic missions abroad. However, this upward trend reversed during the 1900s and the decline accelerated during the war years, so that the Vienna Geographical Society, which originally had a similar membership to its “sister organisations” in Paris and St. Petersburg, lost more than 60 percent of its members between 1900 and the mid-1920s (KRETSCHMER 2006, pp. 79, 99; SCHWARZ 2006, pp. 409–410). Like the geographical societies in London and Paris, the association had already adapted its statutes in 1915 to exclude foreign honorary and corresponding members in case these were “*incompatible with the interests of the Society*” (k.k. Geographische Gesellschaft 1915, p. 221), “*denigrated our monarchy*” or committed “*hostile acts outside the bounds of military service*” (BRÜCKNER 1917c, p. 13).<sup>23</sup>

A comparison of the members' places of residence in 1860, 1885 and May 1914 (Table 3) reveals that the Geographical Society had already become a largely regional association before World War One began. In 1860, the Society was a cross-national institution with a strong international network, with about 40 percent of its members residing in Vienna and Lower Austria and 30 percent living abroad (particularly in Europe, South Africa and Batavia). This is all the more remarkable since the Emperor Franz Joseph I himself had

<sup>23</sup> Original German version: “*mit den Interessen der Gesellschaft nicht vereinbar*”, “*unsere Monarchie verunglimpft*”, “*feindliche Handlungen, die außerhalb des Kriegsdienstes liegen*”.

demanded in 1856, as a precondition for the founding of the Society, that foreign members should not be admitted “*without the permission of the Ministry of the Interior*” (FRANZ JOSEPH I 1856). This requirement was removed from the statutes in 1865, after the emperor’s brother Maximilian became the society’s official protector. The popular Austrian Congo Expedition (1885–1887) marks a significant break in membership development. Almost all of the over 600 members who joined in 1885 alone resided in Vienna and its surroundings. This influx significantly reduced the proportion of long-standing fellows from the crownlands and abroad. In 1914, only one in ten members lived outside of the Habsburg Empire, while German-speaking associates from Vienna, Lower Austria, Bohemia, Moravia and Silesia accounted for more than two thirds of the membership.

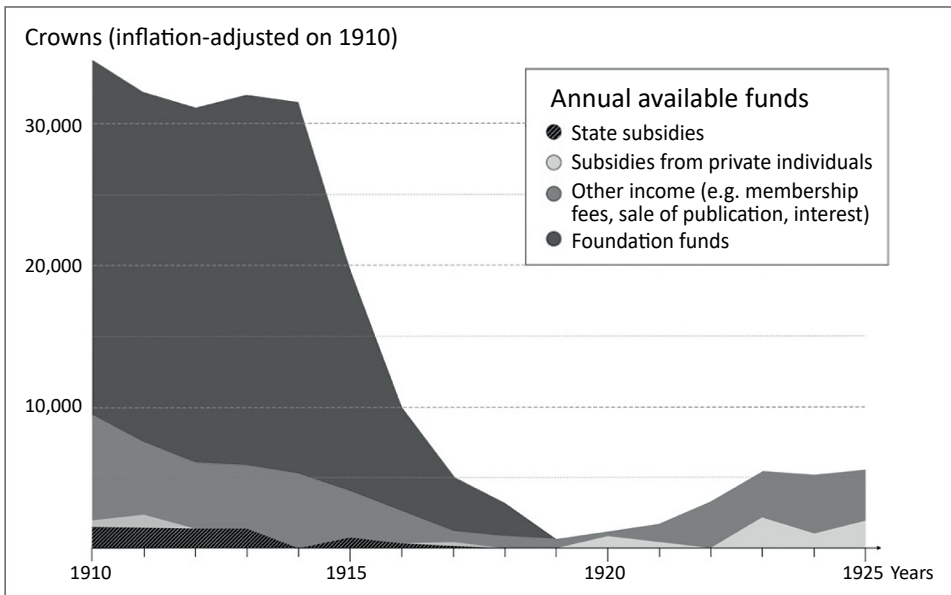
	1860	1885	1914		1860	1885	1914
Vienna, Lower Austria	41.4	50.2	57.0	Germany (unified since 1871)	8.6	4.0	3.4
Hungary, Banat, Transylvania	7.6	5.5	4.2	Great Britain, Ireland, Australia	3.4	2.3	1.4
Bohemia	2.5	7.6	7.6	Southern and Central Africa	3.4	1.0	0.2
Austrian Littoral	2.7	1.6	2.4	Russia	3.1	1.6	0.7
Galicja, Lodomeria, Bukovina	2.2	4.2	3.5	Western Europe (mainly France)	2.7	2.3	1.4
Croatia, Slavonia, Dalmatia	2.2	1.1	1.3	United States, Canada	1.8	0.9	0.7
Venetia, Lombardi (until 1866)	2.2	–	–	South-East Asia	1.6	1.5	0.9
Moravia, Silesia	1.8	3.1	3.5	Scandinavia	0.7	0.6	0.7
Upper Austria, Salzburg	1.4	1.5	1.6	Ottoman Empire, Northern Africa	0.7	0.9	0.6
Styria	0.9	1.9	2.6	Latin America	0.7	0.7	0.4
Carniola, Carinthia	0.7	1.8	1.7	Switzerland	0.5	0.5	0.3
Tyrol, Vorarlberg	0.5	1.2	1.6	Italy	0.4	1.5	0.7
Bosnia (since 1878)	–	1.2	0.5	Balkan states	–	0.8	0.7
<b>Habsburg Empire</b>	<b>66.1</b>	<b>81.2</b>	<b>87.4</b>	<b>Foreign Countries</b>	<b>27.7</b>	<b>18.6</b>	<b>12.3</b>

Source: Compiled from the membership lists provided in the journal of the k.k. Geographical Society “*Mitt[h]eilungen der k.k. Geographischen Gesellschaft*”

Table 3: Residence of personal and institutional members of the Imperial-Royal Geographical Society in 1860, 1885 and 1914 (values in percent). The places of residence of 6.2 percent (in 1860), 0.2 percent (in 1885) and 0.3 percent (in 1914) of the members are unknown

During the war, the proportion of foreign members, especially from enemy states, continued to decline significantly. An attempt was made to compensate for this loss through tar-

geted recruitment of members in the wider Viennese population; particularly middle-class women, who increasingly appear as authors of journal articles and participants in excursions from 1914 onwards. In 1860, the Geographical Society only had one female member (living in London) the Scottish travel writer and translator Louisa Hay KERR (c. 1806–1900), wife of a high-ranking British official in India, who had joined the previous year.<sup>24</sup> By 1914, however, the association consisted of 67 percent male and 10 percent female members in addition to 23 percent institutional members, including schools, military units and public authorities. Due to the decrease in the number of members, women had become an integral part of the Society's activities and were, likewise, a decisive factor in ensuring the stability of its finances. KERR aside, scientific associations in Vienna had gradually begun to admit women from the 1870s onwards, offering them a space for scholarly activity even before they were admitted to the universities. In contrast, the British Royal Geographical Society, which had about 5,300 members, did not admit women until 1913 (HEFFERNAN 1996, p. 507).



Source: Compiled from the cash reports provided in the journal of the Geological Society

Figure 4: Development of the financial reserves and earnings of the Geological Society between 1910 and 1925. For the annual inflation rates see HUBMANN et al. (2020, pp. 74–77)

<sup>24</sup> KERR translated Leopold RANKE's book "*Die serbische Revolution. Aus serbischen Papieren und Mittheilungen*", 2<sup>nd</sup> edition, Berlin 1844, into English ("*A History of Serbia, and the Servian Revolution*", 1847) and visited Vienna in 1859 on her journey to the Balkans. She was also a member of the Geographical Society in Paris and the Royal Asiatic Society in London. In 1864, she donated scientific literature and several Japanese objects to the Geographical Society in Vienna.

The most obvious change affecting the scientific associations during this time was a financial one (Figure 2, Figure 4). This was especially true for the Geographical Society, which, together with the Society of Physicians, was one of the wealthiest learned associations in Vienna and had ten times the financial reserves of either the Geological or the Zoological-Botanical Society. Unlike the latter, however, it owned no valuable collections or real estate and disposed of only modest reserves compared to geographical societies in other metropolises.

Although the income of the societies remained largely stable during the war years via membership fees and public subsidies, private subsidies visibly decreased. Moreover, the nominal value of their reserves was not adjusted to the rapidly growing rate of inflation, which was already between 60 percent and 200 percent annually in war time; accordingly, the reserves lost their value.

Another factor was the increasing shortage of printing paper and the investment of financial reserves into war bonds, a common practice among Vienna's scientific associations and the Academy of Sciences. Many societies ceased publication of their financial reports during the war and did not resume this in the 1920s – unlike the Geological Society, which continued to publish throughout – but we can reasonably assume that all their reserves were already used up by the end of the war. It is highly likely that many of them did not even retain all the assets they had at the time of their foundation. Accordingly, for the majority of societies in Vienna, the collapse of the monarchy in November 1918 meant not only the loss of a strategic partner, but financial ruin. This experience, together with the political, social and economic crisis of the post-war period, only strengthened the feeling that some colossal scientific loss had taken place.

#### 4 “Repotted” societies: Altered political, social and scientific conditions in “Red Vienna” and the First Austrian Republic

In several regards, the winter of 1918/19 was a rock-bottom period for Vienna's learned associations. Due to a lack of coal and heating, meetings could not be held and club life came to a virtual standstill. Printing costs continued to balloon until the currency reform of 1924/25, so the societies' journals could only be published to a limited extent. Likewise, transport restrictions made it impossible to invite lecturers from outside Austria and allowed for excursions only as far as the surroundings of Vienna itself. As a result, the societies' scope for action was largely limited to the printing of short proceedings, which, in the case of the Geographical Society, no longer even contained reports on club life. In view of the growing economic crisis, Gustav von ARTHABER (1919, p. 169), president of the Geological Society, maintained that union with the more powerful Weimar Republic was the only viable option:

*“Finally, our opponents – which means, with a few exceptions, the entire planet – may not have defeated us militarily, but they utterly defeated us economically: a ‘knockout’! According to the hard law of the victor, [...] we must pay and atone! Only one light shines in the sorrow of this time: the annexation of German Austria*

*to the German Reich! At last the German people, too, will be politically united.*"<sup>25)</sup>  
(ARTHABER, 1919, p. 169)

In the following, I will explore how the political and economic crisis affected the scholarly program and social composition of the societies. In particular, I will address the question of whether the collapse of the Habsburg Empire and new spatial borders in Central Europe caused an increase in scientific and social boundary-work.

#### **4.1 New competitors in science (popularisation) and the erosion of political and bourgeois support**

The hardest-hitting of these new conditions was undoubtedly the dissolution of the monarchy's state structure and the loss of the societies' political, ideological and social affiliations. Those that were supranational in their scope, especially the Geographical Society, lost a substantial part of their membership and became regional learned associations with a strong focus on the German-speaking community. War casualties account for only about five percent of the loss of membership in this period, which means that the most substantial cause of this decline was the (presumably voluntary) resignation of members from the crownlands, the aristocracy, and from foreign countries.

In the following decades, the societies met with scarcely any success in their efforts to integrate professional scholars and members from the newly created Austrian federal state. In case of the Geographical Society, the number of fellows fell below 600 by the mid 1930s. All this meant that the Viennese societies were mostly dominated by representatives from local research institutions, state authorities and the capital's bourgeoisie. However, a comparison with the former Imperial Russian Geographical Society demonstrates that regime change does not necessarily lead to the collapse of state-affiliated scientific associations. In the early 1920s, the Bolsheviks were keen to preserve the country's intellectual potential and so they strongly supported the scientific activities of the Russian societies. Pushing the associations towards the public sphere was meant to transform them into academic mass organisations and bring them entirely under the control of the authorities (SINELNIKOVA 2019).

One decisive factor was probably that the leadership of the First Austrian Republic no longer depended on the expertise of the formerly empire-affiliated societies. This applied not only to questions of (university) education but also to formal and informal involvement in foreign policy issues. The societies' loss of importance as official advisers to the public authorities also had an effect on their prospective financial endowment. The focus of government agencies was more on preserving the universities and state research institutions. Likewise, the former Imperial-Royal societies could not compete with the highly specialised extra-universitarian scientific agencies, such as the Institute of Radium

<sup>25)</sup> Original German version: "*Endlich haben unsere Gegner, also mit wenigen Ausnahmen die ganze Erde, uns zwar nicht militärisch besiegt, aber wirtschaftlich total niedergedrungen; der 'Knock-out'! Nach dem harten Rechte des Siegers, [...] müssen wir zahlen und büßen! Nur ein Licht leuchtet in der Kümmeris dieser Zeit: der Anschluß des deutschen Österreich an das Deutsche Reich! Endlich wird doch auch das deutsche Volk politisch geeint sein, [...].*"

Research (*Institut für Radiumforschung*) and the Institute for Experimental Biology (*Biologische Versuchsanstalt*), which were established in Vienna from 1900 onwards.

Even the social policy of “Red Vienna” – the capital’s nickname under its social democratic government (1918–1934) – granted more financial subsidies to party-affiliated associations than to learned societies, most of which were German national or German liberal in their political orientation. Although the socio-political reformers of “Red Vienna” were quite familiar with the bourgeois associations, from 1918 onwards hardly any of them were affiliated as members. For example, the anatomist and Social Democratic politician Julius TANDLER, who served as secretary of the Association for the Promotion of Scientific Research on the Adriatic Sea (*Verein zur Förderung der naturwissenschaftlichen Erforschung der Adria*) from its foundation in 1903 until the outbreak of the First World War, was not involved with any scientific society after 1918. At the same time, the scientific societies did not position themselves clearly in the intellectual landscape of capital or republic, which, at the association level, was increasingly polarised between socialist and Christian-social educational organisations. We can see similar developments in the case of the Geological Society, since, in technical matters, the young republic mainly referred to the state-funded Geological Survey. Although the societies continued to receive public support, the amount of support offered could not keep up with the hyperinflation of the 1920s and so was purely symbolic.

The changed political and financial conditions of the post-war period were accompanied by the erosion of the societies’ broader support basis; this consisted mostly of members of the upper middle class, who had by then lost their savings due to hyperinflation. Alongside economic damage, the destruction of bourgeois strongholds, traditions and values in the aftermath of World War One considerably undermined the groundwork of the associations. The demarcation processes within and between the societies (see above) had already weakened enthusiasm for the older, gentleman-scholar style of intellectual life by 1900, and the shifts arising from the outbreak of World War One further accelerated its decline.

This explains the success of the monopolising efforts of the more discipline-focussed university departments, whose professoriate took over the societies after 1900. The professors were familiar with the bourgeois-cosmopolitan style of scholarship, its virtues and forms of intellectual exchange, insofar as some of them came from this social background. Although the Viennese educated middle class was still welcome as lecture attendees, sponsors or witty interlocutors, its representatives were largely excluded from participating in research projects or publications. Although “non-professionals” were once again elected to the boards of the societies, this speaks more to the lack of interest of established scholars in holding such positions; by this point, the societies had lost their significance as publication organs. Thus, the younger researchers who dominated the discourse of the war years – such as KREBS, HASSINGER and WENINGER – hardly ever appear in the societies’ journals after 1918. From that point, professional scholars came to see the bourgeois associations as discipline-affiliated organisations, providing public support and funding, and as links to the international sphere, which was beginning to revive as congress culture was re-established.

A particular challenge for the societies was demarcation from other institutions that were also committed to the popularisation of science. Towards the end of the nineteenth century, alternative organisations for adult education and the dissemination of knowledge

had emerged in the capital, among them the “Vienna Popular Education Association” (*Wiener Volksbildungsverein*, 1887), the “Association for Extended Women’s Education” (*Verein für erweiterte Frauenbildung*, 1888), the “Vienna Urania” (1897) and the “People’s University” (*Volksuniversität*, 1901) (STIFTER 2005; TASCHWER 2005). Together with the social-democratic educational institutions established after World War One, these became strong competitors for the learned associations.

Providing a broad variety of lectures, classes, libraries and collections accessible to all, these new organisations were an essential part of the vibrant intellectual life in “Red Vienna” (STIFTER 2021). Their wide-ranging educational opportunities left the previous inclusion efforts of the scientific societies in the shade. While the former bourgeois associations continued to operate on the basis of bureaucratic organisation and a formal style of interaction (such as festive banquets), the new adult education facilities were built on decentralised structures, oral exchange of knowledge and low boundary-work. Their members, from the lower middle and working classes, made free and autonomous use of institutional resources. In their organisational framework, these new associations were mere public vehicles for the founding and running of large-scale educational facilities and programs. Less attention was paid to written cooperation agreements in the form of statutes, protocols and periodic general meetings. Instead, networking increasingly took place within private circles (such as the “Vienna Circle”) that were no longer based primarily on publicity and the binding nature of joint decisions.

In this context, the narrowing scope of many scientific associations that becomes evident at the turn of the century can be understood as a reaction to the prospering field of science popularisation. After the end of the war, their close ties with the university departments once again loosened. In 1921, the Geographical Society of Vienna moved to the building of the Military Geographical Institute, where it stayed until the annexation of Austria by Nazi Germany; meanwhile, the Geological Society moved its office to the Natural History Museum and discussed a potential merger with the Mineralogical Society (*Mineralogische Gesellschaft*).

The resumption of a lecture program for a general audience, excursions abroad and well-attended jubilee events all fostered public interest in the societies. However, the societies were largely unsuccessful in their attempts to revive their former public approach. Their publications almost exclusively contained articles by academically qualified scholars, and no joint projects involving “non-professionals” were launched. The scientific associations in the Austrian federal provinces, e.g. the Natural Scientific Medical Club (*Naturwissenschaftlich-Medizinischer Verein*) in Innsbruck, underwent a different development. Due to their interdisciplinary orientation and less competition with other institutions committed to the popularisation of science, they became lively hubs of intellectual life in these regions.

That the Vienna societies were finally able to continue their journal series was due to the support of individual donors. These donors compensated to some extent for the loss of state subsidies and membership fees with earmarked one-off payments for covering printing or event costs. While the Geographical Society was funded mainly by the Viennese banker Max WITROFSKY (1873–1944), the Geological Society was supported by the industrialists Julius KORITSCHONER (1891–1928) and Viktor WUTTE (1881–1962) and the Veitscher Magnesite Group. WITROFSKY, who made large annual donations to the Geographical Society



between 1921 and 1938, took over the Society's financial securities and offered better conditions than other Viennese banking houses (HASSINGER 1938). The Club of Geographers' proceedings, in turn, were financed – presumably on the recommendation of Richard von WETTSTEIN (1863–1931) – by the “Emergency Society for German and Austrian Science and Art” (New York) and the Stonborough-Wittgenstein family (PENALOZZA PATZAK 2018). These were among the most powerful research sponsors in Austria in the early 1920s. They provided substantial support, not only for publications and literature exchange with foreign countries, but also for projects and entire research facilities such as the Academy of Sciences and its institutes, and the Zoological-Botanical Society.

Even if these patrons had a rather limited influence on the programs of the societies, their disproportionate origin in the Jewish upper class of Vienna may explain why open expression of the anti-Semitism that was already subliminally present in the Geographical Society before World War One did not, apparently, become socially acceptable in the Society during the 1920s. As the meeting minutes from this period have not been preserved, it is not possible to reach a definitive conclusion.

However, social boundary-work was practiced more openly in the Club of Geographers, which was increasingly leaning in the direction of a ring-wing student fraternity. With the approval of BRÜCKNER and OBERHUMMER, the association introduced an “Aryan paragraph” into its statutes. This meant that “*only members of the German language tribe of Aryan descent [could] become full members [of the Club], while foreign-language speakers, provided they [were] of Aryan descent, [could] also be admitted to the association as associate members*”<sup>26)</sup> (LICHTENECKER 1926, p. 6).

This was not an exceptional occurrence. Individual sections of the Alpine clubs in the Habsburg Monarchy and Germany had introduced Aryan paragraphs as early as the 1890s, followed by the Vienna Academic Section (1907) and the majority of the other mountaineering associations in the aftermath of World War One (ACHRAINER 2009). In 1920, the umbrella organisation of Austrian and German student fraternities, the “Deutsche Burschenschaft”, also decided to stop accepting Jews as members. However, there was no “Aryan paragraph” in the statutes of the Academic Club of Geographers which was founded in 1928 as the successor to the then-dissolved Club of Geographers (cf. Wiener Akademischer Geographenverein 1928).

On the question of admitting women to their ranks, the Club of Geographers proved to be much more integrative. Female members, who constituted up to a third of the club's board, gave lectures and led excursions. It was certainly beneficial that these were university students or graduates from the doctorate in geography, thus circumventing the standard excuse of denying them the right of participation because they were laypeople. Despite its comparatively high proportion of female members in the early 1920s, the Geographical Society, in contrast, was much harder for women to access. Although female authors had their say in print and participated in excursions, the association did not elect women to board positions. The Geological Society displays similar decisions. While it employed

<sup>26)</sup> Original German version: “[...] ordentliche Mitglieder nur Angehörige des deutschen Sprachstammes arischer Abkunft werden können, während als außerordentliche Mitglieder auch Fremdsprachige, sofern sie arischer Abstammung sind, in den Verein aufgenommen werden können.”

an academically untrained staff member of the Natural History Museum, Lotte ADAMETZ (1879–1966), as secretary between 1914 and 1924, it did not allow her to become a full member until 1922. Step by step, boundary-work between professionals and non-academic scholars as well as gender demarcations had developed into boundary-work between researchers of different national and ethnic origin.

## 4.2 Border changes in Central Europe and the Societies' lost international stage

The ongoing, but largely unsuccessful international ambitions of the former Imperial-Royal societies, which stood in contradiction to their shrunken membership and isolated position within the changed national research landscape, illustrate the difficulties they faced. In the United Kingdom, geography was not established in schools and universities until 1914. Thus, the “gentleman-scholar” style of science, as practiced in the British Royal Geographical Society, still enjoyed greater credibility even around 1900, when its “sister organisations” in Central Europe had lost ground to university geography. Due to the lack of experts in state research institutions, the Royal Geographical Society was able to extend its influence during the war years. It formed a “*technical and cartographic annex to the War Office*” and was therefore of crucial importance to the leadership of the state (HEFFERNAN 1996, pp. 507, 509). In the Habsburg Empire, where cartography was mainly in the hands of public agencies, this task was performed by the Military Geographical Institute (since 1923 *Bundesamt für Eich- und Vermessungswesen*). At the time, this was one of the largest state-owned cartographic institutes in Europe.

Moreover, leading members of the French, British and American Geographical Societies, together with Serbian and Czech scholars, participated as experts in the Paris Peace Conference. As such, they contributed to the new border demarcations in Central and South-Eastern Europe (NEWBIGIN 1920; GYÖRI and WITHERS 2019). Among them was the geographer and geologist Jovan CVIJIĆ (1865–1927), a student of PENCK and SUESS who had obtained his doctorate in Vienna and was also a member of the Imperial-Royal Geographical Society between 1906 and 1915 (CRAMPTON 2006; MATTES, 2016). While the Geographical Society in Budapest greatly influenced the appointment of the Hungarian delegation at the Peace Conference, Robert SIEGER (1864–1926), the geographical advisor to the Austrian delegation, was not a board member of the Geographical Society in Vienna.

After the proclamation of the right of a people to self-determination in US-President WILSON's Fourteen Points, the Geographical Society still tried to defend the idea of a cooperative state held together by the unification of diverse forces. According to OBERHUMMER (1918, p. 235), not only “*units of peoples, but also geographical units must be combined; the borders must be drawn in such a way that they not only correspond to an ethnographic divide, but also guarantee a certain permanence by adapting to the natural landscape conditions*”<sup>27</sup>). When SIEGER's treatise “Territory and State Thought”

<sup>27</sup>) Original German version: “*Es gilt nicht nur Völkereinheiten, sondern auch geographische Einheiten zusammenzufassen, die Grenzen möglichst so zu ziehen, daß sie nicht nur einer ethnographischen Scheide entsprechen, sondern auch durch Anpassung an die natürlichen Bodenverhältnisse eine gewisse Dauerhaftigkeit verbürgen.*”

(“Staatsgebiet und Staatsgedanke”) (1919), a final evocation of the idea of a “unitary state” (“*Einheitsstaat*”) written in June 1918, was circulated by the Geographical Society, this was already water under the bridge.

Since the Austrian delegation at St. Germain was not allowed to bring its proposals forward orally, the language maps of the Habsburg Empire edited by Richard ENGELMANN (1919), a fellow of the Central Statistical Commission, could not be presented either. In contrast to the Hungarian Geographical Society, which was highly engaged with the Treaty of Trianon and openly opposed its regulations (GYÖRI and WITHERS 2019, p. 77), the publications of the Viennese associations contained surprisingly little open criticism.

Instead, they began to investigate the fragmentation of the Empire, both territorial and economic. As well as lectures and papers reporting on expeditions conducted before 1914, which were already to some extent outdated, the majority of essays dealt with the new borders, the geographical area of the country and the changes in its economic and political conditions (ENGELMANN 1920; HECKE 1920). Therefore, comparative economic-geographical studies (e.g., on sugar beet cultivation), ore deposit science and practical questions of resource extraction came to the fore (OBERHUMMER 1920). According to OBERHUMMER, the uneven distribution of agricultural land between the successor states of the Habsburg Empire, as shown on maps, implicitly demonstrated just how arbitrarily the borders had been drawn at the Paris Peace Conference (SVATEK 2015b; 2018). The limitation of the state’s territory led to an increased scientific preoccupation with its subsoil. This included studies on geomorphology, karst hydrology and speleology, which were frequently published in the societies’ journals during the 1920s.

The existence of new borders throughout Europe influenced the societies’ practices, strengthened scientific ties to Germany and separated the societies from their “sister organisations” in formerly hostile foreign countries. This was partly due to the decline in literature exchange, which was resumed after 1918 but did not return to its pre-war levels (Figure 3). Moreover, high currency inflation in Austria and Germany meant that the societies could not afford to purchase scientific literature from abroad. This in turn meant that the associations were largely dependent on book donations and literature exchange with German research institutions. In individual cases, such as a lecture by Carl DIENER at the Geological Society in 1921 entitled “Selection from the literature of formerly hostile foreign countries”, attempts were made to discuss the results of scientific literature written in languages other than German (Geologische Gesellschaft 1921, p. 275). Nevertheless, the isolation of the research landscape that began in 1914 only intensified further.

This situation was exacerbated by the fact that scholars from the Central Powers (“*Mittelmächte*”) were not invited to international congresses. The International Science Council (and the associated International Geographical Union), founded in Paris in 1918, did not allow the former Central Powers to join; the council’s statutes could not be changed until 1931, and its votes were unevenly distributed. Although the Geographical Societies in Vienna and Budapest, together with their governments, had been responsible for sending representatives to international conferences before 1914 and had even planned the International Geographical Congress in Vienna, they were no longer taken into account. That the Egyptian government officially invited the Viennese society to the International Geographical Congress held in Cairo in 1925, but subsequently withdrew its invitation after Egypt’s

admission to the International Science Council, was considered a grave insult (Bundesministerium für Unterricht 1924). As a consequence, the Geographical Society in Vienna strove for involvement in the Central Committee of the German Geographical Conference and joined a protest, supported by Albrecht PENCK, Wilhelm MEINARDUS (1867–1952) and the Society for Geography in Berlin, against the next international congress in Cambridge (HAUSHOFER 1928). In retrospect, this international policy of exclusion can, on the level of scientific organisation, be seen as the beginning of the annexation of Austria to the Third Reich, which took place under different political conditions in 1938.

## 5 Conclusion

The learned associations that were founded in the monarchy's capital during the second half of the nineteenth century were important agents of imperial science. In their programs, social composition and knowledge-based practices they created a political-spatial vision of unity and cooperation. In this way, they not only committed themselves to a supranational concept of the state, but also co-produced the geographies of science in which research was conducted. These societies drew their strength primarily not from financial resources but from community work, voluntary collaboration, and their adaptiveness to and instrumentalisation by political and societal demands. Their prominent social position endowed them with the ability to influence public opinion.

In international comparison, the k.k. Geographical Society – around 1900, the capital's largest scientific association – was a hybrid entity that aimed to balance bourgeois and state interests. As a mediator between society and the political elite, the Society became an important private-public interface, but it was not as closely tied to the government or the bourgeois upper class as its counterparts in Russia and Great Britain. Like other geographical and geological societies around the globe, however, the k.k. Geographical Society in Vienna provided a powerful infrastructure for the production, exchange and dissemination of scientific knowledge, thus helping the (supra)national state and its society to sustain their position in an increasingly globalised world. While the Geographical Society was successful in preventing political, social and disciplinary boundary work until the 1880s, the transformation of the research landscape on a national and international level posed a considerable challenge to its centralistic claims and unifying efforts.

Growing scientific and political demarcations between scholars with academic positions and “non-professionals”, on the one hand, and different nationalities on the other, were initially met with integrative efforts. From 1890 onwards, the rise of the universities as sites of research and teaching of scientific disciplines placed the societies under growing pressure and accelerated the decline of the older gentleman-scholar style of intellectual life. In some cases, these scholarly and social divisions led to fierce trench warfare within the societies and even the founding of competing organisations. At the same time, the integrative power of the societies was weakened by the emergence of alternative locations for the popularisation of science and the increase of language conflicts within the empire. By 1910 at the latest, most societies had become reliant on university departments and their staff and had lost a significant number of non-German-speaking

members from the crownlands and abroad. Similarly, in their lecture and publication series, they placed stronger and stronger emphasis on cultural differences and questions of demarcation.

While World War One brought an expansion of activities for some societies, for others it meant dissolution. The compromise between the bourgeoisie and the political elite that had shaped the societies' activities for decades, and which had already begun to weaken around 1900, was finally lost in the face of rapid political, economic and social change. After 1918, the crisis of bourgeois society manifested itself in the crisis of its scholarly culture, which was still dominated by the learned societies. "Red Vienna" was also engaged in science popularisation and adult education, bypassing the bourgeois societies in order to benefit the previously excluded working class. As a result, some of these societies became sites of political radicalism and German-nationalistic activity. Their scientific focus, too, turned towards Germany even as they continued to deal mainly with the territory of the former monarchy. Increasing polarisation between scholars from Vienna and the Austrian federal provinces caused a further reduction in membership and reduced the societies to the status of regional associations. These processes favoured the formation of alternative, exclusive circles and the establishment of social-democratic educational institutions that were no longer dedicated to the idea of a cooperative state.

### Acknowledgements

I would like to thank the team of the project "Brüche und Kontinuitäten – (Natur)wissenschaftliche Gesellschaften zwischen dem Ersten Weltkrieg und Roten Wien" [*Breaks and Continuities – (Natural) Scientific Societies Between the First World War and Red Vienna*] affiliated to the Austrian Academy of Sciences, particularly Sandra KLOS, Otilie MANEGOLD and Daniel GUNZ, who read and commented on this essay and provided many sources. Thanks are owed particularly to Gerhard FASCHING, Peter JORDAN and Helmut WOHLSCHLÄGL (Austrian Geographical Society), Thomas HOFMANN (Geological Survey of Austria), Peter KROIS (Austrian Geological Society), Thomas MAISEL (University of Vienna) and Stefan SIENELL (Austrian Academy of Sciences) for access to their archives.

I am also grateful for the constructive and enriching suggestions of six anonymous reviewers from Austria, Germany and the United States, who helped me considerably to improve the content of the manuscript, as well as Kirsty Jane FALCONER for copy-editing this paper. My special thanks go to the "Kulturabteilung der Stadt Wien (MA 7)" ("*Cultural Department of the Municipality of Vienna*") which financed this research project.

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