

DISTANCES CELESTIAL AND TERRESTRIAL.
MAXIMILIAN HELL'S ARCTIC EXPEDITION OF 1768–1769:
CONTEXTS AND RESPONSES

László Kontler*

The protagonist of this paper was one of the few scholars originating from the old Kingdom of Hungary who made a mark internationally in the field of natural sciences before the nineteenth century. His achievements, especially the ones directly arising from the expedition revisited below, have continued to be recognized by generations of posterior scientists as significantly contributing to the progress of knowledge. Small wonder then that the existing literature on Maximilian Hell belongs to one of two kinds, and in a few cases their combinations. On the one hand, in patriotic-laudatory treatments of his work (sometimes verging on the hagiographic) he has been hailed as a figure somewhat heroically defying a perceived marginality in order to advance mainstream Western science. On the other hand, his contributions have been assessed by the standards of a predominantly internalist history of science, on account of the accuracy of his measurements, or the peculiarities of instrumentation.¹

This study takes a different perspective on the subject, and relies on especially two relatively recent developments in the history of science.

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¹ A two-volume work devoted to “the memory of Maximilian Hell”, a host of relatively short Hungarian-language articles, and references in survey histories of Hungarian astronomy belong to the former, and some pieces of international (mainly Norwegian) scholarship to the latter category. See Ferenc Pinzger S.J., *Hell Miksa emlékezete* (Budapest 1920–1927), 2 vols.; Per Pippin Aspaas and Truls Lynne Hansen, *Maximilian Hell's Geomagnetic Observations in Norway 1769* (Tromsø 2005); Per Pippin Aspaas and Truls Lynne Hansen, ‘Geomagnetism by the North Pole, anno 1769: The Magnetic Observations of Maximilian Hell during His Venus Transit Expedition’, *Centaurus* 49 (2007), 138–164. The expedition also figures as an episode in Harry Woolf’s standard *The Transits of Venus: A Study of Eighteenth-Century Science* (Princeton 1959), as well as several more recent surveys, in no small measure occasioned by the 2004 transit. Eli Maor, *Venus in Transit* (Princeton 2004); William Sheehan and John Westfall, *The Transits of Venus* (Amherst 2004); Christophe Marlot, *Les Passages de Vénus: Histoire et observation d'un phénomène astronomique* (Paris 2004).

First, it owes a great deal to the challenges addressed to the “diffusionist” model of the spread of “Western” science and its rise to “universality”, mainly articulated in terms of “science and empire” studies and post-colonial studies,² but also relevant to the issue of the symbolic regional hierarchies arising from the differentials in the production of scientific knowledge in intra-European contexts. “Policentricity” has been one of the central concepts of these transformations. We have been advised to take notice of the complex processes of negotiation and accommodation, and the mutual (though asymmetric) participation of agents from both sides of the divide in the American, South- and East-Asian “contact zones” between European and other systems and corpuses of knowledge. As a result, the relationship between such “knowledges” is increasingly being defined not in terms of deficit but difference: it has been suggested that the failure or difficulty of a system of knowledge to take hold in a certain locality is best explained by reference not to the backwardness or deficiency in the target culture, but by uncovering the local intellectual-social interests that stand to lose or gain from it.³ In this sense, Europe’s internal peripheries, in particular Central, Eastern and Southeastern Europe, are just as much in need of overcoming their own “Basalla model” of diffusion⁴ and (truncated) reception, and of turning around the traditional question guiding histories of cultural and intellectual encounter between them and the “more happy” regions of the old continent. Instead of inquiring into the obstacles of the local dissemination and appropriation of cultural goods, assembled from local sources but certified as “global” knowledge in the metropolitan centres (and finding those obstacles in

² Important earlier pieces of the now vast literature include Roy MacLeod and Philip F. Rehbock (eds.), *Nature in Its Greatest Extent: Western Science in the Pacific* (Honolulu 1988); John Mackenzie (ed.), *Imperialism and the Natural World* (Manchester 1990); Patrick Petitjean, Catherine Jami and Anne-Marie Moulin (eds.), *Science and Empires: Historical Studies about Scientific Development and European Expansion* (Dordrecht 1992); David Philip Miller and Peter Hanns Reill (eds.), *Visions of Empire. Voyages, Botany, and Representations of Nature* (Cambridge 1996); Benedikt Stuchtey (ed.), *Science Across the European Empires, 1800–1950* (Oxford 2005).

³ See e.g. David Wade Chambers and Richard Gillespie, ‘Locality in the History of Science: Colonial Science, Technoscience, and Indigeneous Knowledge’, in Roy MacLeod (ed.), *Nature and Empire: Science and the Colonial Enterprise* (Chicago 2000), 221–240; Kapil Raj, *Relocating Modern Science. Circulation and the Construction of Scientific Knowledge in South Asia and Europe* (Delhi 2006); Harold Cook, *Matters of Exchange. Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven 2007); James Delbourgo and Nicholas Dew (eds.), *Science and Empire in the Atlantic World* (London 2008); Neil Safier, *Measuring the New World. Enlightenment Science and South America* (Chicago 2008).

⁴ As developed in George Basalla, ‘The Spread of Western Science’, *Science* 165 (1967), 156 and 611–622.

socio-economic backwardness and an inadequate intellectual environment), it looks more instructive to explore the local conditions of selecting from such “global” knowledge—a perspective in which the notion of historical agency assumes new significance.

Agency is indeed also crucial to the second development by which the current investigation is informed: the now widespread concern with the history of science not as the evolution of bodies of specialized disciplinary knowledge, but as a set of social and cultural practices thoroughly embedded in contexts that lay very substantially outside the domain of science itself.⁵ The recognition that the belongings, loyalties and agendas of the practitioners of science depend on such contexts, and that their achievements have implications way beyond the augmentation of scientific knowledge, leads to a better and richer understanding of what actually *happens* in the production of knowledge as a process. In particular, the intertwining of “big science” with “big business” and “big government” has been posited and explored by historians of science with great vigour. Yet, our grasp on the complexity of such intertwinings, and especially the contingencies involved in the coalescence of apparently unrelated contexts in the production of knowledge, is still capable of further refinement. In this paper I hope to show that the study of the Hell expedition of 1768–1769, especially in regard of the complexity of its endeavours and the divergence of the responses to it, is a suitable means of providing such refinements by telling a story that highlights the contingencies which shaped the nature of knowledge production in the Enlightenment. The expedition will be examined as an instance of scientific self-fashioning by *savants* from the geographical margins of learned Europe in a highly variegated context which consisted of the forging of identities on personal-professional, national as well as global scales, of broader processes of European expansion and exploration both in distant territories and in internal borderlands, of a peculiar type of transnational collaboration in eighteenth-century field science, of trans-confessional exchange, of stately self-assertion on the part of a Scandinavian kingdom, and of political conflict in a Central European composite monarchy.⁶

⁵ Select studies include Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Cambridge 1987); Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago 1994); William Clark, Jan Golinski and Simon Schaffer (eds.), *The Sciences in Enlightened Europe* (Chicago and London 1999).

⁶ Neither the space available here, nor the early stage of this research allows me to consider the equally important questions of the material practices implied by fieldwork, or the “native voices” which may be detected in the record of the expedition. Such aspects

CONTEXTS: GLOBAL SCIENTIFIC TRAVEL AND LOCAL POLITICAL CONFLICT

Most immediately, the expedition was occasioned by an invitation to Hell by Christian VII, King of Denmark-Norway, to lead an expedition beyond the Arctic Circle to observe the transit of Venus across the solar disc, expected to occur in the summer of 1769. The passages of Venus across the Sun's disc in 1761 and 1769 had been forecasted as pivotal events in the eighteenth-century history of astronomy by Edmond Halley,⁷ who suggested that through observations of the transit from widely separated sites it would be possible to record small variations, and in this way the distance between the Sun and the Earth could be calculated. The stake of these observations would be, then, the very dimensions of the solar system and the place of the Earth in it, which, despite the improvement in the methods of establishing the movement of the planets thanks to the Newtonian theory of gravitation and mechanics, was still a matter of considerable uncertainty. Hell was accompanied by János Sajnovics, an astronomer and a Jesuit like himself, but specifically commissioned to inquire into the Sámi (Lappian) language and thus to test on empirical material the alleged kinship between it and Hungarian—a matter of assigning “place” on a different scale, this time for human populations on the symbolic map of mankind.

Looking at the contexts I am interested in, the widest, indeed truly global one among them is certainly the “maritime cold war” emerging on the distant waters of the Pacific Ocean, subsequent to the conclusion of the first of “world wars” (otherwise known as the Seven Years' War) by the Treaty of Paris. Captain Cook's first voyage of exploration, also commissioned to observe the transit and already under serious planning when the invitation was delivered to Hell in the autumn of 1767, was only the most salient among several facets of this geopolitical enterprise whose goal was

of scientific travel are now rightly becoming a preoccupation for scholars, see e.g. Safier 2008 (note 3).

⁷ Edmond Halley, ‘Methodus singularis quâ Solis Parallaxis sive distantia à Terra, ope Veneris intra Solem conspiciendæ, tuto determinari poterit’, *Philosophical Transactions [of the Royal Society of London], Giving Some Account of the Present Undertakings, Studies, and Labours of the Ingenious, in Many Considerable Parts of the World* 29 (1714/16), 454–464 (no. 348). Halley's account was based on a paper read before the Royal Society already in 1691, itself based on ideas conceived during his observation of the transit of Mercury at the island of St. Helena in 1677.

to ensure naval dominance through the establishment of naval bases and supply stations.⁸

Closer home, the contexts also include the recent return to Copenhagen of Carsten Niebuhr as the sole survivor from an expedition of a group of distinguished German and Danish scholars in Arabia Felix (more or less, modern-day Yemen). Prompted by the famous Göttingen biblical scholar Johann David Michaelis, built around cosmopolitan figures and taking place against a background of international scientific communication, but enjoying the enthusiastic sponsorship of Christian VII's predecessor Frederick V, this undertaking aimed to chart the natural history, geography and history of the territory by collecting documents and specimens for the greater enlightenment of the world and the greater glory of the Danish Crown.⁹

Shortly after Niebuhr's return and almost simultaneously with Cook's and Hell's embarking on their respective journeys, still in 1768, Johann Eberhard Fischer, another German scholar at that time related to Göttingen, but in his earlier career recruited to Russia as the secretary of the second Kamchatka (or "Bering") expedition between 1733–1743 (himself involved in the fieldwork from 1740), completed and published his two-volume *Sibirische Geschichte von der Entdeckung Sibiriens bis auf die Eroberung dieses Landes durch die Russische Waffen* in Saint Petersburg. Fischer's book reiterated and further contextualized the claim already made in the same author's *De origine Ungrorum* (1756, published 1770) that the Hungarians are a Finno-Ugrian people, and soon became a reference work in German academic circles.¹⁰

⁸ Scientific travel was promoted by its practitioners with reference to the prestige it earned for Britain as an aristocratic state, the commercial gains brought for her as the world's leading trading nation, as well as the strategic advantage it secured for her as a colonial power. For an exploration of these themes, see John Gascoigne, *Science in the Service of Empire. Joseph Banks, the British State and the Uses of Science in the Age of Revolution* (Cambridge 1995), especially chapters 3, 5 and 7.

⁹ On the trials and accomplishments of the expedition, see Thorkild Hansen, *Arabia Felix: The Danish Expedition of 1761–1767* (London 1964). See also the interesting comparative analysis in Han F. Vermeulen, 'Anthropology in Colonial Contexts: The Second Kamchatka Expedition (1733–1743) and the Danish-German Arabia Expedition (1761–1767)', in Jan van Bremen and Akitoshi Shimizu (eds.), *Anthropology and Colonialism in Asia and Oceania* (Richmond 1999), 13–39.

¹⁰ Fischer's role is usually understood as subsidiary to the better known German scholars recruited for the expedition, the naturalist Johann Georg Gmelin and especially the historian Gerhard Friedrich Müller. He is also recognized as having written at the request of August Ludvig Schlözer the *Vocabularium Sibiricum* (1747), deposited in manuscript as

To such practical and intellectual contexts of the Hell expedition, we may add a thoroughly public-political one: the estrangement between the Viennese court and the Hungarian nobility in the aftermath of the meeting of the Hungarian diet in 1764–1765. At this assembly the Hungarian estates, jealous of their privileges, but also infuriated by a series of publications apparently commissioned by the government and directly challenging those privileges, refused the ruler's demand for increased war tax, a general overhaul of the entire system of taxation, and military reform at their own expense. In response, Maria Theresa's government decided to implement its plan of abandoning the dialogue with the estates, and neglecting the diet in its future pursuit of the much needed reforms.¹¹

MAXIMILIAN HELL: FROM UPPER HUNGARY VIA VIENNA TO THE ARCTIC

Before exploring the expedition and its various astronomical and linguistic-ethnographic results against each of these backgrounds, it will be helpful to survey Hell's rise and career as a scholar of international distinction prior to the invitation received from the Danish king.

Maximilian Hell (born as Höll, 1720–1792) was the scion of a family of mining experts of German descent, from Selmečbánya (Slo. Banská Štiavnica, Ger. Schemnitz), a small but prosperous mining town in Northern Hungary (now Slovakia). Having graduated from the local gymnasium, he joined the Society of Jesus in 1738. He spent his novice years in Trenčsén (Slo. Trenčín), and then in 1741 he moved on to study philosophy, natural sciences and mathematics (a few years later also theology) in Vienna. He began publishing on mathematical and astronomical subjects in 1744. He was ordained in 1751. While being, from 1745, a gymnasium teacher in various towns first in his home region and then at Kolozsvár (Rom. Cluj, Ger. Klausenburg) in Transylvania, he participated in the planning and directed the construction and equipment of several observatories in the country (Nagyszombat [Slo. Trnava, Ger. Tyrnau], Kolozsvár, Eger and

a gift in the Historical Institute in Göttingen, to be used extensively by later scholars there. The literature on Fischer is meagre, but see passing references in Vermeulen 1999 (note 9), 22–25; Yuri Slezkine, 'Naturalists versus Nations: 18th-Century Russian Scholars Confront Ethnic Diversity', *Representations* 47 (1994), 170–195; 186–187. For the Kamchatka expeditions in the context of eighteenth-century Russian voyages of discovery, see Erich Donnert, *Russia in the Age of Enlightenment* (original German edn. 1983, Leipzig 1986), 95–114.

¹¹ Robert J.W. Evans, 'Maria Theresa and Hungary', in Hamish M. Scott (ed.), *Enlightened Absolutism. Reform and Reformers in Eighteenth-Century Europe* (London 1990), 189–207.

Buda). In 1755, already a scholar of some reputation, Hell moved back to Vienna, this time appointed by Maria Theresa as imperial and royal astronomer. The diverse activities which he performed in his new position with a keen sense of calling included the creation, maintenance and improvement of the equipment of a new university observatory (besides the already existing Jesuit one); lecturing at the university; editing (actually, for the most part, writing) the unique periodical *Ephemerides Astronomicae ad Meridianum Vindobonensem* and publishing in it findings that were extensively utilized by the imperial authorities for the purposes of geodetic surveys and mapping. These aspects of his work helped him develop contacts with the foremost astronomers of the age, and earned him international recognition, especially on account of the accuracy of his astronomical observations. The 1768–1769 expedition was thus the crowning achievement of a carefully built career. But the suppression of the Jesuit order in 1773 deprived Hell of a considerable amount of leverage in terms of financial support and intellectual ambience. As a secular priest and a professor he still continued to exert a many-sided scientific activity which embraced, besides astronomy, also physics, geography, history and ethnography. The *Ephemerides* also continued to his death in 1792. Apart from the Arctic expedition, today he is mainly remembered on account of his contributions to the study of electricity, astrometrics and magnetism, and his method for the measuring of geographic longitude.

Already during the 1761 transit of Venus, Hell and his staff (supplemented by a few prestigious guests) made observations, and gave an account in the *Transitus Veneris ante discum Solis anni 1761*. For our present purposes, however, more interesting is another piece by Hell, combining the inferences from his 1761 observations with those he had made earlier, in an attempt to contribute to the much debated issue whether Venus had a satellite.¹² The argument of the little treatise *De satellite Veneris* (Vienna 1765) is based on a simple statement, supported by minute analysis, about the properties of telescopes of various systems: each of them produce reflections and thus “pretty little optical errors” or “illusions”, so what seems a satellite may not exist at all.¹³ This argument is not, in the first place, mounted in order to *refute* the existence of the satellite but to insist on the *sine qua non* of all empirical science: that

¹² On this subject, see Helge Kragh, *The Moon that Wasn't* (Basel 2008), chapter 4.2 (for Hell's contribution).

¹³ Maximilian Hell, *De satellite Veneris* (Vienna 1765), 13.



Fig. 1. Johann Elias Haid: The astronomer Maximilian Hell, mezzotint, 1771. Staats- und Stadtbibliothek Augsburg.

experiments must be repeated with the same instruments among exactly the same conditions. What is perhaps even more noteworthy is the manner of address and tone of the treatise. An initial name-dropping is undoubtedly intended to locate the author in the august company of colleagues such as the “famous” (Pehr Wilhelm Wargentin, secretary of the Royal Swedish Academy of Sciences and the organizer of the Swedish Venus expeditions of 1761 and 1769); the French “comet hunter” (Charles Messier) and the “brilliant” (the geophysicist Jean-Jacques Dortous de Mairan), some of them identified as his “intimate friends” (Nicolas-Louis de la Caille) or simply as “our father” (Joseph Louis La Grange—actually sixteen years Hell’s junior, but already recognized as one of the greatest mathematicians of the age), with all of whom he maintains a mutually inspiring correspondence and who have proved themselves to be a captive audience for his corrections of their research results.¹⁴ This might well create an aura of presumptuousness, were it not for the tone of elegant, subtle irony in Hell’s addressing the celebrities who are his putative interlocutors: a tone not of upstart self-exertion, but one of dignified self-confidence on the part of a scholar who, while arising from somewhat obscure origins, is firmly aware of his status on the map of contemporary learning.

The invitation from the King of Denmark-Norway to lead the most prestigious of three Copenhagen-sponsored transit expeditions in 1769, delivered to Hell by the Danish Ambassador Count Bachow on 5 September 1767, is further evidence that such manners did not arise from mere self-conceit. From Hell’s point of view, the invitation, though unexpected, was not only “worthy of [his] soul born for the obtaining of merit in the realm of the sciences”,¹⁵ but indeed a golden opportunity. As he confessed in the address to “the astronomers” at the outset of his *Observatio transitus Veneris ante discum Solis die 3 junii anno 1769* (Copenhagen 1770; also printed in the Lepizig-based *Nova Acta Eruditorum* in 1770, and in the *Ephemerides* in 1771), in 1767 he would never have contemplated leaving his post in Vienna for the sake of the observation, and would have been content to rely on the results of others in doing his own calculations.¹⁶ He had good reason for this resignation. Hell was well aware that in Vienna the passage, taking place at European longitudes in the middle of the night,

¹⁴ Ibid., 6 and 13.

¹⁵ Maximilian Hell, *Observatio transitus Veneris ante discum Solis die 3 junii anno 1769* . . . (Copenhagen 1770), 1.

¹⁶ Ibid.

was hardly visible at all. But he was a Jesuit: one of the roughly 900 brethren still active in the Kingdom of Hungary a decade after the demise of the order started with its banishment from Portugal, and just a few years before the “*Dominus ac Redemptor noster*” brief issued by Clemens XIV in 1773 announced its suppression. While even at this late moment, thanks to their traditions of learning, discipline, sense of purpose and organization, their presence on the map of knowledge and power in the Habsburg Monarchy was visible well beyond their sheer number, it must have been clear to Hell that as a member of the order his chances of travelling to the realm of the Midnight Sun were as meagre as seeing anything of the transit in the Austrian capital: the northern Protestant kingdoms imposed severe restrictions on Catholics, and Jesuits were normally not allowed to enter at all. The royal invitation, of course, all of a sudden cancelled such restrictions for Hell, who did not need to think twice: already on 7 September 1767, Bachow reported that imperial and royal assent pending, Hell was ready to prepare for the journey to Vardø.¹⁷

The amount of diplomatic correspondence around the plans and later the journey itself demonstrates the extent to which it was regarded as an affair of state in Copenhagen as well as Vienna. Maria Theresa, on her side, seems to have clearly realized that Hell’s release would boost the reputation of her court and the university. There was, of course, another party to the deal. While the French and the British played a dominant role in the Venus activities throughout the 1760s, especially in regard of the geographic peculiarities of the undertaking it is no wonder that the Scandinavian kingdoms—Sweden, beyond its zenith of political and military might, and Denmark-Norway, never a first rank European power—were ambitious to contribute and to reap laurels. It has been argued that “Linnean empire”—the symbolic ordering of the world through the elaborate taxonomical system developed by the famous botanist Carl Linné (Linnaeus), capable of embracing the whole of creation, and the attempt of the practical application of this system to the domestication of crops and species within the confined boundaries of Sweden—was an endeavour to create a “local modernity” and an enlightened counterpart to the

¹⁷ For the details of the journey, I have relied on the record in Sajnovics’ journal of the expedition, published in German translation in Carl Ludwig Littrow, *P. Hell’s Reise nach Wardoe bei Lappland und seine Beobachtung des Venus Durchgangs im Jahre 1769* (Wien 1835), 87–166. See also Aspaas and Hansen 2005 (note 1), 7ff.

erstwhile greatness of Gustavus Adolphus and Charles XII.¹⁸ In a similar fashion, the explorations sponsored by the Danish Crown were intended to raise a stock of cultural capital that would place the country on the map of learning and thus increase national reputation.¹⁹ In a different perspective, Hell's expedition was a reverse of the cases of "scientific hitch-hiking" which took dozens of eighteenth-century Scandinavian scholars under British, Dutch, Russian, Spanish and other sails to the waters of the Pacific and the forests of Amazonia—but the agenda and the yields were not different.

The team that traversed Arabia Felix satisfied such ambitions to a remarkable extent. This was an enterprise in which an aura of internationalism and stately self-promotion quite smoothly reinforced each other. The expedition, mobilizing Danish scholars as well as Swedes born in Finland and educated in Göttingen, and Germans who studied in Copenhagen, was to receive a research agenda—questions—from learned institutions, such as the Académie des Inscriptions et des belles Lettres of Paris, across Europe. But the answers to these questions, together with the objectifiable results—sketches, drawings, charts, manuscripts, natural specimens—and thus the sum of the knowledge culled by the expedition was to be sent to and deposited in Copenhagen (the royal library in particular). Altogether, these are unmistakably the building blocks of a coherent project organized around the recognition that science possesses the capacity of conferring status on the international scene.²⁰ For a Scandinavian kingdom, the uncharted and unwelcoming territories of the North offered unbounded, quasi-domestic opportunities to cultivate aspirations arising from this recognition.

The Venus observation attempts of 1761 in Trondheim and Copenhagen were a failure to the extent that they even got ridiculed.²¹ (This was not without ground: while in Trondheim the weather was mainly to blame, in Copenhagen the observers were simply unable to keep correct track of the

¹⁸ Lisbet Koerner, 'Purposes of Linnean Travel: A Preliminary Research Report', in Miller and Reill 1996 (note 2), 117–152; id., 'Linnaeus' Floral Transplants', *Representations* 47 (1994), 144–169; and more comprehensively id., *Linnaeus: Nature and Nation* (Cambridge and London 1999).

¹⁹ Sverker Sörlin, 'Ordering the World for Europe: Science as Intelligence and Information as Seen from the Northern Periphery', in Roy MacLeod (ed.), *Nature and Empire: Science and the Colonial Enterprise* (Chicago 2000), 65–67.

²⁰ *Ibid.*

²¹ Claus Thykier, Kjeld Gyldenkerne and Per Barner Darnell, *Dansk Astronomi Gennem Firehunderde År* [Four-Hundred Years of Danish Astronomy] (Copenhagen 1990), ii. 251–252, cited in Aspaas and Hansen 2005 (note 1), 5.

time. In fact, two out of the three Danish expeditions launched in 1769, the exception being that of Hell, also became thwarted by bad weather.) It was decided that in 1769 no mistake was to be made: better locations were to be chosen and real experts recruited, even if the price was setting aside confessional scruples.²² Hell having accepted the invitation, decided to take along his assistant at the observatory of Vienna, another Jesuit, János Sajnovics (as well as a servant and a dog). But having had an audience with Christian VII at Travental in Holstein and subsequently reached Trondheim by the end of July 1768, they were also joined there by Jens Finne Borchgrevink, a young disciple of Linnaeus. Perhaps more interestingly, Borchgrevink was also a favourite of Bishop Johann Ernst Gunnarus of Nidaros (Northern Norway) and, from 1771 onwards, a Lutheran priest himself. His role in the expedition, which thus became not only international but also inter-confessional, was to be that of a scientific assistant as well as translator and “local guide”.

ASTRONOMICAL OBSERVATIONS AT VARDØ AND ELSEWHERE:
ONE FOR ALL, ALL FOR ONE?

At the same time, both in regard of its patronage and its composition, the expedition coordinated by Hell was a counterpart of several dozens of similar ones taking place simultaneously all around the northern hemisphere, and a microcosmic version of what they, taken together, constituted: a gigantic international enterprise of eighteenth-century field science. This project of national-stately self-assertion through royal-governmental patronage to an expedition likely to earn prestige, inevitably had to be embedded in a thoroughly cosmopolitan context, and from the perspective of the participating individual scholars and teams the emulative drive had to be tempered by a sense of collegiality, while the lofty ideal of harmonious collaboration for the shared purpose of the advancement of knowledge was qualified by several realities.²³ In many ways, the

²² The exact reasons for the selection of Hell, rather than any other of the numerous renowned astronomers of the age, by the Danish government, are central to our understanding of his scientific credentials as well as the contexts and motivations of decision-making in matters of patronage. The issue needs careful further consideration.

²³ We have been reminded of the tension between such ideals and realities in the republic of letters (and of science), among others, by Lorraine Daston, ‘The Ideal and Reality of the Republic of Letters in the Enlightenment’, *Science in Context* 4 (1991), 367–386; Adrian Johns, ‘The Ideal of Scientific Collaboration: The “Man of Science” and the Diffu-

complexities of knowledge production were not unlike those involved in any other set of contemporary communicative practices that could be modeled after the then relatively newly discovered experience of the market, which depended on the maximization of one's profit through satisfying the needs of one's partners. Responding to Rousseau, who claimed that man's natural state was independence arising from one's ability fully to provide for the necessities of life, it was exactly in the 1760s and 1770s that Adam Smith worked out his highly influential anthropology of commercial *and* sociable man.

In almost every other race of animals each individual, when it is grown to maturity, is intirely [sic] independent, and in its natural state has no occasion for the assistance of no other living creature. But man has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour, and shew them that it is for their own advantage to do for him what he requires from them.²⁴

Whether at the market place, the stock exchange, the coffee-house, the assembly room or the academy, men and women were in the first place seeking their own good. But what they coveted—a fair price, a good conversation, the applause and admiration of fine society, or recognition for scientific achievement—was understood as a matter of giving as well as taking. For in the course of such exchanges, each of the parties felt that their own interests were best served if they placed themselves in the position of the others, applying the faculty of empathy to perceive *their* interest in the transaction. Such encounters, whose sum total is the everyday reality of commercial modernity, are so many successive steps in refining our sense and willingness to apply our ability to pass critical judgement on the “characters and conduct of other people” to ourselves, and thus in becoming sociable and moral agents. “We suppose ourselves the spectators of our own behaviour, and endeavour to imagine what effect it would, in this light, produce upon us. This is the only looking-glass by which we can, in some measure, with the eyes of other people, scrutinize our own conduct.”²⁵

sion of Knowledge’, in Hans Bots and Françoise Waquet (eds.), *Commercium Litterarium. Forms of Communication in the Republic of Letters* (Amsterdam 1994), 3–22.

²⁴ Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. by R.H. Campbell and A.S. Skinner (Indianapolis 1981), 2 vols., I: 26.

²⁵ Adam Smith, *The Theory of Moral Sentiments*, ed. by D.D. Raphael and A.L. Macfie (Indianapolis 1982), 112.

Kant was to call *ungesellige Geselligkeit*, unsocial sociability, the paradoxical disposition of fellow feeling arising precisely out of a reasonable and enlightened self-regard.²⁶ Natural philosophy or the “new science” was no exception. On the contrary, it could be easily understood as a social realm in which personal vanity and ambition almost imperceptibly collapsed into and drew mutual reinforcement from one another with an ethics of service to mankind through the production of useful knowledge. Even among the numerous instances on which this could be demonstrated, the Venus transit represents a liminal case. This arose from the nature of the task and the stakes, already hinted in the introduction: as the ultimate goal, the establishment of the distance between the Sun and the Earth, could be achieved only by the collation of data from widely scattered sites in which the shifts of the crossing were recorded, success depended on international cooperation and the sharing of research results on an unprecedented scale. Already in 1761, about 124 observers were involved at 65 different places. The results being unsatisfactory, the number of observational posts increased to 76 by 1769.²⁷ The most famous expedition assigned, among many other tasks, to observe the 1769 transit of Venus, was undoubtedly that of James Cook, the location in this case being the island of Tahiti. Cook’s 1768–1771 circumnavigation, of which the transit observation was to be a principal episode, was also paradigmatic in the sense that it perhaps most colourfully represented the hardly precedented scale of cross-disciplinary effort manifest in the ventures: astronomical-geographical-cartographic measurement was to be accompanied with the collection of botanical, zoological and mineralogical specimens as well as cultural, historical and anthropological inquiry into the customs and manners, institutional and religious practices etc. of the natives inhabiting the lands hitherto unexplored by Europeans.²⁸ But Cook’s venture was only one, albeit the most complex and for obvious reasons the best

²⁶ For important reconstructions of this tradition of thought, see Richard Tuck, *Philosophy and Government, 1572–1651* (Cambridge 1993); Knud Haakonssen, *Natural Law and Moral Philosophy. From Grotius to the Scottish Enlightenment* (Cambridge 1996).

²⁷ For a full list of the observation posts and the observers (as well as their instruments and sponsors) from both 1761 and 1769, see Woolf 1959 (note 1), 135–140 and 182–187.

²⁸ The complex cross-disciplinary effort of the voyage is well documented in the vast literature on Cook and the Pacific since the 1980s. On the strictly astronomical aspects, see Richard van der Riet Woolley, ‘The Significance of the Transit of Venus’, in Geoffrey M. Badger (ed.), *Captain Cook: Navigator and Scientist* (Canberra 1970), 118–135; Wayne Orchiston, ‘From the South Seas to the Sun: The Astronomy of Cook’s Voyages’, in Marguerite Lincoln (ed.), *Science and Exploration in the Pacific: European Voyages to the Southern Ocean in the Eighteenth Century* (Woodbridge 1998), 55–72.

known, among many, the others differing from it in scale rather than kind, whether they took place in the Pacific, in California, at the Hudson Bay in Canada, in Scandinavia or in the Kola Peninsula in North-West Russia.²⁹ The many dozens of Britons, Frenchmen, Russians and others were supposed to send the data they collected to the Académie royal des sciences in Paris, where the French astronomer Joseph Jérôme de Lalande was to synthesize the results.

At the same time, in an age increasingly marked by a competition of military and mercantile strategies on a global scale—processes known by shorthand terms like imperialism and colonialism—such incentives to collaboration and collegiality were not only checked by the individual emulation and jealousy of the participating scholars (one instance of which I shall briefly glance at). The nowadays often mentioned link between knowledge and power is poignantly illustrated by the shifting boundary between the notions of curiosity and interest,³⁰ both of them so central to the understanding of what the “new science” was about since Francis Bacon. The mastery over resources, territories and populations became understood and explained as a matter of cognitive appropriation: exploring, observing, measuring, understanding and classifying was seen as resulting, in a very profound and complex sense, in possessing. For a maritime and mercantile great power like Britain, astronomic observation, the calculation of the solar parallax and the resulting assessment of the distance between the Sun and the Earth, was also a matter of defining latitudes and longitudes, in other words, distances on the surface of the Earth, thus the time needed to reach one point from another, with greater precision—which in turn was crucial for securing supply lines in an increasingly intense race for the control and management of global resources. Cook’s expedition was, after all, an enterprise instigated and

²⁹ On the fortunes and achievements of some of these teams, see Woolf 1959 (note 1), passim; Helen Sawyer Hogg, ‘Out of Old Books: The 1769 Transit of Venus, as Seen from Canada’, *Journal of the Royal Astronomical Society of Canada* 41 (1947), 319–326; id., ‘Out of Old Books: Le Gentil and the Transits of Venus, 1761 and 1769’, *Journal of the Royal Astronomical Society of Canada* 45 (1951), 37–44, 89–92, 127–134 and 173–178; Angus Armitage, ‘Chappe d’Auteroche: A Pathfinder for Astronomy’, *Annals of Science* 10 (1954), 277–293; Doyce B. Nunis (ed.), *The 1769 Transit of Venus: The Baja California Observations of Jean-Baptiste Chappe d’Auteroche, Vicente de Doz, and Joaquín Velázquez Cárdenas de León* (Los Angeles 1982); Don Metz, ‘William Wales and the 1769 Transit of Venus: Puzzle Solving and the Determination of the Astronomical Unit’, *Science and Education* 18 (2009), 581–592.

³⁰ However, we are also reminded of the potentially dichotomous character of these two concepts. Simon Schaffer, ‘Visions of Empire: Afterword’, in Miller and Reill 1996 (note 2), 335–336, commenting on some of the literature.

sponsored by the British Admiralty, a fact that speaks for itself. It is through the admixture of the element of rivalry to that of negotiation that the transit observations of 1769 present a tangible instance of the mechanisms of operation in the enlightened republic of letters as an “echo chamber”.³¹

The German-Hungarian astronomer Hell’s expedition on Danish-Norwegian support to Vardø beyond the Arctic Circle was no exception from these qualities of the transit-enterprise of 1769: while on a scale different from the case of the British and the French, considerations of power and prestige were undoubtedly involved. Before moving on to the equally present cross-disciplinary aspects, let me briefly concentrate on the astronomical results and their afterlife devoted to often heated exchanges (later also leading to insinuations of falsification, which harmed Hell’s reputation for nearly a century).³²

Although Hell had ambitious plans for publishing the results of the expedition—a richly illustrated three-volume *Expeditio litteraria ad Polum Arcticum*, consisting of a “historical”, a “physical” and a “mathematical-astronomical” volume, described in some detail in a call for subscriptions (*Nova Acta Eruditorum*, Leipzig 1770)³³—, these plans never materialized, in no small measure because of the loss of resources at Hell’s disposal soon after his return to Vienna, caused by the suppression of the Jesuit Order. The accounts that we have appeared in a few separate pieces in the *Ephemerides* over the more than twenty-year period between the journey and his death in 1792, or remain in manuscript. The published articles address the subject of the geographic latitudes of certain locations in the north of Norway and Sweden, some meteorological features of the same territories, the theory of *aurora borealis*, and—crucially—the solar parallax.³⁴ The *Observatio* of 1770 is significant not only on account of

³¹ Lorraine Daston, ‘Afterword: The Ethos of Enlightenment’, in Clark, Golinski and Schaffer 1999 (note 5), 495–504.

³² The charges, put most forcefully by Carl Ludwig Littrow several decades after Hell’s death, and the subsequent vindication of Hell by the American astronomer Simon Newcombe yet another half century later, are standard parts of the Hell saga but are of little concern to this study. See, however, George Sarton, ‘Vindication of Father Hell’, *Isis* 35 (1944), 97–105.

³³ Maximilian Hell, ‘Expeditio Litteraria ad Polum Arcticum, in tres divisa Tomos, quorum primus Historicus, secundus Physicus, tertius Mathematicus et Astronomicus’, *Nova Acta Eruditorum*... Anno MDCCLXX, 427–432.

³⁴ ‘Observatio transitus Veneris ante discum Solis die 3 junii anno 1769’ (1771) (previously, in Copenhagen, 1770, see note 15); ‘De Parallaxi Solis ex Observationibus Transitus Veneris Anni 1769’ (1772); ‘Supplementum Dissertationis de Parallaxi Solis’ (1773); ‘Auroræ

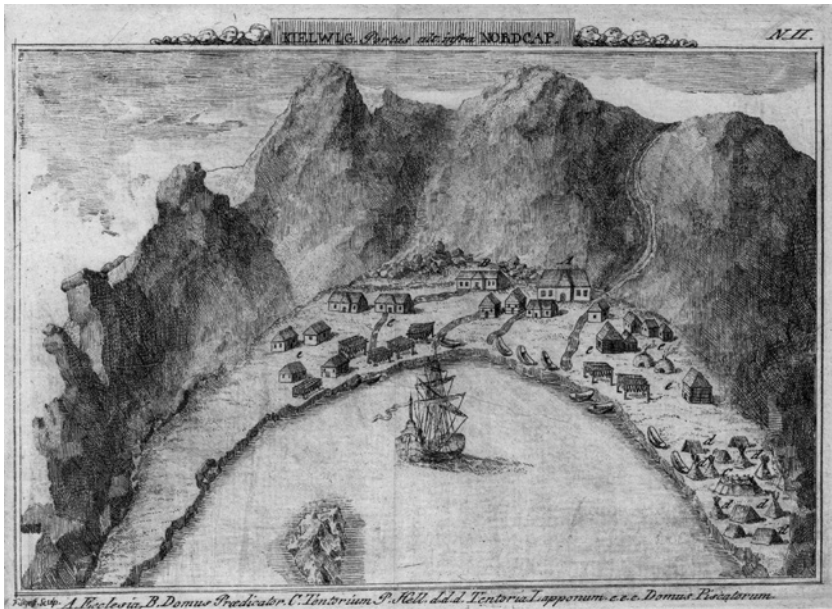


Fig. 2. The ship of Hell and his associates approaching Kjelvik, the last harbour before reaching Vardø. Published with the ‘Observationes Astronomicae...’ in the *Ephemerides* of 1791 (cf. note 34). Bern University Library.

the record of the observation of the transit and the remarkably accurate calculation of the parallax, but also the preceding methodological reflections concerning the problem of defining “contacts” (of the margin of Venus and the Sun). He explained and supported in meticulous detail his own approach of concentrating on “contacts” upon the “exit”, rather than the “entry” of the disc of Venus in front of that of the Sun, referring to the much greater clarity of the former. It was on this basis that he set down his observation data, which he later collated with others he managed to obtain from other observation posts, including the ones in South America and Tahiti, to calculate the solar parallax.

The fact that, contrary to expectations and in spite of Lalande’s reminders, Hell decided not to send the results of his observations to Paris but

Borealis Theoria Nova... Pars I (1777); ‘Observationes Astronomicae Latitudinum, & Longitudinum Locorum Borealiū Daniæ, Sueciæ, Norwegiæ, & Finnmarkiæ Laponicæ per iter arcticum Annis 1768, 1769 & 1770 factæ’ (1791); ‘Observationes Meteorologicae factæ Wardoehusii Annis 1768, & 1769’ (1792).

to make them public in Copenhagen (what is more, with some delay),³⁵ gave rise to bad feelings and suspicions about the authenticity of his data. Lalande, in particular, was resentful for this apparent non-compliance with the supposed consensus of the scientific community about the manner of procedure.³⁶ While the publication of the data eventually quelled this uneasiness, one is tempted to interpret Hell's conduct as a deliberate attempt to redraw the map of the "republic of astronomy" by turning Copenhagen into a "centre" and refusing to behave vis-à-vis Paris like a mere observer sent to a "periphery". Further study of the sources may confirm this impression, but Sajnovics' journal of the expedition and the portion of Hell's correspondence which I have been able to consult so far, are silent about any conscious design to this effect. In any case, what is certain is that such tensions reveal complexities already referred to. Hell undoubtedly felt obliged to consider the role assigned to him and the expedition by his sponsor who—and in this sense the Arctic venture is a parallel case to the one in Arabia just a few years earlier—expected the outcomes to be first reported in Copenhagen. As he wrote to Pater Höller, one of his Jesuit brethren, on 6 April 1769 (before the observation of the transit, and concerning the linguistic and ethnographic aspects of the expedition—but establishing a general principle), they were going to report "astonishing things" to their superiors, but for the time being they should "quietly keep these to themselves, for propriety requires that they are first brought to the knowledge of the Danish king".³⁷ Even the sporadic and rudimentary news that appeared in the Viennese press about Hell's team during their nearly year-long stay at Vardø were resented in the Danish capital. No wonder that Hell, after their return from the North in mid-October 1769, decided to stay there for more than another half a year, setting the record straight by holding lectures and editing the results for printing, only reaching Vienna again in August 1770.

³⁵ The transit took place on 3 June 1769. Hell and his associates left Vardø on 27 June, and reached Copenhagen on 17 October. They first reported on the expedition at the Academy of Sciences there on 24 November.

³⁶ Woolf 1959 (note 1), 177–178.

³⁷ Selections from Hell's correspondence have been made available in the original in Pinzger 1920/1927 (note 1), II: 93; in Hungarian translation in *A csillagász Hell Miksa írásaitól* [Selected Writings of the Astronomer Maximilian Hell], ed. by György Gábor Csaba (Budapest 1997), 50.

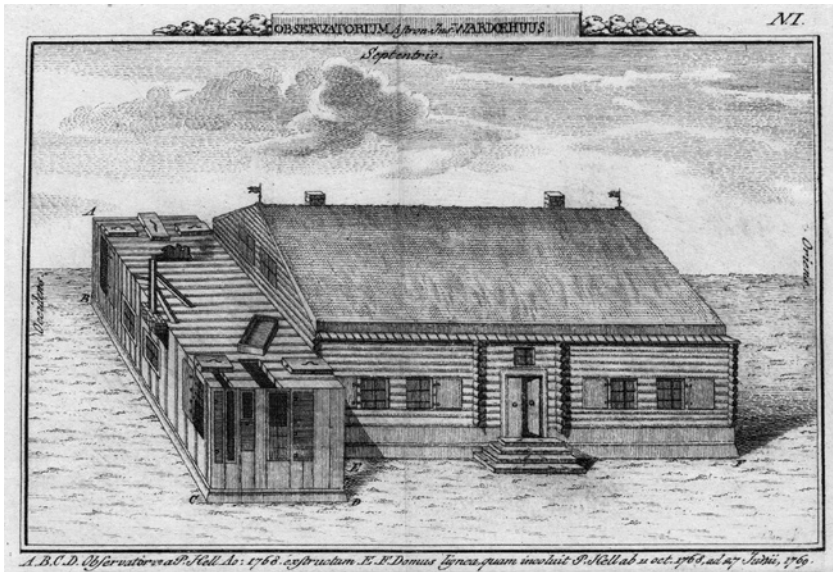


Fig. 3. Hell and Sajnovics' house at Vardø, with the extension built for the purpose of astronomical observation on the left side. (Cf. the upper left of Fig. 1.) Published with the 'Observationes Astronomicae...' in the *Ephemerides* of 1791 (cf. note 34). Bern University Library.

LANGUAGE AND THE DILEMMA OF ETHNIC ORIGINS: HUNGARIANS, SCYTHIANS AND LAPIANS

Let us now turn to the other, cross-disciplinary dimension of the enterprise, which was accurately, if synoptically, indicated by Hell both in the introductory section of the *Observatio*, and the call for subscriptions of the unaccomplished *Expeditio Litteraria*. The expedition targeted a virtually unexplored geographic area, not reached by the famous predecessors in the region. The 1732 Lapland expedition of Linnaeus was motivated by "the utility of scientific journeys within the fatherland": sponsored by the Uppsala Royal Society for Science, it was a patriotic venture to explore "natural" resources from minerals through plants and animals to local technologies and ethnography, with an eye to the "economical" and to classifying the finds as national secrets.³⁸ At the same time, the regions of

³⁸ For the cameralist style preoccupation of "Linnean travel" with an endeavour to explore and establish a frame for rationalistically governed autarchy, see, besides the work

the far north were subject to a scientific exoticism that in certain respects is reminiscent of the curiosity about distant continents. In 1736–1737, a French geophysical survey headed by Pierre Louis Moureau de Maupertuis and intent on determining the shape of the earth once and for all had travelled to northern Scandinavia (“Laponie” as they exoticized the Torne Valley where they carried out their triangulations).³⁹ In a way, the Hell expedition aimed to unite the features of these two enterprises. Although in terms of subject matter unrelated to the issue of the transit of Venus, the main preoccupation of the expedition, Hell assured the readers of the *Observatio* that “nor have we neglected the facts that throw light on or supplement the natural history of the animal and vegetable world, such as mussels, herbs, algae, mosses, and making other observations especially useful in regard of their economic applications” and the “origins, language and different dialects of the Lappian nation living scattered in the North”. Thus, even if “as a result of adverse weather conditions... I were to be disappointed in regard of the often mentioned observation, this scientific expedition were still not entirely fruitless for the sciences and the useful arts”.⁴⁰ The expedition held out the promise of a wealth of new information capable of breaking new ground in several fields of knowledge, which Hell expressed in the enlightened language of improvement.

Apart from Hell’s theory of Northern Lights and a few weather reports, nothing was published of the “physical volume” of the *Expeditio Litteraria*. The proposed contents of the *tomus historicus* fared much better. Although the diary kept throughout the more than two years between their departure from Vienna and arrival back there got never published, a version of the proposed ethnographic, linguistic and historical treatment of the Sámi (i.e. Lappians) appeared soon after their return in the form of Sajnovics’ treatise *Demonstratio. Idioma Ungarorum et Lapponum idem esse* (Tyrnau 1771—extended Latin version of the text already published in Danish in Copenhagen in the previous year). True, among the scientific and learned public of Western Europe it received considerably less attention than even the partial accounts of the astronomic results of the expedition. In Hell’s and Sajnovics’ native land, however, the situation was the

of Lisbet Koerner (note 18), Tore Frängsmyr, *Linnaeus: The Man and His Work* (Berkeley 1985); Sverker Sörlin, ‘Scientific Travel: The Linnean Tradition’, in Tore Frängsmyr (ed.), *Science in Sweden: The Royal Swedish Academy of Sciences 1739–1989* (Canton 1989), 96–123.

³⁹ Mary Terrall, *The Man Who Flattened the Earth, Maupertuis and the Sciences in the Enlightenment* (Chicago 2002). The expedition to Lapland is discussed in chapter 4.

⁴⁰ Hell 1770 (note 15), 4.

exact opposite, and the reasons for this were to be found in the peculiar cultural-political atmosphere of the times in the Kingdom of Hungary and her relations with the Habsburg administrative centre. The rest of this study contextualizes the reception of the ethnographic-linguistic findings of the expedition in Hungary.

Sajnovics was initially rather unenthusiastic about the task of studying the possible relation between Hungarian and Sámi, but under the influence of Hell—who was aware of the widespread preoccupation with Nordic cultures in contemporary Europe in general as well as some of the specific literature—, and especially the experience of the first encounters with natives along the journey, his interest gradually awoke. The *Demonstratio* is considered a landmark in Finno-Ugrian historical linguistics whose methodologically innovative features—especially the fact that beyond vocabulary and tone, he put a great emphasis on grammatical comparison in demonstrating linguistic kinship—eclipse such dilettante aspects of the work as the derivation of the Lappians from northern China, and the further speculation on the kinship of Hungarian and Chinese (prompted by Hell and the recognition, in a Chinese vocabulary, that certain Chinese words when read backwards resemble Hungarian ones). It both fitted into the development of eighteenth-century linguistic studies, and gave them further impetus, which was usually recognized by contemporaries in Europe.⁴¹

By itself, the positing of the kinship of Hungarian and Lappian was nothing new; nor, it must be added immediately, was it the achievement of Sajnovics' work as a piece of academic linguistics that it met a torrent of response, predominantly negative, in Hungary. Ever since the Hamburg scholar Martin Fogel (Fogelius), mainly on the basis of shared etymologies, first raised the idea seriously in *De lingua indole Finica Observationes* (1669), the notion of a Finno-Ugrian community of languages and the special relationship of Finnish, Lappian and Hungarian recurred in the work of scholars from several European countries: Swedes (including Philipp Johann von Strahlenberg, the first to focus on the comparison of the “most ancient” stock of vocabulary: numerals, limbs, simple tools and actions), Germans (such as Leibniz, as well as Fischer, already referred to in my introduction), and Hungarians. Among the latter, the remarkable

⁴¹ For a concise discussion in English, see Zsuzsa Vladár, ‘Sajnovics's *Demonstratio* and Gyarmathi's *Affinitas*: Terminology and Methodology’, *Acta Linguistica Hungarica* 55 (2008), 145–181.

Lutheran antiquarian scholar Dávid Czvittinger was the first to embrace the Finno-Ugrian theory in his *Specimen Hungariae Litteratae* (1711). There were several others to prepare the ground for Sajnovics, including individuals who did so despite their uneasiness with the theory, such as Mátyás (Matej) Bél, who presumed to identify the remnants of the “Hungarian-Scythian” language in Finnish.⁴²

The idea of a prestigious steppe kinship of the Hungarians with the mighty Huns, which is also apparent in Bél’s mild statement, was the standard narrative of the subject matter ever since the early Middle Ages.⁴³ It became firmly tied up with the theory of a corporate polity, in which the scions of an (originally) military aristocracy enjoy pre-eminence, in the *Gesta Hungarorum* of Simon Kézai (1282/1285). Scythianism refers to both a theory of national origins and the privileged status of those defined as members of the *corpus politicum* after the dissolution of the ancient self-governing community, which ensued because of the contempt of some for the call to arms issued “in the name of God and the people”. It then received reinforcement from legal humanism in the *Tripartitum* of István Werbőczy (1517),⁴⁴ a culmination of the centuries-old process of collecting “the customary law of noble Hungary”, and was still a staple of Hungarian late baroque noble consciousness, also underpinned by the traditional classification of the Hungarian language as one of the “oriental” languages, along with Turkish and Mongolian, (and Hebrew, and Chaldean, and Arabic, and Armenian, and Persian...). Questioning one pillar of this complex intellectual edifice constituted a challenge to the entire ideological frame and, especially in politically critical times, could expect an appropriate response.

This is more or less what happened in the case of the *Demonstratio*. In regard of its reception it is meaningful to distinguish between the

⁴² In this sketch I am relying on Péter Domokos, *Szkitiától Lappóniáig. A nyelvrokonság és az őstörténet kérdéskörének visszhangja* [From Scythia to Lapponia. Echoes on the Problem of Linguistic Kinship and Ancient History] (Budapest 1998).

⁴³ For a brief introduction to this tradition and its ideological significance, see László Kontler and Balázs Trencsényi, ‘Hungary’, in Howell Lloyd, Glenn Burgess and Simon Hodson (eds.), *European Political Thought 1450–1700. Religion, Law and Philosophy* (New Haven 2007), 180–181 and 185–186; for more details, see Jenő Szűcs, ‘Theoretische Elemente in Meister Simon de Kézai’s “Gesta Hungarorum” (1282–1285). Beiträge zur Herausgestaltung des “europäischen Synchronismus” der Ideenstrukturen’, in id., *Nation und Geschichte* (Köln and Wien 1981), 263–328.

⁴⁴ Several studies in Martyn Rady (ed.), *Custom and Law in Central Europe* (Cambridge 2003).

international and academic on the one hand, and the domestic and lay-literary on the other hand. Already in the *Allgemeine nordische Geschichte* (1771), relying extensively on Fischer's books already mentioned, the famous Göttingen scholar August Ludwig Schlözer recognized Sajnovics' achievement, and later encouraged Sámuel Gyarmathi's work, who pursued Finno-Ugrian research beyond Sajnovics in both methodological and empirical terms.⁴⁵ In fact, strictly academic circles almost invariably welcomed Sajnovics' theory in Hungary too. Even the Jesuit scholar, György Pray, the greatest contemporary authority in historical research, felt compelled to modify his earlier views on the subject in his *Dissertationes historico-criticae in annales veteres hunnorum, avarum et hungarorum* (1775)—although, like Bél before him, by simply claiming a Hun pedigree for Finno-Ugrian peoples as well.⁴⁶ It must also be added that the only *linguist* to champion the alternative concept in Sajnovics' lifetime, György Kalmár, published his relevant work nearly simultaneously with the *Demonstratio*, so his *Prodromus idiomatis Schytico-Mogorico-Chuno-(seu Hunno-) Avarici, sive adparatus criticus ad linguam Hungaricam* could not have been a response to Sajnovics.⁴⁷ In other words, the issue here was not (yet) that of an academic debate,⁴⁸ the more so as contemporary

⁴⁵ For Schlözer and his Hungarian connections, see Éva H. Balázs, 'A Magyar jozefinisták külföldi kapcsolataihoz' [About the International Connections of Hungarian Josephinists], *Századok* 97 (1963), 1187–1203; János Poór, 'August Ludwig Schlözer und seine ungarländische Korrespondenz', in Alexandru Duțu, Edgar Hösch and Norbert Oellers (eds.), *Brief und Briefwechsel in Mittel- und Osteuropa im 18. und 19. Jahrhundert* (Essen 1989); István Futaky, *Göttinga. A göttingeni Georg-August Egyetem magyarországi és erdélyi kapcsolatai a fevilágosodás idején és a reformkor kezdetén* [Göttingen. The Hungarian and Transylvanian Contacts of the Georg-August University during the Time of Enlightenment and the Reform Era] (Budapest 2007).

⁴⁶ Domokos Kosáry, *Művelődés a XVIII. századi Magyarországon* [A Cultural History of Hungary in the Eighteenth Century] (Budapest 1980), 575. In the abridged English edition, there are short summaries of eighteenth-century historical and linguistic scholarship, as well as the literary and cultural significance of the noble "bodyguards" (see below). Id., *Culture and Society in Eighteenth-Century Hungary* (Budapest 1987), 149–154, 160–162 and 195–200.

⁴⁷ Zoltán Éder, 'Újabb szempontok a *Demonstratio* hazai fogadtatásának kérdéséhez' [New Perspectives on the Domestic Reception of the *Demonstratio*], in id., *Túl a Dunatájón. Fejezetek a magyar művelődéstörténet európai kapcsolatai köréből* [Beyond the Danube Region. Chapters from the European relations of Hungarian Cultural History] (Budapest 1999), 49.

⁴⁸ This somewhat revisionist view of Hungarian scholarship on the subject is summarized, with references to the now extensive literature, in Réka Lőrinczi, 'Megjegyzések és adalékok a finnugor nyelvrokonítás fogadtatásához' [Observations and Contributions on the Reception of the Finno-Ugrian Kinship Theory], *Nyelvtudományi Közlemények* 97 (2000), 261–272. During the subsequent century, however, a veritable "Ugrian-Turkic war"

scholars used the terms “linguistic family” or “linguistic kinship”, if ever, metaphorically at best, and without any clearcut frontlines between, say, the Scytho-Hungarian and the Finno-Ugrian “schools”.⁴⁹

ENLIGHTENED RACISM, OR ONE’S FORMER SELF AS OTHER

There was, however, one important and influential group on the public intellectual scene, which acutely realized the *political and ideological* stakes of the matter, and reacted accordingly: the men of letters of noble origin who dominated that scene before the 1780s and included, besides the chief Hungarian “Voltaireans” like Lőrinc Orczy and János Fekete, Ábrahám Barcsay, whose poetry gave expression to sensibility as well as anti-court political sentiment, and György Bessenyei, the emblematic figure of the Hungarian Enlightenment as a whole. Together they gave voice to the sentiments of a sizeable elite group whose cultural and intellectual horizons, thanks to their education as members of Maria Theresa’s famous Hungarian Guards,⁵⁰ were broadly European, but whose vision of the future restoration of the erstwhile greatness of the Hungarian nation was predicated on galvanising their own class to a new dynamism through modern letters and knowledge practices. This was a vision of improvement which, in their own view, depended on maintaining a discourse of identity built on a prestigious pedigree and social exclusiveness, both under serious attack from the mid-1760s on by the Viennese court and government, towards which their attitudes were therefore highly ambivalent. In this atmosphere, the implications of Finno-Ugrianism—understood by them

gradually unfolded and culminated in the 1860–1870s, among linguists and ethnographers, in which the notions of linguistic, cultural and genetic affinity and kinship became increasingly confounded.

⁴⁹ Béla Hegedűs, ‘Kalmár György a magyar nyelv származásáról’ [György Kalmár on the Origin of the Hungarian Language], in István Csörsz Rumen, Béla Hegedűs and Gábor Tüskés (eds.), *Historia litteraria a XVIII. században* [Historia Litteraria in the Eighteenth Century] (Budapest 2006), 300.

⁵⁰ On the Hungarian Guards, with references to the figures mentioned, see László Deme, ‘Maria Theresa’s Noble Lifeguards and the Rise of the Hungarian Enlightenment and Nationalism’, in Béla Király and Walter Scott Dillard (eds.), *The East Central European Officer Corps, 1740–1920s: Social Origins, Selection, Education, and Training* (Boulder 1988), 197–212. The Hungarian language literature is respectable. However, historians have hitherto largely yielded the field to literary scholars, whose main preoccupation has been the rise of vernacular literature, and are yet fully to discover the subject and approach it with their own questions. The standard monograph is Ferenc Bíró, *A felvilágosodás korának magyar irodalma* [Hungarian Literature in the Age of Enlightenment] (Budapest 1994), especially 69–92 and 161–185.

as not only linguistic but also ethnic kinship—seemed to them highly disturbing.

Barcsay's poetry abounds in rebuffs addressed to Sajnovics whose "yoke" was perceived by him a vital threat to ancient liberties, established on the cornerstone of the idea that Hungarians are "the valiant grandsons of Scythians". Similarly, in his "The Errors of Star-Watcher Sajnovits and Hell Being Refuted", Orczy casts doubt on the allegation that the progeny of Alexander the Great's brave opponents should be related to mere Lappians munching on dried fish—but recommends "the astronomer" to return to these "kind relatives" of *his*: a hint at Sajnovics' *Slavic* ethnic background. This tacit reference to Slavic mischief as a possible background to Sajnovics' work leads us to the political context. Just a few years earlier, the diet of 1764–1765 ended in bitter estrangement between the Hungarian nobility and the Viennese government, the court having failed to push through a package of administrative and social reforms which drew inspiration from the work of the newly established chairs of cameralist sciences and natural law at the University of Vienna, hallmarked by the names of Karl Anton von Martini and Joseph von Sonnenfels.⁵¹ Court propaganda on behalf of the proposed measures received a boost from a treatise by Adam Franz Kollár, *De originibus et usu perpetuo potestatis legislatoriae circa sacra apostolicorum regum Ungariae*. Kollár, who was proud of his Slovak commoner origins, called into question many of the political and social privileges of the Hungarian ecclesiastical and secular elites, criticizing Werbőczy in especially sharp terms, and causing great consternation among the clergy and the nobility. Characteristically, Kollár's anti-feudal polemics was readily associated by this constituency with anti-Hungarian sentiment, identified in his commentary on *Hungaria*, a work by the sixteenth-century humanist Miklós Oláh (Nicolaus Olahus), which Kollár edited and published in 1763.⁵² These comments, which refer to the statistical minority of Hungarians in the Kingdom of Hungary and predict the gradual demise of the language as well as the nation itself, became European currency through being quoted in Schlözer's *Allgemeine nordische Geschichte*, which in turn seems to have inspired

⁵¹ For a contextualized assessment of these initiatives, see Grete Klingenstein, 'Between Mercantilism and Physiocracy. Stages, Modes and Functions of Economic Theory in the Habsburg Monarchy, 1748–1763', in Charles Ingrao (ed.), *State and Society in Early Modern Austria* (West Lafayette 1994), 181–214.

⁵² Cf. Evans 1990 (note 11), 196ff.; Dezső Dümmerth, 'Herder jóslata és forrásai' [Herder's Prophecy and Its Sources], *Filológiai Közlöny* (1963); id., 'Kollár Ádám problémája' [The Ádám Kollár Problem], *Filológiai Közlöny* (1967).

Herder's famous "prophecy" to the same effect. The latter's prediction that the Hungarian nation, amidst the "ocean" of Slavic peoples, will inevitably perish, was underpinned by his theory (available in publication for the first time also in the late 1760s and early 1770s) on the crucial role of language in the formation of human identities. Herder claimed that "all conditions of awareness in [man] are linguistic"—thus, as language acquisition took place in communities, reason and the capacity of thinking, the very distinguishing feature of the human animal, was bound to have as many modes as there were human communities.⁵³ Members of the Hungarian intellectual elite had good reasons for being attentive to his views, and also for taking them as an alarm bell. These developments also established Schlözer's notoriety as an "anti-Hungarian", apparently confirmed by the fact that his social and political views were based on the same foundations as the Viennese reformers—no wonder that the next, "Josephist", generation of young enlightened Hungarians cultivated his courses at the University of Göttingen.⁵⁴ In any case, by championing the Lappian cause, for an influential segment of the contemporary enlightened political public, Sajnovics and his mentor Hell seemed to be the Jesuit hirelings of a hostile court, employed in a plot which also involved willing collaborators from the camps of old and new national enemies, Germans and Slavs.⁵⁵

Finally, in many ways, Bessenyei is a category of his own with his comprehensive programme urging the improvement of public happiness through the cultivation of the arts and sciences, of historical and political knowledge in the vernacular. His engagement with the topic of national

⁵³ Johann Gottfried Herder, *Treatise on the Origin of Language* (1772), in *Philosophical Writings*, trans. and ed. by Michael N. Forster (Cambridge 2002), 131 and 150. See also *Fragments on Recent German Literature* (1767–1768), *ibid.*, 49.

⁵⁴ On the central role of the University of Göttingen as a point of orientation and a source of inspiration for the rank-and-file of Hungarian Josephists, see Éva H. Balázs, *Berzeviczy Gergely, a reformpolitikus (1763–1795)* [Gergely Berzeviczy, the Political Reformer] (Budapest 1967), 86–117. Some of the argument is worked into the same author's *Hungary and the Habsburgs 1765–1800. An Experiment in Enlightened Absolutism* (Budapest 1997).

⁵⁵ A Google search on Hell and Sajnovics demonstrates in a few seconds that this representation is still alive and well among a somewhat less enlightened segment of the political public.—Late eighteenth-century attitudes to Jesuits, both before and after the dissolution of the order, were diverse. On the one hand, in scholarly circles there was a great deal of mutual respect and communication between Jesuits and Protestant scholars, and even personally expressed sympathy by the latter on the occasion of the dissolution. On the other hand, in the public-political domain the old Protestant topoi about the "conspiratorial bent" of the Jesuits remained common currency.

origins, and thus (ethno-)linguistic kinship, was conceived in the peculiarly eighteenth-century genre of philosophical history, works which also highlight the fundamental principles of this programme, in all their ambiguity.⁵⁶ In many ways, he employed the standard enlightened narrative to give an account of Hungarian history in a European framework as the successive stages of the “mitigation” of rude manners, resulting from religion and learning, but also claimed that military glory and polite letters, rather than being antagonistic, could mutually supplement one another.⁵⁷ This, of course, nicely dovetailed with his overall conviction that *vera nobilitas* could derive from proficiency in letters as well as armsbearing. Assigning an unassailable social pre-eminence to the nobility on account of its historical roles, what he sought was a new justification for these roles, to be found in superior learning, while he still regarded the gulf that separated the nobility from the commoners, especially the peasantry as unbridgeable—and supported this from Werbőczy in a political terminology recalling the staples of Scythianism.⁵⁸ Thus the ideological stakes of the available discourses of origin, to which the position taken by Sajnovics was directly relevant, were as formidable for him as for any of the above authors.

Though Bessenyei’s relevant statement—significantly enough, contained in a work entitled *Magyarországnak törvényes állása* [The Legal Status of Hungary]—derives from the times of his retirement to his estate, some thirty years after Sajnovics’ treatise burst onto the scene, in it he

⁵⁶ On Bessenyei’s project and its different aspects, see Ferenc Bíró, ‘A szétszórt rendszer (Bessenyei György programjáról)’, in Sándor Csorba and Klára Margócsy (eds.), *A szétszórt rendszer. Tanulmányok Bessenyei György életművéről* [The Fragmented System. Studies on the Oeuvre of György Bessenyei] (Nyíregyháza 1998), 25–36. On some aspects of Bessenyei’s work in the genre of philosophical history, see Olga Penke, *Filozofikus világtörténetek és történetfilozófiák. A francia és a magyar felvilágosodás* [Philosophical Histories and Histories of Philosophy. The French and the Hungarian Enlightenment] (Budapest 2000), 176–183 and 211–218.

⁵⁷ The latter principles were developed in Bessenyei’s *A magyar néző* [The Hungarian Spectator, 1778], to be supported with a historical argument in *A magyar nemzetnek szokásairól, erköltszerűl, uralkodásának módjairól, törvényeiről, és nevezeteseb viselt dolgairól* [The Customs, Manners, Modes of Government, Laws and Important Deeds of the Hungarian Nation, 1778] and its appendix on “the form of the whole of Europe in the eleventh century (*Egész Európa’ formája a XI-dik Százban*—excerpted from Voltaire’s *Essai sur les moeurs*, chapters 39–46), intended to demonstrate that in those times Hungarians were not any more barbarous than other European nations.

⁵⁸ György Bessenyei, ‘A törvénynek útja’ [The Course of the Law, 1777], in *Bessenyei György összes művei. Társadalombölcseleti írások, 1771–1778*, ed. by Péter Kulcsár (Budapest 1992), 175 and 177.

advanced views most probably first developed and discussed with other opponents, back in the 1770s. Bessenyei bluntly claimed that “it is impossible to displace something of such a great consequence, on the basis of so little a circumstance [as language], and set it on a different footing”, and suggested that “instead of words, one should consider moral character and manners” (the standard analytical categories of philosophical history). This lens shows the “Scythian” and the “Lappon” to be separated by a yawning gap: in the subsequent representation, the latter becomes the target of consistent “othering” by Bessenyei. In contrast to the people of Attila, marked by “its thirst for triumph, valour and glory, as well as its sagacity required for domination”, the “Lappon” was deformed in his outward appearance as well as his manners: on top of his “ugliness of form, the Lappon is vile and fearful, it is such a subterranean mole of a Nation, which loathes the fight, and never wages war.”⁵⁹

We are dealing here with an interesting paradox. Bessenyei defended a view of national origins which was scientifically obsolete and was under challenge by one that was sound. The former theory, Scythianism, was deployed by him, in the best traditions of Enlightenment social science, with reference to the category of manners and virtues (or the lack of them), while at the same time in the polemic against “Lappianism” coming dangerously close to being conveyed in racial terms. To be sure, this combination was by no means unusual among eighteenth-century scholars: suffice it to refer to the derogatory observations of Cornelius de Pauw to the natives of North America,⁶⁰ or—in an academic environment with which late eighteenth-century Hungarians were intimately familiar—the unflattering classification of the “Mongol” race (supposedly giving rise to the peoples of Eastern Asia, North America and Africa) by the Göttingen

⁵⁹ *Bessenyei György összes művei. Prózái munkák, 1802–1804* [The Complete Works of György Bessenyei: Prose Works], ed. by György Kókay (Budapest 1986), 231–235. The passage is almost a literal translation from the national characters in Dom Joseph Vaissete’s *Géographie historique, ecclésiastique et civile, ou description des toutes les parties du Globe terrestre* (Paris 1755).

⁶⁰ For the classic exploration on de Pauw’s thesis on the inferiority of native Americans and the debate provoked by it, see Antonello Gerbi, *The Dispute of the New World. The History of a Polemic, 1750–1900* (Pittsburgh 1973), chapter 3; for developments upon Gerbi’s perspective, see Jorge Cañizares Esguerra, *How to Write the History of the New World: Historiographies, Epistemologies and Identities in the Eighteenth-Century Atlantic World* (Stanford 2001), chapter 1; Silvia Sebastiani, *I limiti del progresso. Razza e genere nell’Illuminismo scozzese* (Bologna 2008), *passim*, especially chapters 3–4.

historian Christoph Meiners.⁶¹ However, language, although recognized as an important racial marker—and a more inherent one than manners—did no more seriously enter into their considerations than in those of Bessenyei. This sort of “enlightened racism” was tailor-made to the Hungarian writer’s agenda, a programme of elevating the cultural level of the country, in the conviction that while martial valour is capable of being translated into virtue in letters, dumb and smelly fishermen would never attain to this. Kinship with the latter was therefore repudiated in violent terms of othering, together with the phenomenon of language as representing any *analytical* value, albeit—to amplify our paradox—its cultivation, as a *tool* of improvement, was deemed by Bessenyei indispensable for the achievement of his ends. However much he claimed, famously, that “as long as her own language remains uncultivated, no Nation in this World will become learned in foreign tongues,”⁶² he retained his scepticism about language as the constitutive element of community. Hungarian enlightened patriots like him continued to insist on the role of “virtue” in cementing the community, only they urged that virtue in arms ought to be replaced by “virtue in letters”, i.e., promoting improvement. The scientifically sound Finno-Ugrian theory on the other hand gave a boost to ethno-linguistic definitions of nationhood, which started to emerge in the context of efforts by the same enlighteners who dismissed that theory but still fostered the cultivation of the mother tongue with a view to the requirements of socio-cultural progress. Conversely, Hungarian ethno-nationalism, which received an initial impetus from the discovery of Finno-Ugrian theory, has yet continued—to this day—to take immense satisfaction in the Scythian myth.

While Hell and Sajnovics were astronomers by employment, they possessed a broad-ranging erudition not only in the physical and mathematical sciences, but also in each of the diverse fields which they set out to explore during the expedition. The latter was therefore conceived by them—on the testimony of Hell’s views expressed in the preface to the *Observatio*, but also Sajnovics’ journal—as a unitary scientific enterprise. Yet this unity crumbled in the reception. While in Copenhagen

⁶¹ Friedrich Lotter, ‘Christoph Meiners und die Lehre von der unterschiedlichen Wertigkeit der Menschenrassen’, in Hartmut Boockmann and Hermann Wellenreuther (eds.), *Geschichtswissenschaft in Göttingen* (Göttingen 1987), 30–75; Luigi Marino, *Praeceptores Germaniae. Göttingen 1770–1820* (Göttingen 1995), 110–120.

⁶² György Bessenyei, *A Holmi* [Paraphernalia], ed. by Ferenc Bíró (Budapest 1983), 32.

and Trondheim Sajnovics was rewarded with academy membership for the findings of the *Demonstratio*, which also stimulated the interest of Schlözer at Göttingen and caused a great deal of agitation in Hungary, elsewhere it seems to have been taken little notice of. Conversely, while Hell's *Observatio* was quite extensively reported and reviewed in international venues of scientific communication, in Hungary—no doubt, in a large measure because of the virtual absence of such venues—appreciation for the team's achievements in astronomy remained sporadic, and in the existing fora of learned sociability references to their being “star-watchers” were ironic, intended to question their competence in the fields of language and ethnography. The reasons for this discrepancy may be partially found in the failure of Hell's grandiose—and perhaps not entirely realistic—project of serial publication. It may also have to do with the rather different character and level of technicality involved in astronomical versus linguistic-ethnographic discourse and the concomitant divergence of the respective audiences. There is much further research to be done on each of these aspects, and many more. For the time being, one needs to stress once again the complexity, even inconsistency of contexts—aims and intentions, collaborations, simultaneities, conflicts—in whose hub the expedition can be located. It was these contexts, many of them definitely outside the domain of “pure science”, that decisively influenced the selection strategies which local agents applied vis-à-vis the results of a scientific venture which its chief protagonists regarded as one and indivisible.