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15 National History and Big History: Väinö Auer, the Finnish Nationalist and the Global Environmentalist

The purpose of this chapter is to study the spatial scales that can be observed in the Finnish geographer and geologist Väinö Auer's writings and to consider them in relation to the discussion of scales in global history. While doing so, it explores the conflicting ways in which Auer relates to various scales. His views with regard to the various scales differ, and in this respect, he reminds of most people who, depending on their world view, ideological outlook, and self-interest, consider issues differently on a local and national scale than on a global scale. Accordingly, a study of Auer's texts shows that a very different world view and ethical standpoint emerges when we compare his texts that address, firstly, the national level (the nation of Finland); secondly, those dealing with a regional level (Patagonia); and, thirdly, the Earth in its totality.

Väinö Auer (1895–1981) is amongst Finnish historians best known for his small book *Finnlands Lebensraum* (1941). The book, written together with historian Eino Jutikkala and ethnographer Kustaa Vilkuna, explains the historical and geographical reasons for claiming Eastern Karelia for Finland after, as it was hoped, Germany would win the Second World War. Consequently, Auer is often mentioned in the context of Finnish nationalism, and he has gained amongst historians notoriety in his capacity as a nationalist scientist and member of the group of Finnish scientists to embrace the idea of "Greater Finland".[1] Auer's activities as a geologist in Argentina have received less attention, with the notable exceptions of the comprehensive biography by Pentti Alhonen and Antero Alhonen. In addition, film director Mikko Piela's documentary about Auer, *Väinö Auer 1895–1985* (2006), focuses on Auer's time in Argentina.[2] Alhonen and Alhonen stress Auer's importance as an environmental thinker, but they have not pursued the question from the point of view of global history.

1 The idea of Greater Finland was a nationalist concept involving the ambition of the territorial expansion of Finland according to the boundaries encompassing nations who spoke Finnish or languages related to Finnish.

2 P. Alhonen and A. Alhonen, *Vaakavarren ratsastaja. Tutkimusmatkailija Väinö Auerin elämä* [The rider of Vaakavarsi: The life of the explorer Väinö Auer], Helsinki: Edico Oy, 2006. Jukka Kuosmanen's popular radio series about Finnish explorers devotes an episode to Auer's expeditions in Argentina.

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In contrast to Auer's nationalist interpretation of questions concerning the economic geography of his native Finland, his world view appears to be different when he writes about regions he explored in his professional capacity and even more so when he considers the Earth in its totality. Because of his geological study of various regions, Auer developed a great concern for global environmental problems in the years after the Second World War. The argument put forward in this chapter is that Väinö Auer was one of the first Finnish scholars to cultivate an awareness of global environmental questions and to develop what can be termed as a global consciousness. Such a view, as will be evidenced, stems from Auer's geological travels and from his increasing knowledge about the Earth's strata. An investigation into Auer's ideas shows that he became – thanks to his profession, research topics, and methods – a vocal proponent of a global view of the world. Moreover, it is argued that Auer's thinking can be linked to a strand of global history known as big history, a subfield of global history that focuses on the planet in its entirety. Such a view is visible in Auer's "global rhetoric", developed both in his scientific treatises and in his popular writings.

Scales in Historical Research

The methodologic and theoretical background of the study is the discussion on spatial scales that has taken place amongst global historians in recent years.[3] Typically, four scales of analysis can be identified in global history: a local, a national, a regional, and a global one. This study seeks to contribute to the methodology of global history in that it critically considers the various scales that may be used in the study of global history. The ambition here is to consider sociospatial relations on three scales: the national, the regional, and the global. In doing so, the aim is primarily to study human-scale history, albeit with an awareness of the presence of a deeper time perspective. Bob Jessop et al., in their theorizing of sociospatial relations, question the privileging of a single dimension, whatever the form, of scalar sociospatial relations. They warn about the danger of concentrating on one territory or scale, for instance in state-centric approaches to globalization studies.[4] While taking into account multiple scales, however, it is important

3 See AHR Conversation, "How Size Matters: The Question of Scale in History", *American Historical Review*, December (2013), pp. 1431–1472.

4 B. Jessop, N. Brenner and M. Jones, "Theorizing sociospatial relations", *Environment and Planning D: Society and Space* 26 (2008), pp. 389–391.

to note that the scales are not inherent but a result of spatial constructions.[5] The scales also overlap – the difference between a nation and a region is not always clear-cut. Most pertinent to the case at hand is that Väinö Auer's values appear to change depending on which scale he is operating. Auer's texts will therefore be studied, firstly, for their contribution to Auer's view of Finland as a nation with, ideally, geologically defined borders; secondly, for Auer's investigation into the ecological conditions of the region of Patagonia; and, thirdly, for Auer's view of the Earth as a spatial arena for global history. A further objective of the chapter is to discuss the usefulness and value of a big history perspective in historical research. Hence, although this study makes no claim of being a study in big history, it discusses how such a perspective contributes to global history and maintains that historians might do well to consult geologists when considering a big history perspective.

The Grand Scale: Big History

Big history is, categorically, interdisciplinary history, relying heavily on the natural sciences. In one sense, the recalibrating of the spatial and temporal scales of the historian is a continuation of the expanding of scales that began with global history. But while global historians have been concerned with comparative approaches, trade networks, and commodity chains, some global historians have begun contextualizing their topics on an even bigger scale.[6] Such an approach is an attempt to respond to the proposition put forward by scholars from the humanities who wish to take global environmental questions seriously. Some historians have radically expanded the scales of their analysis, focusing on the links and interconnections that bring together seemingly separate phenomena – peoples, natural resources, places, and processes – and letting them fall into larger patterns of change.[7] Big history and the idea of planetarity puts human history into the perspective of planetary and cosmic evolution.[8]

5 R. Keill and R. Mahon, *Leviathan Undone? Towards a Political Economy of Scale*, Vancouver, Toronto: UBC Press, 2009.

6 D. Olstein, *Thinking History Globally*, Basingstoke: Palgrave Macmillan, 2015.

7 Th. G. Andrews, *Coyote Valley: Deep History in the High Rockies*, Cambridge: Harvard University Press, 2015. See also J. L. Brooke, *Climate Change and the Course of Global History: A Rough Journey*, Cambridge: Cambridge University Press, 2014.

8 A. Iriye, *Global and Transnational History: The Past, Present, and Future*, Basingstoke: Palgrave Macmillan, 2013.

Some of this work can be related to the actuality of the concept of Anthropocene. Big history takes the concept of Anthropocene seriously and embraces a long time span and a synthetic view on the history of humankind.[9] With the discussion of the new geological epoch Anthropocene, the lithosphere has become an increasingly important factor in the human sciences. Dipesh Chakrabarty observed in 2009 that the Anthropocene is merging human history with the history of the planet and that human history is embedded in the rhythm of the Earth.[10] If, as some researchers such as Kathryn Yusoff claim, the Anthropocene is axiomatic of new understandings of time, matter, and agency for the human, as a collective being *and* as a subject capable of geomorphic acts, then scholars from the humanities should engage with the idea of Anthropocene.[11] For historians, the Anthropocene metaphor offers an opportunity to consider temporality in a new light. In addition to historical time, the deep time perceived by Earth scientists becomes, if not the subject of study, at least a powerful presence intertwined with human society and culture. Spatially, the Anthropocene presupposes a global perspective and view that could be termed as a "global gaze". Such a view is reflected in big history, which focuses on the planet in its entirety, embracing a long time span and a synthetic view on the history of humankind.[12]

How then does a scholar from the humanities, a historian, engage in such an endeavour? Is it possible (or even necessary) to reflect on history on a truly grand scale? If such a scale is to be taken seriously, it would be helpful, for a representative of the humanities, to gather insights from people who consider the past from a long perspective. While the present study is not big history, the approach taken here is to look at how geologists, with their long-time perspective, think and write about human history. As geologists, in addition to studying vast time spans, also function in a social and political context involving

9 F. Spier, *Big History and the Future of Humanity*, Chichester: Wiley-Blackwell, 2010.

10 W. Schäfer, "Global History: Historiographical Feasibility and Environmental Reality", in: B. Mazlish and R. Buultjens (eds.), *Conceptualizing Global History*, Ann Arbor: MPublishing, University of Michigan Library, 1993, pp. 47–69; D. Chakrabarty, "The Climate of History: Four Theses", *Critical Inquiry* 35 (2009) 2, pp. 197–222.

11 K. Yusoff, "Politics of the Anthropocene: Formation of the Commons as a Geologic Process", *Antipode* 50 (2018), pp. 255–276.

12 Alexander von Humboldt's *Cosmos*, Robert Chambers' *Vestiges of Natural History*, and H. G. Well's *The Outline of History* (1920) are some of the works leading to a global view of the Earth. The idea of the intertwined fate of humankind and the Earth has been developed for instance by George Perkins Marsh in *The Earth as Modified by Human Action* (1874), by Eduard Seuss' *The Face of the Earth* (1885–1909), and by Vladimir Vernadsky's *Biosphere and Noosphere* (1926).

other scales than the deep time global scale, they offer an interesting possibility for studying the mechanisms of scale. For instance, Finnish geologists, like other scientists who were active in the decades before and after Finland's independence, were often strongly engaged in the Finnish national project.[13] Many of them also had, because of their field research, an interest in particular regions, often located abroad. It is, consequently, possible to observe their activity on at least three spatial scales: a national, a regional, and a global scale.[14] All these scales are exhibited in the focus of this study: Väinö Auer.

Väinö Auer

Väinö Auer was born in Helsinki in 1895 into the family of Senator Kyösti Fabian Auer. His father's roots were in the province of Häme in Finland, while his mother's family came from Sweden. Auer went to school in Turku and Kokkola. Upon entering the University of Helsinki, Väinö Auer initially studied botany. He quickly became involved in student politics as a Fennoman (the Fennomans were a political movement promoting the Finnish language and culture). As a result of the so called "language struggle" between Finnish and Swedish speakers in the bilingual university,[15] Auer was not allowed to participate in the botanical exercises – instead he chose a career in geology and geography.[16]

Geology, as an academic discipline, had been established at the Imperial Alexander University in 1852 while geography was established in the early 1890s. After Finnish independence in 1917, the Imperial Alexander University became the University of Helsinki. Auer became a docent in geography at the university in 1922 and gained a position as a researcher in 1925, eventually receiving a professorship in geography at the university in 1929.[17] Moreover, he

13 O. Manninen, *Suur-Suomen ääriviivat: Kysymys tulevaisuudesta ja turvallisuudesta Suomen Saksan-politiikassa 1941* [The countours of Greater Finland: Matters of future and security in the Finnish-German politics in 1941], Helsinki: Kirjayhtymä, 1980; S. Näre and J. Kirves (eds.), *Luvattu maa. Suur-Suomen unelma ja unohdus* [The promised land: Dreaming and forgetting about Greater Finland], Helsinki: Johnny Kniga, 2015.

14 In addition, there is in some cases a local scale at play. On the role of the national in global history, see S. Conrad, *What is Global History*, Princeton: Princeton University Press, 2016, pp. 79–82.

15 A power struggle between the Finnish and Swedish language groups that was particularly notable at the University of Helsinki. See J. Kortti, "Ylioppilaslehti and the University's Language-Struggle in the 1920s and 1930s", *Kasvatus ja Aika* 4 (2009), pp. 7–23.

16 Alhonen and Alhonen, *Vaakavarren ratsastaja*.

17 L. Aario, "Professori Väinö Auer 7.1.1895–20.3.1981", *Terra* 93 (1981), pp. 80–82.

held a professorship in geology and palaeontology from 1957 until 1963. One of Auer's special areas became swamp research. His doctorate thesis *Über die Entstehung der Stränge auf den Torfmooren* (1920) was a comprehensive study on the paludification features in the mires of Ostrobothnia and Lapland.[18] Auer was the first to use pollen analysis in Finland as a relative timing method. He also studied the geohistorical periods of Vanajavesi, a lake near Hämeenlinna in the south of Finland, regarding the layout order of beach swamps. Auer's study *Über die Entstehung der Stränge auf den Torfmooren* laid the foundations for Finland's limn geologic lake research.[19] Moreover, Auer is known for his pioneering studies on the method of tephrochronology, a geochronological technique that uses discrete layers of tephra (volcanic ash from a single eruption) to create a chronological framework in which paleo-environmental or archaeological records can be placed. The phenomenon of desertification was a later interest, one that came to occupy Auer increasingly during his later years.

It was (and is) necessary to participate in research expeditions and field trips in order to conduct geological research. Väinö Auer travelled widely both in Finland and abroad, for instance in Central Europe. Thanks to a scholarship from the International Education Board in 1925, he was able to investigate the relationship between forests and paludification events in Canada, where he focused on peat profiles ranging from Nova Scotia to the Niagara Falls.[20] However, the main body of Auer's scientific work was to focus on Argentina, where he spent a large part of his professional life. While holding his professorship, Auer launched expeditions to Patagonia and Tierra del Fuego from 1928 to 1929 and from 1937 to 1938. Overall, Väinö Auer made fourteen expeditions to Patagonia and Tierra del Fuego. The main purpose of the trips was to practice studies of stratigraphy (the study of rock layers and layering) in the swamps and the connections between this and the climate changes of the Holocene period.

During the Finnish Winter War (1939/40), Väinö Auer served as volunteer in the battlefield against the Soviet Union. After the war, Auer went back to Argentina to work for the Argentinian government. He returned to Finland in 1953. In the last years of his professional career, he served as a professor of geography

18 Paludification is a process by which peatlands in the boreal zone are formed.

19 V. Auer, "Über die Entstehung der Stränge auf den Torfmooren" [On paludification on mires], *Acta Forestalia Fennica* (1920), pp. 1–145; V. Auer, "Die postglaziale Geschichte des Vanajavesisees" [The post-glacial history of Lake Vanajavesi], *Bulletin de la Comission géologique de Finlande* 69 (1924), pp. 1–132.

20 V. Auer, "Some future problems of peat bog investigation in Canada", *Commentationes Forestales* 1 (1928), pp. 1–32.

(1953–1957) and as a professor of geology and palaeontology (1957–1963) at the University of Helsinki. Väinö Auer passed away in 1981.

The Nation and the Earth

The relation between global and national scales is often problematic. Nation-states try to maintain the constructions built to strengthen their national identity and this often means harnessing scientific research to nationalist projects, such as defining "natural borders". In addition, it lies in the interest of nation-states to maximize the gain from their natural resources, often with the aid of scientific research. While the priorities of nation-states tend to be self-serving, nation-states cannot afford to neglect global environmental questions. However, their possibilities of solving global environmental problems remain limited, partly due to restricted jurisdiction and partly because of the transnational character of the problems. As Bsumek et al. argue, this dilemma is not new but has challenged nation-states for at least 200 years. They characterize nation-states as doubly challenged "by environmental problems that defy their control and by globalizing trends that often limit their capabilities".[21]

When it comes to Finland, the nation-state that concerned Väinö Auer, its main priority during the period up to the 1950s was to survive economically and to maintain its independence. The transnational aspect of Finnish history has mainly been concerned with trade, diplomacy, and political alliances.[22] However, from the point of view of geology – and from the perspective of big history – Finland is not only part of a global system of trade networks and diplomatic relations. Finland is also part of a geological entity, the Earth. The Finnish crust of the Earth was (and remains) connected to that of all other areas on the globe, just as the Finnish ecosystem was (and remains) connected to the surrounding ecosystems. Scientists, geologists and geographers, are in a particularly good position to perceive these connections and to employ a variety of methods so as to better understand these interdependencies. The already mentioned tephrochronology is one of these methods. Using tephrochronology,

21 E. M. Bsumek, D. Kinkela and M. A. Lawrence, *Nation-States and the Global Environment: New Approaches to International Environmental History*, Oxford: Oxford Scholarship Online, 2013.

22 J. Osterhammel, *The Transformation of the World. A Global History of the Nineteenth Century*, Princeton: Princeton University Press, 2014.

Väinö Auer studied the paleo-ecological groundwork in Tierra del Fuego and Patagonia for more than four decades.[23] In addition, he studied the central, post–ice age layers of Earth's climate history in Canada, Finland, Tierra del Fuego, and Patagonia. Hence, the scientific knowledge gathered by one geologist created a network connecting several areas, thereby producing a synthetic form of knowledge. In consequence, it can be argued that geological knowledge about the Earth have been one of the factors contributing to the emergence of a global consciousness. This knowledge has slowly accumulated during the past 300 years as natural historians have measured, studied, and classified the Earth. More often than not, the intentions behind the creation of knowledge about the Earth has been concerned with the available natural resources and the economic usefulness of them. Besides the methods used in studying the soil and the Earth's crust, climatic conditions, often understood in latitudinal terms, have been an important part of the accumulated body of knowledge about the Earth.

Greater Finland

Väinö Auer came from a Fennomanic family with strong nationalistic ideals.[24] As mentioned in the introduction, he was a student at the University of Helsinki at the time when Finland became independent, in 1917, and at a time when the atmosphere at the university was marked by a conflict between the Finnish and Swedish language groups. He was engaged in student politics, serving as the first Finnish-speaking chair of the Students' Union. Moreover, Auer was an honorary member of the Academic Karelia Society (Akateeminen Karjala-Seura, AKS), a nationalist activist organization aiming at the improvement and expansion of the newly independent Finland, founded by academics and students of the University of Helsinki. In addition, Auer was, together with a number of scientists, an advocate of the expansion of Finland's borders that would incorporate what became known as "Greater Finland". The idea of Greater Finland was a nationalist notion involving the ambition of the territorial expansion of Finland according to the boundaries encompassing nations who spoke Finnish or languages related to Finnish. At the beginning of the so-called Continuation War between Finland and the Soviet Union in 1941, Finland fostered the optimistic idea of reconquering areas that were lost to the Soviet Union in the previous

23 C. J. Heusser, "Ice Age Southern Andes: A Chronicle of Palaeoecological Events", *Developments in Quaternary Science* 3 (2004), pp. 1–250.

24 The Fennomans were a political movement promoting the Finnish language and culture.

war, the Winter War, and even of expanding its borders further to what was understood to be Greater Finland.

The concept of Greater Finland was a mixture of geographical boundaries and cultural features. The most common conception of Greater Finland was defined by what could be understood as natural borders encompassing territories inhabited by Finns and Karelians. It ranged from the White Sea to Lake Onega and along the rivers Svir and Neva or, more modestly, the river Sestra to the Gulf of Finland. Some proponents of Greater Finland also included the Kola Peninsula, Ingria, and Estonia, some extremists even Finnmark in Norway and Torne Valley in Sweden. Politically, the Finnish border shifted after Russia's recognition of Finland's independence with the Treaty of Tartu (1920), which stipulated that the northern area of Petsamo was to be incorporated into Finland, while Finland ceded the Karelian districts of Repola and Porajärvi to Russia. Finnish nationalists in the 1920s and 1930s strongly advocated either the independence or incorporation (into Finland) of Baltic Finnish peoples – "kindred peoples" – within the borders of the Soviet Union. However, after the Second World War, Finland had to cede to the Soviet Union areas in Karelia, the Petsamo area, and parts of the Salla and Kuusamo areas.

The idea of the "natural geographical boundaries" was based on the so-called three-isthmus border defined by the White Isthmus, the Olonets Isthmus, and the Karelian Isthmus, which dates back to the time when Finland was part of Sweden (until 1809). For instance, in 1837, the botanist Johan Ernst Adhemar Wirzén outlined Finland's wild plant distribution according to the eastern borderlines of the White Sea, Lake Onega, and the river Svir.[25] The scientific support for the location of the eastern border was founded on the idea of Fennoscandia, the Nordic geological region that included the Scandinavian Peninsula, Finland, Karelia, and the Kola Peninsula. It also encompassed Sweden and Norway, the Murmansk area, and part of the northern administrative area belonging to Leningrad. The term Fennoscandia is a geological term, coined by the Finnish geologist Wilhelm Ramsay in 1898. It is based on the area's characteristic bedrock of Archaean granite and gneiss, in contrast to adjoining areas in Europe that contain more limestone.[26] Wilhelm Ramsay was Väinö Auer's teacher, mentor, and friend.

Finnish intellectuals and scientists engaged in what can be termed as "the natural history of Greater Finland" and "the Greater Finland of natural

25 Manninen, *Suur-Suomen ääriviivat*; H. Väre, "Johan Ernst Adhemar Wirzén – the last Demonstrator in Botany at Alexander University", *Memoranda Societatis pro Fauna et Flora Fennica* 890 (2013), pp. 35–41, https://journal.fi/msff/article/view/40886.

26 A. Leikola, "The Geo-Ecological Finland: Natural History Defining the Boundaries of a Nation", *Mokslo Ir Technikos Raida/Evolution of Science and Technology* 1 (2009) 2, pp. 146–216.

scientists", involving botanical, zoological, geographic, and geological research and all aimed at strengthening the idea of the "natural borders" of Finland.[27] Väinö Auer, together with several Finnish scientists of the day, amongst them the rector of the University of Helsinki, Kaarlo Linkola, took active part in this research. Auer had been engaged in patriotic and nationalist activity since his days as a student in the Academic Karelia Society. Most notably, Auer was the chair of a committee initiated by the Geographical Society of Finland and appointed by the ministry of internal affairs to conduct research that supported the cause of Greater Finland.[28] For instance, Auer published an article about "the future Finland" as an economic-geographic unit in 1941.[29] In his article, Auer evaluates the economic potential of the southern parts of Finland and discusses the possibility of inhabiting wilderness areas. Here he notes that the old state border has served as a barrier for the "pioneering spirit" of the Finnish people. With the Greater Finland, the country would gain a good portion of new land suitable for agriculture.[30]

Auer's engagement in the nationalist project of Greater Finland went further than mapping the economic geography. He is infamously known for his participation in the writing of a Finnish propaganda book called *Finnlands Lebensraum*, written at the beginning of the Continuation War, published to support the Greater Finland ideology. The authors were Väinö Auer, the historian and ethnographer Eino Jutikkala, and the ethnographer Kustaa Vilkuna. It was a work commissioned by President Risto Ryti and Finland's state propaganda and information department. The purpose of the book was to demonstrate scientifically that East Karelia was a natural part of Finland by its geography, history, and culture and to legitimize its integration into Finland after the anticipated German victory in the war. The original title of *Finnlands Lebensraum* was *Das geographische und geschichtliche Finnland* (The geographic and historic Finland), but it was changed by the German publisher to be more compatible with the Nazi ideology. Indeed, National Socialist ideas were later added to the manuscript by the anthropologist Yrjö von Grönhagen, who worked for the Finnish propaganda department. Hence, although

27 A. Laine, "Tiedemiesten Suursuomi" [The Greater Finland of scientists], *Historiallinen arkisto* 103 (1993), pp. 129, 177–184.

28 Auer was the chair of the Finnish state's scientific committee for Eastern Karelia (*Valtion tieteellinen Itä-Karjalan toimikunta*), founded in 1941 with the task of coordinating scientific research about the occupied Eastern Karelia.

29 V. Auer, "Tuleva Suomi talousmaantieteellisenä kokonaisuutena" [The future Finland as an economic-geographic unit], *Terra* 53 (1941) 4, pp. 206–217 (a map of the Greater Finland, see p. 214).

30 Ibid., p. 214; See also Alhonen and Alhonen, *Vaakavarren ratsastaja*, p. 247.

by no means a national socialist, Auer was a keen advocate of a strongly nationalist ideology, and he readily put his scientific skills at the service of the Finnish state.

In addition to his work, aimed at defining and defending Finland's natural borders, Auer held an essentialist, organic view of the nation, comparing it to an organism. In a textbook on geography from 1937, Auer and geographer Arvi Poijärvi give their view on a nation:

> The Republic of Finland is thus, as far as its structure and functions are concerned, a gigantic uniform organism, just as a human being is a uniform organism. A specific human being, animal or plant, which has a living organism, is called an individual. In the same manner a state can be regarded as an individual, since it is in many respects similar to a living organism in its structure and function.[31]

It is easy to see that such an organism would have natural borders. The question whether there are any scientific bases for the natural borders of Greater Finland is open for debate, as is the concept of natural borders. Overall, researchers in borderline studies agree that the concept of natural borders has not always been informed by a consciousness of geographical living spaces.[32] Moreover, as Antti Paasi observes, based on geological evidence it would be just as easy to justify the expansion of Finland to the west instead of the east, as most proponents of Greater Finland most usually suggested.[33] The idea of Greater Finland with its natural borders can therefore be regarded as a construct that served a political and ideological purpose at a certain time in Finnish history. The scientific term of Fennoscandia is, however, still in use.

A Region and a Nation: Patagonia and Argentina

The regional scale in Auer's thinking could be represented by any of the several areas where he did fieldwork. Argentinian Patagonia is chosen for this

31 V. Auer and L. A. P. Poijärvi, *Suomen maantieto* [Geography of Finland], Helsinki, 1937, p. 12 (own translation).

32 E. Vallet, *Borders, Fences and Walls. State of Insecurity*, London: Routledge, 2016, p. 121.

33 A. Paasi, "Maantiede, geopolitiikka ja Suomen itärajan muuttuvat representaatiot" [Geography, geopolitics and the changing representations of Finland's eastern border], *Alue ja Ympäristö* 24 (1995) 2, pp. 28–49. Similarly, any scales used in historical research should be problematized.

study since Auer devoted a great part of his professional life to Patagonia and particularly Tierra del Fuego in southern Argentina. Patagonia is a large region, situated in both Chile (10 per cent) and Argentina (90 per cent). The Patagonian desert is three times larger than Finland, but it is a substate region, and it corresponds to a constructivist definition of a region, where regions are seen as imagined spaces generated and transformed through social and political processes across time, or as spatial and ideological practices.[34]

Patagonia is a semiarid scrub plateau, covering an area of about 260,000 square miles (673,000 square kilometres). The region encompasses the greater part of the southern portion of mainland Argentina, and it extends from latitude 37° to 51° south. On its western borders are the Patagonian Andes, the Colorado River to the north, the Atlantic Ocean to the east, and the Strait of Magellan to the south. The region of Tierra del Fuego is often included in Patagonia.[35] Until 1885, when Argentina conquered the region of Patagonia with its indigenous population, it had been under the control of indigenous groups. In 1885, Argentina had been independent for 70 years, and there was a great interest in both modernizing and expanding the economically growing nation.[36] The military expedition whereby Patagonia was conquered was termed as "the conquest of the desert".[37] The peripheral region of Patagonia with its inhabitants became subjected to immigration, development, and modernization. Incentives were offered to immigrants who were willing to settle in Patagonia, such as subsidies for their ship passage as well as services to help find a place where to live

34 P. Kramer, "Region in Global History", in: D. Northrop (ed.), *A Companion to World History*, Chichester: Wiley Blackwell, 2012.

35 E. F. G. Díaz and K. E. Webb "Patagonia", *Encyclopedia Britannica*, https://www.britannica.com/place/Patagonia-region-Argentina (accessed 16 March 2020).

36 M. Dimant, "The Neighborly Relations between Middle Eastern Migrants and Indigenous People in Patagonia: Rethinking the Local Experiences in the Study of Ethnic-Migrant Minorities", *Asian Journal of Latin American Studies* 30 (2016) 1, pp. 1–25; M. Langfield, *The Welsh-Patagonian Connection: A Neglected Chapter in Australian Immigration History*, https://onlinelibrary.wiley.com/doi/pdf/10.1111/1468-2435.00034 (accessed 24 May 2020).

37 G. Nouzeilles, "Patagonia as Borderland: Nature, Culture, and the Idea of the State", *Journal of Latin American Cultural Studies* 8 (1999) 1, pp. 35–48; C. Lois, *Mapas para la nación. Episodios en la historia de la cartografía argentina* [Maps for the nation: Episodes in the history of Argentinian cartography], Buenos Aires: Editorial Biblos, 2014; A. Barreiro, C. Wainryb and M. Carretero, "Power Struggles in the Remembering of Historical Intergroup Conflict: Hegemonic and Counter-Narratives About the Argentine 'Conquest of the Desert'", in: C. Psaltis, M. Carretero and S. Čehajić-Clancy (eds.), *History Education and Conflict Transformation*, Cham: Palgrave Macmillan, 2017, pp. 125–145.

and work. Although the living conditions were challenging, the period between 1890 and 1930 was a time of intense migration to Patagonia.[38]

Part of the modernization of Argentina involved a geological mapping of the country. This created an opportunity for European geologists to conduct fieldwork. Not only Väinö Auer but also other Finnish (as well as Swedish) geologists were engaged in geological expeditions in Argentina. The groundwork was laid by Otto Nordenskiöld's first Antarctic expedition, from 1901 to 1903, when Swedish and Argentinian geologists cooperated. Amongst the Swedish geologists who worked in Argentina were Thore G. Halle, Percy D. Quencel, and Carl Caldenius who participated in Carl Skottberg's expedition to southern Patagonia and Tierra del Fuego. Helge Backlund, a professor of geology at Åbo Akademi University from 1918 to 1924 and the University of Uppsala from 1924 to 1943, worked as a state geologist at the General Directorate of Mines in Buenos Aires in the 1910s, as did Backlund's successor at Åbo Akademi University, Hans Hausen, a professor at Åbo from 1927 to 1951 and state geologist in Argentina from 1914 to 1917.[39] The General Directorate of Mines had employees from other European countries as well – Argentina was a vast country and there was much substrata to survey. Both Swedish and Finnish geologists were interested in Argentina because of the corresponding latitudes to the Nordic countries (in relation to the equator). For instance, the ice sheet that covered Finland intermittently during the Quaternary period grew out from the Scandinavian Mountains, or the Scandes, a mountain range that runs through the Scandinavian Peninsula. The ice fields of Andean Patagonia are considered to be the best modern analogues to this early glaciation.[40] Southern Argentina thus not only offered work for geologists surveying the land area but also enabled them to make comparisons on a global scale.

Väinö Auer had been fascinated by Patagonia and Tierra del Fuego ever since he gave a presentation on this region as a student at a geography seminar. Auer writes in his popular travel account *Tulimaata tutkimassa* (Investigating Tierra del Fuego, 1929) that, as the years went by, he appeared to have adopted gloomy and deserted regions as his topic of research.[41] He describes how walking through the soft, wet, and sludgy turf swamps in Lapland awoke in him a longing for distant areas and wild nature. Here he learned to read the turf layers and

38 Dimant, "The Neighborly Relations", p. 4.

39 J. Rabassa and M. L. Borla, *Antarctic Peninsula and Tierra del Fuego: 100 Years of Swedish-Argentine Scientific Cooperation at the End of the World*, London: Taylor and Francis, 2007.

40 O. Fredin, "Glacial Inception and Quaternary Mountain Glaciations in Fennoscandia", *Quaternary International* (2002), pp. 95–96, 99–112.

41 V. Auer, *Tulimaata tutkimassa* [Investigating Tierra del Fuego], Helsinki: Otava, 1929, p. 14.

to estimate changes in the climate as well as to observe extinct plants and certain regularities, phenomena that could be witnessed all over the world.[42]

The purpose of Auer's first trip was to practice studies of stratigraphy (the study of rock layers and layering) in the swamps and the connections between these and the climate changes of the Holocene period. According to Auer, Patagonia and Tierra del Fuego was one of the few places on Earth where, because of corresponding latitudes, it was possible to study phenomena parallel to those in Finland and thus verify research conducted in Finland. However, although there may have been latitudinal similarities in the Earth's strata, the Patagonian ecosystem was radically different from that of Finland. Large areas of Patagonia consist of desert. The Patagonian desert is the seventh largest in the world, occupying 673,000 square kilometres. Life conditions are challenging. Auer studied the paleo-ecological groundwork in Tierra del Fuego and Patagonia for more than four decades and concluded that much of it was lifeless and eroded.[43]

Auer eventually went on to become an expert on the Patagonian desert. As a result of this expertise, Argentina's president Juan Perón invited Väinö Auer to Argentina in 1945 to resolve the problems of erosion and dryness in the farming fields of the country. Auer subsequently travelled to Argentina in 1946 and stayed on until 1953. The country's economy was at the time strongly influenced by the politics of Perón. Argentina was practicing an economic system called the "third position", neither socialism nor capitalism.[44] This isolated Argentina during the years of the Cold War and made it necessary to intensify all kinds of domestic production of goods. Patagonia was considered a problematic area because of its progressively increasing aridity and desertification.

One might ask what motivated Auer to spend years of his life in Patagonia, often travelling under challenging circumstances late into his middle years. The possibility to continue with his research was one obvious factor. Neither the Finnish state nor the University of Helsinki could afford to send out geological expeditions to the other side of the globe. Another reason may have had to do

42 Ibid., p. 15.

43 V. Auer, "The Quaternary History of Fuego-Patagonia", *Proceedings of the Royal Society B*, 152 (1960), pp. 507–516; V. Auer, "The Pleistocene of Fuego-Patagonia" I–V, *Annales Academiae Scientarum Fennicae* A III (1956–1970), passim.

44 See, e.g., L. Zanatta and J. Evans, "The Rise and Fall of the Third Position: Bolivia, Perón and the Cold War, 1943–1954", *Desarrollo Económico* (Buenos Aires) 1 (2006), pp. 1–2, http://socialsciences.scielo.org/pdf/s_rde/v1nse/scs_a04.pdf (accessed 24 May 2020); F. J. McLynn, "The Ideology of Peronism: The Third Way and the Law of the Excluded Middle", *Government and Opposition* 19 (1984), pp. 193–206.

with a sense of duty. President Juan Perón first approached the president of Finland Juho Kusti Paasikivi with the enquiry whether Auer would be willing to work for the Argentinian government. Paasikivi reputedly told Auer that since the president of Argentina was asking him to come, there was no other option than to go.[45] Auer's position was that of a "consultant on matters concerned with Tierra del Fuego and Patagonia to the Ministry of Agriculture" from 1946 to 1957 while he was employed by the Central Bank of Argentina from 1950 to 1953.

The cause behind the erosion and drought in Patagonia was the intensive use of farmland and grazing, mostly by sheep. Auer's solution was to estimate the production capacity of the pasture and thus calculate the amount of sheep that could graze there in a sustainable way. He subsequently drafted detailed plans for the agricultural development of Patagonia. He gave recommendations on the size of farms that would be run as cooperations, he calculated how many sheep each farm could sustain and estimated where the best areas for herding sheep were situated. He writes in his report:

> In my inhabitation plan, inhabitation has to be planned so that each family can support itself by intensively cultivating their farm. The buildings are planned according to the climatic conditions. The only really suitable places are the river valleys with their alluvial soil. [. . .]. When Patagonia's and Tierra del Fuego's worst enemy, the wind, can be controlled with the planting of trees, it is possible to go far with animal farming in the southern areas as the energy of the sun in these latitudes is still fairly strong.[46]

In his detailed plan, Auer even recommends that the buildings should be built so that they would be suited to the challenging climatological conditions. He presented a short summary of the report he drafted for Perón at the meeting of the Geographical Society of Finland in 1954.[47] However, the plans were not realized because of the volatile political situation.

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45 Alhonen and Alhonen, *Vaakavarren ratsastaja*, p. 271.

46 A short summary of Auer's inhabitation plan is cited in Alhonen and Alhonen, *Vaakavarren ratsastaja*, p. 403 (own translation). See also V. Auer, "Conciderationes cientificas sobre la conservación de los recursos naturals de la Patagonia" [Scientific considerations on the conservation of natural resources in Patagonia], *Idia* 40–41 (1951), pp. 1–36.

47 The report is not published, but some of the notes are to be found at the Finnish National Archive. Parts are published in Finnish as a presentation given by Auer at a meeting at the Geographical Society of Finland on 15 January 1954. See also V. Auer with D. A. Cappannini, "La erosion en la region de los lagos San Martin y Tar" [Erosion in the region of the lakes San Martin and Tar], *Instituto de Suelos y Agrotéchica* 54 (1957), pp. 7–27. See also V. Auer, *The Finnish Expedition to Tierra del Fuego in 1928–1929*, Helsinki: Suomalaisen kirjallisuuden seura, 1934; V. Auer, "Verschiebungen der Wald- und Steppengebiete Feuerlands in postglazialer Zei" [Shifts in the forest and steppe areas of Tierra del Fuego in the post-glacial period], *Acta Geographica* 5 (1933) 2, pp. 1–313.

Patagonia was a region that Auer was interested in professionally, but it did not invoke the same kind of emotional attachment in him as his native Finland did. His methods of study were nevertheless comparatively similar in both cases. Auer had studied Finland and the envisioned Greater Finland from the perspective of economic geography, and his approach towards Patagonia was similar. As in the case of *Finnlands Lebensraum*, Auer again put his scientific skills at the service of a nationalistic regime. From Auer's writings, it is not clear how he felt about the politics of President Perón. However, Auer's letters indicate that Perón tried to make him stay in Argentina and he writes that he practically had to "flee from Perón".[48]

A Global View of the Earth

If the conditions in Patagonia did not inspire the kind of national ethos in Auer as his native Finland did, the region still appears to have influenced his world view in a profound way. Auer's experiences in Patagonia are likely to have increased his awareness of the human global predicament, living on a planet with finite resources that needed to be carefully managed in order to sustain human development. The long-time perspective of a geologist made Auer a firm realist in this respect. Once, when asked when the fertile soil in an eroded part of Patagonia would be restored, Auer pointed at a 70 cm soil profile sample and replied that it might improve after 4,000 or 9,000 years.[49] This may stand as an example of a clash between the time span of the socioeconomic sphere and geological deep time. A geologist has to cultivate a long-time perspective and an ability to understand deep time.

Thanks to his work in Patagonia, Auer became increasingly interested in the phenomenon of desertification, a development he had the opportunity to observe in Patagonia. He coined the term "desert devil" (*aavikkopaholainen*, *el diablo del desierto*) to describe the phenomenon.[50] According to him, desertification was one of the most serious global problems faced by humankind. He states in an interview that "[t]he soil is not inexhaustible but its nutrition can

48 Alhonen and Alhonen, *Vaakavarren ratsastaja*, p. 351.

49 Alhonen and Alhonen, *Vaakavarren ratsastaja*, p. 401.

50 Auer, "Aavikkopaholainen" [The desert devil], *Suomalaisen Tiedeakatemian kokous* [Meeting of the Finnish Academy of Sciences], 12 March 1971; See also L. Koutaniemi, "Aavikkopaholaisen Isä Väinö Auer" [The father of the desert devil Väinö Auer], *Terra* 199 (2007), pp. 178–179.

quickly be depleted. The survival of the living soil is the basis for the existence of human life, the destruction of it has caused greater damage than the world wars together. Nature should be protected in every possible way, also here in Finland."[51] Auer often quoted Franklin Roosevelt's famous appraisal of the importance of the soil: "A nation that destroys its soils destroys itself."[52] Americans who had witnessed the Dustbowl understood that living soil is the precondition for the further existence of the entire humanity and that the destruction of it has caused more damage than the world wars.[53] Auer identified a number of causes for the desert devil, one of them being alternating wet and dry seasons where the dry seasons were intensified as a result of human activities. And if the desert devil did not cause enough problems, Auer identified its "twin brother, the polar devil" (*napapaholainen*).[54] The polar devil had, according to Auer, caused the Eurasiatic tundra. The development of the tundra showed that the northern forest could not reclaim the area that had been lost during an unfavourable climate phase.[55]

Auer's conclusion was that nature must be protected by all possible means, not only in areas prone to desertification but also in his native country of Finland. Even in Finland, Auer cautioned, the desert devil might win terrain. He warned about the drying of swamps (a common practice in Finland ever since the eighteenth century) and the cutting down of forests as measures that in the long term threatened to lead to desertification. As Auer turned 75, he gave an interview where he admitted that he was very pessimistic indeed when considering the future of humans on this planet: "I am an incredible pessimist and I don't try to hide it. A researcher of the natural world is a pessimist."[56] In Auer's opinion, humankind had ravaged nature without giving anything back. Moreover, he voiced the opinion that humans were steering their planet straight towards a disaster. The ecological risks he foresaw could, in Finland as well as in other countries, be fought only by combining everybody's efforts.[57]

51 *Uusi Suomi*, 18 September 1977 (own translation).

52 See, e.g., D. H. Hall and J. Six, "Give soils their due", *Science* 347 (2015) 6223, p. 695.

53 See D. Worster, *Dust Bowl. The Southern Plains in the 1930s*, Oxford: Oxford University Press, 1979.

54 L. Aario, "Napapaholainen ja ilmaston paraneminen" [The polar devil and the improvement of the climate], *Terra* 53 (1941), pp. 57–69.

55 Auer, "Aavikkopaholainen".

56 *Aamulehti*, 6 January 1970 (own translation).

57 Ibid.

From a National Perspective to a Global View

Väinö Auer's writings offer interesting insight into how a scientist perceives different scales: a national, a regional, and a global one. Auer's world view, at the different stages of his career, and with regard to the areas where he was active, changed over time. His early writings, before the Second World War, deal mainly with swamps and peat bogs in Finland, Canada, and Patagonia and partly with other geological phenomena. In the late 1930s and during the Second World War, Auer put his professional skills as a geologist and a geographer at the service of his country. His research on the economic geography of Finland was particularly prominent in this period. There is a strong ideological, patriotic, and nationalist ethos in some of Auer's writings from this time. A further forum for expressions of nationalism appear in the popular travelogues that Auer and other members of his expeditions published – such as naming "discovered" places as Fjordo Finlandia or the Runeberg, Lönnrot, and Kivi glaciers after iconic Finnish writers, when mapping "unknown" territory in Tierra del Fuego.[58] When President Juan Perón invited Väinö Auer to Argentina to resolve the problems of erosion and dryness in the farming fields of Patagonia in 1945, Auer could use the previous expertise from his long and extensive research in the area, together with his experience of Finnish economic geography, in order to find ways of making a region useful and productive. If we look for an ideological component in Auer's report to the Argentinian government, it is that of a professional trying to develop a nation or a region in a sustainable way with the aid of economic geography.

When it comes to the global scale, there is in Auer's writings a strong sense of the vulnerability of the Earth and a perception of the Earth's resources as finite. It was because of his wide and synthetic view of the world that he was able to understand and perceive the ecological threats facing the Earth. More specifically, the understanding of the Earth's vulnerability came through Auer's investigations into the mechanisms of drought and desertification, phenomena that he could study and observe in Patagonia. It was easy to see the same phenomenon in operation at other places and indeed around the entire globe. Auer writes in a paper from 1958 that the atmosphere links all the continents, as does the oceans.[59] He expressed his synthetic view of the Earth in a number of metaphors, for instance in devising the idea of "the clock of the Earth", where the movement

58 Auer, *Tulimaata tutkimassa*, p. 243.

59 V. Auer, "Etelä-Amerikan jääkausista" [About the ice ages of South America], *Suomalainen Tiedeakatemia, Esitelmät ja Pöytäkirjat*, 1958, pp. 129–176; V. Auer, "Miten syntyi tulivuorten purkauksiin perustuva geologinen ajanlasku" [How the geologic timing method based on

of the sea level functioned as the "pointer".[60] The metaphor stems from his research at the Misión swamp on the east coast of Tierra del Fuego. It was possible there to observe seven layers of material from volcanic eruptions (tephra). Into this stratigraphy, Auer placed the variation pattern of the ocean and connected to it the results from research on pollen and silicon in algae. Based on these strata, reaching as far as ten meters into the swamp, Auer gained an understanding of the development of the biota and changes in climate. Another global metaphor describes volcanoes as the "canons of the Earth".

The synthetic and anthropocentric metaphors, such as the clock and canons of the Earth, are examples of how a thinker might take into account the links and interconnections that create a relationship between humans and nonhumans, places, and processes. The "global rhetoric" used by Auer is in fact reminiscent of James Lovelock's Gaia hypothesis where the Earth is viewed as a self-regulating organism. Such an organism could perhaps survive but not necessarily in a form inhabitable for humans.[61] However, Auer, although a geologist, was deeply concerned about the human species. Even though he was aware of the processes that unfold during vast stretches of time, he called for any small things that the humans could do in order to preserve their habitat.

Although Väinö Auer's views underwent changes during his long career, he continued to be a patriot even as his focus expanded to encompass a global view. When taking the scales Auer is using as a point of reference, we can observe different, at first sight even contradictory, views of the world: on the one hand, a self-serving patriotic ethos and, on the other hand, a standpoint that could be termed as an environmental citizenship or stewardship of the Earth. Auer approaches the nation of Finland from the point of view of a patriot interested in economic geography and the region of Patagonia from the point of view of his profession and economic geography. By contrast, he views the Earth, certainly from the perspective as a geologist but also from an ecological point of view. It is possible to interpret this as a discrepancy between his views on the national and regional scales, on the one hand, and the global scale, on the other hand. However, such controversies are typical for most people, and it is particularly widespread when there is conflicting interest between the regional, national, and global.

volcanic eruptions was developed], *Suomalainen Tiedeakatemia, Esitelmät ja Pöytäkirjat*, 1958, pp. 62–73.

60 Ibid., pp. 408–410; Alhonen and Alhonen, *Vaakavarren ratsastaja*.

61 See J. E. Lovelock and L. Margulis, "Atmospheric Homeostasis by and for the Biosphere: The Gaia Hypothesis", *Tellus. Series A* 26 (1974) 1–2, pp. 2–10.

In conclusion, Väinö Auer must be regarded as the first Finnish scholar to foster a global consciousness and to develop what can be termed as a "global gaze". His global consciousness was the result of the various places around the globe that he studied as well as his training as a geologist. Auer's research had a comparative element, which is likely to have contributed to the emergence of his synthetic, global view of the world. His ideology is that of an environmental thinker, marked by the concern about the human activities towards the natural environment, coupled with an urge to preserve and conserve nature.

Is there anything global historians can learn by investigating the national, the regional, and the global scales of analysis of history as read in a geologist's work? If global historians are interested in a long-time perspective and we want to engage with the concept of Anthropocene, I would say we do. However, because of the focus on documents produced by human societies, historians are not particularly well equipped to operate on a truly grand scale, and few historians actually do big history. A method where several spatial scales are investigated simultaneously, with big history being one of them, would arguably be a more comfortable way for a historian to approach the grand scale. For historians interested in the different scales operating in the human and non-human pasts, and particularly on the scale of big history, Väinö Auer's views are therefore highly interesting. Geologists are well equipped to deal with the scale of big history, and Väinö Auer's global scale comes close to the big history perspective. By approaching the subject through a geologist, it is possible to embrace a "deep view" of the Earth while at the same time considering other scales where historical developments are at play. Still, it should be noted that the scales are not inherent and they can be seen as embedded into and overlapping each other. And, finally, if phenomena being perceived on a national scale and a global scale appear to adhere to different ethical positions, the overlapping of the scales may open up the possibility of widening the ethical consideration of a nation into that of the global and vice versa.