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Humanities and the Social Sciences in the International Polar Year

Issues and Projects from a Swedish Perspective

ABSTRACT In this article, we present research and other International Polar Year (IPY) related activities within the humanities and the social sciences with an emphasis on Sweden. The three previous IPYs in 1882–83, 1932–33, and 1957–58 (IGY) were almost exclusively a domain for the natural sciences. The inclusion of the humanities and social sciences, as well as the involvement of Arctic peoples, is one of the major developments in the present IPY – a recognition of the fact that the polar areas are the home of people and scenes for human action and interaction of global importance. There are several IPY research projects with Swedish participation under way, on themes such as governance and adaptation of human-environment systems, industry and science in the field, social strategies of Arctic indigenous peoples, and North Atlantic diplomacy. There are also a number of activities within outreach and education that will present the pressing issues of polar science to students, policy makers and the general public. The IPY effort is the largest ever undertaken by the Swedish social sciences and humanities in and on the polar regions in such a short period of time. The research is conducted at several universities, notably Gothenburg, Umeå, and the Royal Institute of Technology. It will leave a legacy of importance for the polar research community as well as for the peoples of the North.

KEYWORDS Arctic humanities, Arctic social sciences, Arctic research, International Polar Year (IPY), Arctic field sciences, Arctic industrial heritage, Arctic research funding

The International Polar Year 2007–08 includes something that in the IPY framework programme is called "The Human Dimension," one of six major areas of interest (ICSU/WMO 2007, ICSU 2004, www.ipy.org). It is a timely acknowledgement of the long standing human presence in the polar region, and of the knowledge traditions that the peoples of the North have developed in the past and the present. The Arctic in itself represents a multitude of parallel knowledge traditions, some of which are modern and have arrived with colonialism and polar science. Nevertheless, so dominating has the image of the natural sciences become that until recently it completely overshadowed other forms of knowledge, whether indigenous or stemming from the humanities or the social sciences.

However, if we look more closely at the research done by polar scientists historically, it is of course clear that the so called "human dimension" is not new. Even in the early years of exploration by European hunters, traders, and navigators there was a considerable interest in indigenous populations, their culture, myths, religion, and language (Harbsmeier 2002, Nansen 1911). This interest mirrored general interest in overseas cultures and gradually formed part of colonial science, as it emerged in the eighteenth and particularly the nineteenth centuries (Sörlin 2001, Bravo & Sörlin (eds.) 2002, Sörlin 2006). Toward the end of the nineteenth century a modern Arctic anthropology emerged, with Franz Boas as one of the celebrated pioneers, conducting field work during the first International Polar Year 1882–83 (Cole & Müller-Wille 1984, Boas 1894), but with important German colleagues in the field such as Heinrich Abbes (Abbes 1884, 1992), and with forerunners among, for example, Swedish (A.E. Nordenskiöld) and German scientists (Lüdecke 2007).

With the exception of individual scientists or anthropologists, the human dimension has been largely absent from the research programmes during the International Polar Years, however. The first IPY, in 1882–83, was motivated by the belief that the solutions to fundamental problems of meteorology and geophysics were to be found in the polar areas and that such phenomena could not be surveyed by one nation alone (Lüdecke 2004). These motivations have been strong also in the following IPYs. In 1932–33, meteorology was the dominating discipline, focusing on the global implications of the newly discovered jet streams (Korsmo & Sfraga 2003). The International Geophysical Year (IGY) 1957–58 focused on research problems concerning the geophysical properties of the earth – the volume of the ice-cap in Antarctica and the theory of continental drift are examples – with some medical observations on the personnel of the ice stations in Antarctica and on the drifting floes as marginal exceptions (Chapman 1959, Belanger 2006). Thus, the rationale for the international cooperation effort of the IPY was closely tied to the nature of the research problems and the methodological and logistical needs of the research. Understanding human activities in the polar areas was simply not on the agenda. The peoples of the circumpolar Arctic were at best regarded as useful local informants or resources for the logistical needs of the scientists.

The IPY 2007–08 represents a breach from that tradition. In our view, one of the greatest advances of this IPY is that it emphasizes the fact that the polar areas are the home of people – indigenous peoples and others – and scenes for human action and interaction, today and in the past. The inclusion of the "Human dimension" in the scope of science for the IPY is a recognition of the fact that the polar areas are not just an arena for natural science, but also for Ssocial science and the humanities. A substantial part of the projects supported for participation in the coming IPY involves disciplines like anthropology, sociology, economics, history and archaeology. The emphasis on including the human dimension is also visible in the outreach activities being planned and implemented in connection with the IPY.

Polar arenas for inclusiveness and learning

For the social and human scientists and the polar communities alike, the International Polar Year 2007–08 promises to be a watershed experience. One major

concern is inclusiveness and participation, so that local people, social scientists and different kinds of stakeholders can find ways of cooperating in earnest in IPY projects. This is not a trivial task but already at the starting phase there are signs to suggest that this is actually happening, for example with participatory observation in projects in northern Canada and Alaska, and in projects in northern Scandinavia (see below). The ambitions include the organisational structure of data gathering, management and sharing, outreach, education and information in order to facilitate a convergence of social science issues and the concerns and knowledge interests of local communities.

The IPY will provide arenas of collaboration between physical sciences and the humanities and social sciences. This is not totally unchartered ground, but the presence of the non-sciences will be much larger in this IPY so as to hopefully contribute to a genuinely multi-disciplinary (and not simply 'systems-based') understanding of the environment. The need for cooperation across disciplines is dire because of the rapid social and environmental change that is giving great impetus to coupled human-environment systems. Almost by necessity this will have to include local or 'traditional' knowledge, which should be quite natural when scientific work is undertaken in the back-yards and on the environments of local people. Ultimately it is expected that this IPY will provide opportunities for a broad scientific community to include the hopes and visions of local peoples into their concerns and research agendas, a meeting the fruits of which will be reaped long after the IPY has concluded. With any reasonable sense of expectation this will in turn lead to better prospects for policies in the and for the polar regions. Some of the social sciences and humanities projects address these issues head on: policies for sustainable development, adaptive resource management, and policy tools for vulnerability and resilience (Krupnik et al. 2005).

The social sciences and the humanities also play considerable roles in data management and monitoring, areas which traditionally have been almost exclusively pursued by the natural sciences or the national agencies concerned with weather, natural resources or others. In preparation for an integrated set of Sustained Arctic Observation Networks, SAON, the social sciences have provided inputs, through IASSA and through special workshops on social science data management, one in Copenhagen in June 2007. The Swedish input into that process has been considerable and Sweden was chosen as the first venue in a series of workshops to establish SAON as a major multinational legacy of IPY with strong implications for Arctic residents and Arctic policies. Initiatives from Swedish participants have assisted in this development, not least through the Arctic Council.

Governance and adaptation of human-environment systems

The human dimension also takes a central place in International Polar Year activities in Sweden – in humanities and social science research and in IPY outreach activities. In academic research, several different themes can be identified – Governance and adaptation of human-environment systems, Industry and science in the field, Social strategies of Arctic indigenous peoples and North Atlantic diplomacy (the presentations of IPY research projects in the following are based on IPY project descriptions at www.ipy.org and on personal commu-

nication with project leaders). Several research projects take their starting point in the ongoing and accelerating process of climate change, focusing on its impact on northern communities, northern peoples – indigenous and others – and governing systems in the Arctic. Two such projects – CIGSAC and CAVIAR – involve researchers at Umeå University in Sweden.

CIGSAC (IPY project ID 316) – "The Capability of International Governance Systems in the Arctic to Contribute to the Mitigation of Climate Change and Adjust to its Consequences" – is a multidisciplinary project, based in the sciences of international relations, international law and political science. Its objective is to study how Arctic international governance systems respond to the predicted impacts of climate change on the peoples of the far north. It will analyse the vulnerability and/or resilience of these regimes to changes and how they are capable of being part of the effort to mitigate their effects. The project intends to highlight weaknesses and strengths of the various international governance systems. On a theoretical level, it seeks to understand general changes in international governance and soft-laws, which are believed to assume a stronger role than previously. The project will study a number of international co-operation bodies in the Arctic, including those of indigenous peoples, but will focus on the Arctic Council, because of its potential role as a platform to present Arctic views in negotiations concerning global climate change. Beside a book and journal articles, the project hopes to deliver several PhD thesis.

The Swedish subproject within CIGSAC is called "National and international adaptation to climate change in the north: international organisational capacity" and is financed by the Academy of Sciences in Finland. Its focus is not only the adaptive capacity of Arctic international governance systems to the impacts of climatic change, but also to the effects of globalisation. It aims to identify the capacity of political systems to respond, adapt and interact internationally, both as individual organisations in horizontal networks and vertically on the national level. What is the adaptive capacity of international Arctic organisation? To what degree does vertical organisation and coordination to support adaptation exist between different levels of governance? The study will map and describe the international Arctic governance system, its overlaps, its gaps, and the communication between organisations, their political readiness, capacity and awareness.

There is also a Swedish project within the IPY consortium CAVIAR (ID 157) – "Community Adaptation and Vulnerability in Arctic Regions." The starting point of CAVIAR is the rapid environmental and social changes facing local communities and societies in the Arctic and the anticipation that local responses to these changes will depend on the vulnerability and adaptive capacity of human-environment systems. The objective is to develop and adapt methods for assessing the vulnerability and adaptive capacity of the "human systems" in local Arctic communities. On the basis of such analysis, the project will compare experiences of change in different communities and differing contexts. The project has an interdisciplinary character, involving researchers in political science, geography, anthropology, ecology and animal physiology in the nations involved. It aims to develop the empirical and theoretical understanding of processes that shape vulnerability and adaptation in the circumpolar region. Researchers will base their studies on government data on socio-economic and

climate conditions as well as field work in communities across the circumpolar Arctic – fieldwork that, in line with the call of the present IPY, will be based on close collaboration with indigenous peoples and make use of their knowledge. It is hoped that the project will provide bases for policy-making locally and regionally. The Swedish sub-project within CAVIAR is called "Vulnerability and resilience of coupled socio-ecological systems in multi-use forests" and is funded by the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS). It focuses on the management of so called *multi-use forests* (forests used for forestry, reindeer herding, tourism and recreation). Such forests are often subject to controversies over policy aims, land use rights and management, while the policy and management systems dealing with them often are sectorial and unable to integrate the needs of different land users in a satisfactory way. A hypothesis is that under external challenges, such as climate change, such systems will face increasing problems. The aim of the sub-project is to identify the needs and goals of the stakeholders in multi-use forests and to identify vulnerable nodes in these socio-ecological systems. Another objective is to identify good examples in terms of resilient, adaptive nodes in the systems, and ways in which the systems can be made more resilient. With an inter-disciplinary approach, the research will be based on interviews, stakeholder meetings and literature surveys. The study will develop qualitative narratives as well as models to describe the system and its way of functioning, especially in the light of external forces such as climate change.

A third IPY project with Swedish participation, funded by the Norwegian Research Council, and dealing with the impact of climate change on Arctic peoples is EALAT (ID 399) – "Reindeer herding and climate change." This project deals more specifically with the impacts of climate change on the indigenous peoples in northern Scandinavia – the Sami – and their reindeer herding. The project involves both scientifically trained researchers and people from Sami communities and will focus on the capacity of reindeer herding to adapt to climate change and variability. The project will rely heavily on reindeer herders' traditional knowledge and analyses of their ability to adapt to environmental variability and change. It is emphasised that reindeer herding practices and knowledge can be used as models for sustainable exploitation and management of northern terrestrial ecosystems. However, it is not only a matter of making use of indigenous knowledge, but also to document this knowledge before it is lost in the societal and cultural transformations in the Arctic, associated with globalisation.

Indigenous knowledge is also at the core of IPY projects based at the Abisko research station in Swedish Lappland – ENVISNAR (ID 213) and "Snow and Ice." These projects are interdisciplinary, mostly based within the natural sciences, but they deal with the impacts of climate change on people. In ENVISNAR (Environmental baselines, processes, changes and impacts on people in sub-arctic Sweden and the Nordic Arctic Regions), the knowledge of Sami and their observations of climate change impacts are integrated with natural science research to deal with the research problems of the project.

Industry and science in the field

Societal consequences of climate change are also a starting point for research projects within the field of history and archaeology. An IPY project with signi-

ficant Swedish involvement is LASHIPA – Large Scale Industrial Exploitation of Polar Areas (ID 10). The project is led from the Arctic Centre, University of Groningen and involves researchers at the Division of History of Science & Technology in Stockholm. Its point of departure is the increasing interest in the fossil energy resources in the circumpolar north, triggered by the new possibilities for extraction and transport that global warming may offer, as well as the rising world market prices for crude oil and beliefs that the existing oil resources in the world will be significantly reduced in a couple of decades. In the wake of this development, attempts have been made by states to establish exclusive rights to natural resources in the Arctic. Therefore, national rights and sustainable resource management will be on the agenda of international negotiations in the future. These developments call for research efforts on how operators from the west have dealt with the natural resources and territorial rights in the polar regions in the past – in the Arctic and the Antarctic.

The aim of the LASHIPA project is to explain the development of industry in the polar areas from the seventeenth century until today, and the consequences of that development for the geopolitical situation and for the regional environment in the polar areas. Previously, historical research on whaling and mining in the Arctic and Antarctic has often been characterized by a narrow national perspective. In contrast, the LASHIPA project is problem-oriented and will seek explanations from an international comparative perspective. Besides the traditional written sources of historical research, it will study the material remains of industry on different sites in the Arctic and Antarctic. At least four field campaigns will take place during the IPY – two on Svalbard in the Arctic, two in the Antarctic, South Georgia and South Shetland.

There are two subprojects with Swedish participation, funded by the Research Councils in the Netherlands (NWO) and in Sweden (VR). "Green Harbor, Spitsbergen and the international history of exploitation of the polar areas" aims to give general explanations to the development of industry in the polar areas from an international comparative perspective. It will focus on the three target areas for the LASHIPA project – Grønfjorden on Svalbard in the Arctic and South Georgia and South Shetland in the Antarctic. The project will deal with research problems concerning driving forces behind industrial development in the polar areas, and interaction between governments and companies in the struggle over natural resources and territorial control. Moreover, it will investigate the strategies of industrial companies in designing and transferring technology to the polar areas and in establishing social order on isolated sites with no-man's land conditions. Another sub-project, "Rituals and symbols in the struggle over the polar areas and their natural resources," aims to study the relation between industrial activities in polar areas and the strategies of national governments in establishing influence. The project focuses on the symbolic and ritual activities of industrial companies in claiming control over natural resources and territories, and their impact on the geopolitical situation in the Arctic and Antarctic. Both sub-projects build on previous work by Dag Avango (Avango 2003, 2005). At the Royal Institute of Technology in Stockholm (KTH), there will also be researchers dealing with social history and community planning in mining communities on Svalbard.

Scientific research on climate change has, for the last century, been increas-

ingly based on data collected at field stations in the polar areas. Yet, within the history of science, as well as among the public, our knowledge of how this data is created and how the knowledge is constructed – in the field – is limited. Therefore, scientific practises at research stations in the polar areas, IPY field stations in particular, is a core theme in another IPY project with strong Swedish participation – "Field stations" (ID 100). In this project, researchers from six nations study the history and legacy of the four IPY's through some of their field stations, which are compared with other field stations in the Arctic and Antarctica.

The project identifies several rationales for studying field stations. Historically, they have been the most prominent and concrete feature of the International Polar Years, including the present one. The polar field stations are modern features, comparable to laboratories or observatories and encapsulate many characteristics of modern science – laboratory practices and methods, precision instruments and territorial claims. Field stations, and the scientific expeditions that created them and used them as vantage points, are inseparable from polar research. They form important parts of the infrastructure of polar research in the past two centuries. They have also served as flag carriers, and as symbols of political, diplomatic and economic ambitions of the nations to which their founders belonged.

The core theme of the project concerns field stations as units of knowledge production in the field, but also their role in broader networks and contexts of science, policy making and polar politics. With an anthropological approach, researchers from the project will identify and analyse the work (e.g. planning, calibrating, publishing, management, hidden labour, sharing data) required to make field observations meaningful across a range of scales and contexts of users or audiences. To the field stations project, the present IPY 2007–08 represents a unique opportunity to understand how the field sciences have generated a scientific and cultural legacy. However, the project will also analyse former research station sites and important non-IPY sites, to understand how the residues of scientific practice become valid knowledge, collective memory and heritage.

In the "Field stations" and LASHIPA projects, the geopolitical dimensions of stations in the polar areas are important research problems. The political dimensions of polar research are also at the core in another IPY project with Swedish involvement – "Changing Trends in Polar Research as Reflected in the History of the International Polar Years" (ID 27). This project brings together political scientists and historians of science (Umeå University, Gothenburg University), in an effort to study the development and institutionalisation of Antarctic research, with a focus on the International Geophysical Year (IGY) 1957–58. An important objective of the project is to understand to what degree the previous three International Polar Years were driven by scientific criteria. The project will investigate to what extent compromises were made as a result of political barriers and logistical limitations, as well as the role of new technologies. The project will seek an understanding of the background factors driving nations to choose to participate, or not to participate, in the International Polar Years – territorial interests, security politics, national prestige, scientific agendas etc. Special attention will be devoted to the relation between the IGY and the national security politics of the USA and the Soviet Union during the Cold War.

Moreover, the project will deal with the process leading to the institutionalisation of Antarctic research and the formation of SCAR – Scientific Committee on Antarctic Research. The project will be based on archival sources, but when possible also with oral sources since important participants in the IGY 1957–58 and behind the Antarctic Treaty are still alive.

Sami, social strategies, and North Atlantic diplomacy

A number of research projects within the social sciences and humanities deal with research problems concerning indigenous peoples in the circumpolar Arctic. As earlier mentioned, some of them deal with the impacts of climate change on the lives and economies of indigenous populations. However, there are other research problems addressed. In "Dynamic Social Strategies in Arctic Environments" (ID 6) – a Danish-led IPY project with Swedish participation – long-term changes in movement and communication among Arctic peoples are investigated. The project aims to be an internationally oriented comparative research programme to develop a new and integrated understanding of Arctic cultural history. From a long-term historical perspective, the project hopes to bring about an understanding of strategies of movement, communication, and other social actions which Arctic peoples create when interacting with their social, cultural, and natural environments. The Swedish sub-project within "Dynamic social strategies" is led by archaeologists from the University of Lund. With logistical support from Denmark, they will investigate steatite objects and steatite quarries, as well as Paleo-Eskimo sites in the Nuuk fiord on Greenland.

"Representations of Sami in the Arctic and Sub-Arctic" (ID 30), focuses on the image of the Sami in nineteenth-century polar literature (Umeå University, University of Tromsø, KTH). The objective of the project is to study how the picture of the Sami people in the nineteenth and twentieth centuries was created in travel writings by explorers and scientists. The research will be based on written sources, mostly in literature and scientific publications. This project builds on previous work by Karin Granqvist (2004).

Alongside, and partly overlapping, with the IPY projects there are a number of other research projects that occur concurrently. Some of those belong to a major EUROCORES program called BOREAS, initiated by the European Science Foundation and focusing on the humanities. Among a group of six projects three have Swedish participation, mostly in the historical sciences and archaeology. Another initiative is "Nordic Spaces," which is a programme conducted in cooperation between a range of funding agencies in the Nordic countries. Under this umbrella a project entitled "Arctic Norden: Science, Diplomacy and the Formation of a Post-War European North" has been started with participation in Sweden (KTH and Gothenburg University), Norway (University of Oslo and the Barents Institute), and Reykjavík, Iceland. Participants are historians, particularly of science and technology, and political scientists focusing on international relations and gender issues. Cornerstone works for this project are Friedman (2004), Helsvig (2007), Røberg (2001) and Shadian (2006). The Swedish Research Council, VR, is funding projects on literary and scientific travellers in the sub-Arctic parts of Scandinavia (Umeå University) and on Arctic glaciology and climate science (KTH).

Reaching out – policy, art, and the wider community

The International Polar Year is not only a coordinated effort for scientific polar research. It is also an international effort aiming to bring new knowledge and the pressing issues concerning the polar areas to the attention of policy-makers and the general public. Therefore, an important part of the Swedish IPY effort has been to initiate and support outreach projects, focusing on the polar areas in general and the Swedish polar area in particular. Financial support has been given that will generate exhibitions and video installations at museums and science centres across the country, book productions, public lecture series and web-portals on polar science within different fields. Art projects have also been supported and there is a significant workshop taking place at Bildmuseet, Umeå University, in September 2007, featuring a work by London-based artist Isaac Julien, *True North*, and with interventions on relations between art, science, and indigeneity in the Arctic.

Education has a central role in Swedish IPY outreach activities – in schools and in the broader public sense. One project financed by the Research Council, through the Swedish IPY committee, is a nation-wide lecture series – "Främmande Nord" ("Foreign North"). The lectures will focus on the image of the North in non-Scandinavian travel literature from the eighteenth and nineteenth centuries. Another significant project, co-financed by the Swedish and Norwegian IPY committees (and other funding agencies), is an educational school textbook on the history of the Barents region. This region, divided between Sweden, Norway, Finland and Russia, shares a common historical experience of life in the Arctic and existence on the periphery of nation states, that is typically absent in the history schoolbooks in the region. The book will fill that gap and will be published in several languages.

Building a northern legacy

Without doubt the IPY effort is the largest ever undertaken by the Swedish social sciences and humanities in and on the polar regions in such a short period of time. Within two years a total of about forty scholars will participate in some fifteen research projects. These have been funded, for the Swedish principal investigators and/or individual Swedish participants with a total of circa 20 MSEK (2.2 M€) to which should be added funds for outreach and education, museums, art, books, lecture tours and funds contributed by universities and institutes as part of researchers' regular salaries and research infrastructure. All figures should be treated with caution, however, since they are conspicuously hard to estimate and can never be precise. They are given here just as indications of a level of ambition and coordination. Further signs of the progress made are that Swedish scholars feature prominently as keynote speakers and contributors to a number of international conferences, and that Swedish scholars serve as principal investigators in several of the large international research projects mentioned above.

The situation as it stands in 2007 could interestingly be compared with the situation only one or two decades ago. By then, only scattered work was done on the polar regions by Swedish social scientists and humanists. In the middle of the 1990s the very first "polar" dissertation in the historical sciences was presented in Sweden, by Urban Wråkberg, then at the Centre for History of Science

at the Royal Swedish Academy of Sciences (Wråkberg 1995). At about the same time, the first ever multidisciplinary (and multinational) Swedish-led "Humanities Arctic Expedition" was being planned with the Swedish Polar Research Secretariat providing important logistics and infrastructure and, not least, their considerable field experience. The boat expedition, to western and northern Svalbard and North East Land, took place in August 1997 (Sörlin 1997), and was immediately followed by a commemorative workshop in Longyearbyen on the centennial of S. A. Andrée's balloon expedition (Wråkberg (ed.) 1999). During the following years expeditions and field visits were conducted as Swedish historians, archaeologists, anthropologists, and antiquarian specialists prepared and performed research on Arctic, and occasionally Antarctic, projects. The research results have been presented in several publications (Avango 2005, Elzinga 2004, Lewander 2004, Sörlin 2002, Bravo & Sörlin (eds.) 2002). There were also PhD courses and training that occurred in the field (Avango et al. 2005) and a gradually increasing interest in the polar region as a topic of interest.

Ten years later, with the IPY in full swing, it seems as if the social sciences and humanities have come of age as legitimate operators with significant voices when it comes to Arctic affairs. They can legitimately claim to have contributed to the strong interest in involving northern residents as participants and observers. They have also played a role in establishing respect for indigenous knowledge traditions and an integrated and participatory approach to northern research. Hopefully, this may go down in years to come as a distinct legacy – a part of the overall Swedish IPY legacy and one that will be useful for a variety of communities in research, policy, and among northern residents.

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