

SCAR Action Group History of Antarctic Research

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on the
History of Antarctic Research

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Bavarian Academy of Sciences and Humanities
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Programme
Booklet of Abstracts

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Thursday 2 June 2005

8: 30-9:00 Registration

09:00-9:15 Workshop Welcome and Opening

Ludwig **Braun**, Commission of Glaciology, Bayerische Akademie der Wissenschaften Munich

Cornelia **Lüdecke**, President of SCAR Action Group History of Antarctic Research, Munich

Aant **Elzinga**, Department of History of Ideas and Theory of Science, Göteborg, Sweden

9:15-13:00 Session I Chair: Ludwig **Braun**

09:15-10:15 *The dawn of Antarctic scientific consciousness*

Jorge **Berguño**, Chilean Antarctic Institute, Santiago, Chile

10:15-10:30 *Poster Presentation*

Changes to Antarctic Identity Rhetoric

Jason **Davis**, The Ohio State University, USA

History of Antarctic Research: The Australian Context

David Michael **Dodd**, Royal Society of Victoria / University of Melbourne, Melbourne, Australia

Wilhelm Filchner and Antarctica

Helmut **Hornik**, Filchner Archive, Munich, Germany and

Cornelia **Lüdecke**, Centre for the History of Science, University of Hamburg, Germany

10:30-11:00 Coffee Break - Poster Session

11:00-12:00 *Argentine Scientific Interests in Antarctica, 1946-1959*

Adrian **Howkins**, University of Texas at Austin, USA

12:00-13:00 *The U.S. Antarctic Oversnow Geophysical-Glaciological Research Program of the International Geophysical Year (IGY) 1957-58 from the View of a Research Scientist Participant*

John C. **Behrendt**, Institute of Arctic and Alpine Research, University of Colorado, USA

13:00-14:00 Lunch

14:00-18:00 Session II Chair: Cornelia **Lüdecke**

14:00-15:00 *The Political Dimensions of the NBS - Expedition to Antarctica 1949-52*

Lisbeth **Lewander**, Department of Gender Studies, Göteborg, Sweden

15:00-16:00 *The Swedish non-participation in the Antarctic leg of the IGY*

Aant **Elzinga**, Department of History of Ideas and Theory of Science, Göteborg, Sweden

Action Group on the History of Antarctic Research

The 50th anniversary of the International Geophysical Year is in 2007-2008. On this occasion an Action Group on the “History of institutionalisation of Antarctic Research within SCAR” (short: “AG History of Antarctic Research” or “SCAR History AG”) was established under the Delegate Committee on Standing Committees and Outreach of SCAR during the SCAR XXXIII Delegates Meeting at Bremerhaven in October 2004. It is the first international and interdisciplinary group devoted to the history of polar research.

The Aim of the Action Group

The aim of this working group is to obtain insight into the evolution of Antarctic research and the emergence and development of institutions to co-ordinate what was first called the Special Committee, and then Scientific Committee on Antarctic Research (SCAR). We plan to study to what degree research in the Antarctic has been driven by scientific criteria, and to what extent compromises were made in the light of political barriers, levels of technological development, logistical limitations, and physical hazards.

In historical perspective, a review will be made of essential background factors, both scientific and non-scientific, at work when nations were moved to participate in the International Geophysical Year (IGY, 1957-1958) at the time of the Cold War. Pertinent in this respect are the different roles played by non-governmental scientific organisations as distinct from intergovernmental organisations or modes of international organisation. Additional socio-cultural and political background factors will be considered with regard to major nations that chose not to contribute to the IGY.

Our Plans

We plan to discuss several aspects of the phase prior to the International Geophysical Year and the initial attempts to institutionalise polar research. Traditionally, field science practised in remote geographical regions was either a byproduct of exploration or an activity exploited by economical interests or territorial claimants. An important aspect of the early international polar year initiatives in the past has been the requirement that expeditions and projects be driven by scientific research instead of exploration. This principle was reiterated in Belgium by a number of internationally minded scientists (Henryk Arctowski, Otto Nordenskjöld, Jean Charcot, William Speirs Bruce, and others). This was when efforts were afoot to establish an international polar commission, a hybrid combination of inter-governmental and non-governmental scientific and other organizations. Although such a commission was actually founded, it had a very marginal influence on events and was soon eclipsed by the First World War.

Our questions to the history of Antarctic Research

Engagement: What motivated an individual person or a given country to engage in Antarctic research?
Did the motivation differ during different historical time periods?
Is it possible to identify different types of role-figures?

Realisation : How were Antarctic research agendas set up and implemented?
What kind of arguments were used to promote Antarctic research?
What sort of funding was available, and did different modes of funding affect the character of an expedition and the way it was conducted?

Co-operation: When did co-operation for research pertaining to Antarctica occur, and what was the general orientation and scope?
What were some of the obstacles associated with multi-lateral or international co-operation?

Leading figures: In the context of different national settings and perspectives, who were the persons that came to be recognised as leading figures in Antarctic research, and for what reasons?
To what extent did some scientists emerge as diplomats within science, or beyond it in the international political arena?
How were they regarded by their scientific colleagues, by politicians, media, etc?

The answers may be found in our workshops.

ABSTRACTS

Antarctica in the 1980s: Subject of international politics

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After the Antarctic Treaty had come into force in 1961, Antarctica was not a big issue in international affairs at all. The twelve signatory parties of the Treaty managed to neutralise the sovereignty conflicts in the Antarctic area, which had blazed up in the 1940s and 1950s. They preserved the Antarctic area for peaceful purposes only, in particular for scientific research. For about two decades, this ‘paradisiacal’ area stood aloof from the international arena, which was dominated by the Cold War, decolonization and war in the Middle East.

In the 1980s Antarctica moved gradually towards the centre of the international stage. A growing number of governments and international organizations were interested in Antarctica. In my presentation I will describe four developments in the 1980’s, which made this period the most dynamic and turbulent period in the history of the Antarctic Treaty System (ATS). These developments are:

- The intensifying debate within the ATS, particularly about a minerals regime.
- The attack on the ATS in UN circles. ‘The question of Antarctica’ became an annual consideration in the United Nations General Assembly.
- The increasing support for the ATS. In the 1980s the ATS expanded rapidly. The group of both non-consultative and consultative parties of the Antarctic Treaty almost doubled in ten years time.
- The growing concern for the conservation of the Antarctic natural environment.

I shall elaborate on the explaining factors, such as speculations about the resource potential of the Antarctic region, the prospect of a possible review of the Antarctic Treaty System in 1991, the general increase of environmental concerns and the publication of certain scientific results.

This oral paper is part of my PhD research ‘*Dutch Antarctic policy and research since 1945, in comparison with that of Belgium and Germany*’.

The U.S. Antarctic Oversnow Geophysical-Glaciological Research Program of the International Geophysical Year (IGY) 1957-58 from the View of a Research Scientist Participant

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When 12 countries established scientific stations in Antarctica for the 1957-58 International Geophysical Year (IGY) the Cold War was at its height, seven countries had made claims in Antarctica, and the Antarctic Treaty was a few years in the future. The U.S. program was operated by the Navy and territorial claims were secretly made at several locations during the IGY; these were never officially announced and the U.S. remains a non-claimant state. I was a graduate student geophysicist (assistant seismologist) on the unexplored Filchner-Ronne Ice Shelf as part of the only large scale field project of the U.S. program. Starting in 1956, the U.S. began a series of oversnow traverses making seismic reflection ice soundings (and other geophysical measurements) and glaciological studies to determine the thickness and budget of the Antarctic Ice Sheet. The USSR and France made similar traverses coordinated through the IGY. Although geology and topographic mapping were not part of the IGY program because of the claims issue and the possibility of mineral resources discoveries, the oversnow traverse parties did geologic work where unknown mountains were discovered. The oversnow traverses continued through 1966 and resulted in an excellent first approximation of the snow surface elevation, ice thickness and bed topography of Antarctica, as well as mean annual temperature of that era and snow accumulation.

The vacuum tube dictated the logistics of the oversnow traverse program. Seismic equipment including heavy batteries weighed about 500 kg. Therefore a Sno-Cat tracked vehicle was needed to carry this load. Usually three such vehicles were needed for safety. Because about 3-4 l/km/Sno-Cat fuel was consumed, as much as 120 kg/day of fuel was required. A resupply flight could only carry only about 600 kg/flight (varying greatly as to range and type of aircraft), the major air logistic program of the U.S. IGY program were the three oversnow traverses (other than the resupply of the seven U.S. stations in Antarctica. The Filchner Ice Traverse, on which I participated, encountered many crevasses. Vehicles broke through thin snow bridges and one man fell deep into a crevasse. Fortunately there were no deaths and only one serious injury resulting from crevasse accidents on the U.S. Program.

Because of hidden agenda related to the Cold War, U.S. (and possibly Soviet) scientists felt that Antarctic research was a duty rather than a privilege as today. The U.S. air program averaged 3.8 deaths/year from 1955-1961 in contrast to 0.1 death/year since 1970. At least three U.S. scientist died in the early period of the U.S. program. When, if ever, do the ends justify the means? It is one thing if mature individual researchers, professional technicians, aviators, and others take risks with full awareness of the hazards. But it is quite another thing if relatively naive graduate students and new Ph.D.s looking for adventure, such as my colleagues and I in the 1956-1962 period, are sent into harm's way without knowing specifically what they will face, by ambitious senior researchers pursuing their personal scientific objectives, even though these may be of vital national and international importance. I have worked both sides of this street in the past 50 years.

The start of Dutch involvement in Antarctic research

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Research by Dutch scientists in the Antarctic was carried out during two periods. In the mid-1960's, scientists from the Royal Netherlands Meteorological Institute were part of the overwintering crew in three expeditions to the Belgian-Dutch Station "King Baudouin", situated on the Princess Ragnhild coast. After the last expedition in 1967, the cooperation ended because no agreement could be reached on continuation and / or follow-up programs. As a consequence, there remained only little "polar experience" in the Netherlands.

In my presentation I will concentrate on the second period, starting about 1980, when Dutch interest in the Antarctic grew again, at first outside the scientific community. I will also pay tribute to the people involved. The political scene in those days was dominated by the possible revision of the Antarctic Treaty in 1991. Regulating the permission to explore for precious minerals and oil was an important issue. This evoked activity in different circles; the prospect of exploitation led government agencies to ensure that their countries would not miss part of the cake, however imaginary. On the other hand, NGO's were concerned that exploration, let alone exploitation would cause irrevocable damage to the fragile ecosystems of the Antarctic continent as well as the surrounding seas. The NGO's approached their national committees to lobby for a conservation policy towards Antarctica; in the Netherlands this role was taken up by the Dutch committee of the International Union for the Conservation of Nature (IUCN).

From 1980 onwards, this committee hosted a working group consisting of representatives of various NGO's, government ministries and scientists of different disciplines. It goes without saying that all lobbying to ensure a greater Dutch influence in Antarctic matters would be in vain if there wasn't a program of "substantial scientific research" in the Antarctic. Despite a growing interest among Dutch scientists to work in the Antarctic, in the beginning ornithologists, oceanographers, geologists and glaciologists, results rather than plans were required.

There was and still is a generous hospitality to accommodate foreigners on expeditions, when the planned research fits into the purpose of the expedition. But without a polar tradition, competition for the always scarce funding needed for travel and equipment was difficult.

It took several years before a small amount of money, earmarked for Antarctic research could be secured for pilot projects for a period of three years. It took a long time, mainly because it was realized that Antarctic research would be a commitment for much more than 3 years. The budget increased; under the umbrella of the Dutch science foundation (NWO) an Antarctic committee was set up in 1985. In 1990 the Netherlands were granted consultative status in the Treaty. The science oriented attitude was apparent from the fact that no Dutch Antarctic Station was established. The limited financial means made it more fruitful to support logistics of other countries in a variety of cooperative projects, than establishing a small station in an "easy" area, where already many stations exist.

The dawn of Antarctic Scientific Conciousness

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1. The roots of the gigantic effort in international cooperation concerning the Southern Continent may be found in the late eighteenth century scientific expeditions of James Cook, La Pérouse, Malaspina and, at the start of the nineteenth century, Bellingshausen and Foster. Each one tries to avoid the tracks of its predecessors. Authorities in the ports of call are always respectful and keen to cooperate with the goals of these maritime expeditions. The eighteenth century Anglo-Spanish Treaties consolidate a *statu quo* in the Southern parts of South America (*Vide* San Lorenzo or Nootka Sound Treaty 1790) that contributes to a climate of friendly relations between maritime powers, both among themselves and with their colonial establishments.
2. The intellectual construction of Antarctica is an accomplishment of the nineteenth century. Not only governments and their agencies and instrumentalities, but the explorers themselves, learned and scientific societies, international congresses and an atmosphere conducive to international cooperation provide the fabric for the advancement of a common objective. However, the history of scientific cooperation in Antarctica and elsewhere is inseparable from a history of scientific ideas and, within that context, the advance towards the notion of concerted, comparative observations in the polar regions.
3. Halley's observations of magnetic variations in the *Paramour*, Hansteen's "Magnetism of the Earth" (1819), Baron von Humboldt's suggestion that the origin of magnetic perturbations was cosmic, and Gauss's prediction that the South Magnetic Pole would be found near latitude 66° S and longitude 146° E, in spite of his own lack of interest in the matter led to the search for a south magnetic pole in Antarctica by Dumont d'Urville, Wilkes and Ross. In addition to the commonly highlighted "magnetic crusade", three scientific disciplines played a key role in the scientific discovery of Antarctica: astronomy, meteorology and oceanography.
4. Astronomy is not often considered as crucial in this respect, but a significant step towards comparative observations in both hemispheres took place, when a German mathematician, Dr. Christian L. Gerling, of Marburg, wrote in April 1847 a letter to Lieutenant J.M. Gillis, USN, from the US Naval Observatory, in which he maintained that new and more accurate measurement of the solar parallax or a confirmation of the existing figure could be obtained by a series of observations of Venus carried out during approximately the same period in both the northern and southern hemispheres. When Gillis selected Washington D.C. and a spot near Santiago, Chile, for his simultaneous and opposite observations, the Chilean National Astronomical Observatory was born, with a pupil of Gerling at Marburg, Carlos Moesta, as its first Director. At the turn of the century, the Director of the Observatory, French born Jean-Marie Obrecht, became an influential member of the first Chilean Antarctic Commission, set up in 1906.

5. Comparative observations in both polar regions were advocated by Otto Nordenskjöld, who prepared himself practically and scientifically for field work in Tierra del Fuego in 1895-97 with advice from his uncle Baron A.E. Nordenskiöld, who had made plans in 1887, in cooperation with the government of Victoria, Australia, for an Antarctic expedition which did not succeed. Drygalski recalled that early initiative when he wrote that “the South Pole problem bore in upon me at various times, when I was working on the Ice-Age phenomena, when I heard that interest had been aroused in Australia, and that money was beginning to come in support of an expedition under Nordenskjöld leadership, I felt I would like to join him as well”.
6. This importance of sub-Antarctic regions for research in Antarctica is underlined. An expedition planned to Antarctica by O. Nordenskjöld with the Chilean Scientific Society in 1896 failed, but the Swedish Antarctic Expedition did depart in 1901. A practical lesson may be drawn from the transmission of knowledge from one explorer to another. Before leaving for Tierra del Fuego, O. Nordenskjöld visited three experts: Professor Steinman of Freiburg, M. Rousson in Paris, and Dr. Michaelsen of Hamburg. Subsequently the Swedish Government requested from Chile: “the same facilities and advantages allowed a German expedition under the guidance of Dr. W. Michaelsen from the Natural Historical Museum in Hamburg”. This is an early antecedent of the freedom and cooperation nowadays guaranteed by the Antarctic Treaty.

Changes to Antarctic Identity Rhetoric

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How has Antarctic Identity changed over the years? While attitudes about Antarctica were largely nationalistic and colonial at the start of its exploration in the early 1900s, there was a gradual shift towards a conception of Antarctica as a "laboratory for science" during the International Geophysical Year of 1957-58. Since then, environmental movements identified Antarctica as a potential "World Park" and the idea of Antarctica as an unspoiled wilderness has been popularized.

I will examine these shifting attitudes and beliefs regarding the Antarctic Identity through the examination of rhetorical references to Antarctica through books, speeches, and treaties. I reference American sources on Antarctica such as Admiral Richard Byrd and the National Science Foundation. By placing their rhetorical references to Antarctica on a timeline, I hope to show the gradual transformation of attitudes towards the continent and their reflection in governance. This has impacts on how Antarctica is governed and what priorities are stressed in that governance.

History of Antarctic Research: The Australian context

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The History of Australian Antarctic Research is being examined within the context of Australia's involvement in Antarctica during the first three Polar Years, with particular reference to the interest shown by early scientific societies, scientific institutions and governmental agencies.

The activities of these agencies are being further examined within the context of the four Workshop Themes during each Polar Year time frame. The establishment of the short lived Australian Antarctic Committee 1886/88, which grew out of the activities of the first Polar Year 1882/83 and the role played by Royal Society of Victoria and European scientists both in Australia and overseas (Neumayer, etc., in developing Australia's interest in Antarctica) is also being examined. Within a purely historical context, Australia's association with early Antarctic and Sub-Antarctic exploration from the 1800's to the *Challenger* Expedition of 1874 will also be documented. The 'Heroic Age' activities centred on Australian Antarctic Territory and the Ross Dependency, followed by the Second Polar Year activities (the Mawson Years) and the Third Polar Year (IGY1957/58) activities (the Law Years) and Antarctic Research in the Modern era – the past 40 years, will be examined.

The treatise will form a valuable backdrop to the Royal Society of Victoria's voyages of scientific discovery for young scientists (refer to the RSV-INTREPID - IPY project No 81), to be conducted during the forthcoming IPY 2007-2008 program.

The Swedish non-participation in the Antarctic leg of the IGY

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Sweden has a peculiar situation when it comes to the International Geophysical Year and its aftermath. In 19th century the country could boast a prominent position in polar research thanks to pioneering expeditions in the Arctic, including A.E. Nordenskiöld's passage with the ship *Vega* from west to east, showing that it could be done. Interest in the polar north continued, but research and exploration in the polar south were more or less left to private initiatives and private funding. Otto Nordenskiöld's (nephew of A.E. N.) expedition to South Georgia and the Antarctic peninsular region, where two winters were spent on Snow Hill Island (Weddell Sea side), was primarily motivated by research interests and an ambition to participate in an international plan of co-operation, while opposed by official Sweden. Nordenskiöld as a prominent spokesperson for

scientific internationalism participated in the organization of an International Polar Commission that was eclipsed by World War I. An effort to launch a new expedition jointly with British scientists also failed because of the war. While Norway was very active as a whaling nation around Antarctica and eventually lay claim to what is now Dronning Maud Land, Swedish activities did not emerge again until 1948-1951 when a Norwegian-British-Swedish expedition (NBSX) spent a couple of winters at Cap Norwegia. This particular expedition, with significant science, has been referred to as the first example of a real internationalist effort. The inspiration came from the glaciologist Ahlman's studies of aerial photographs taken by the German Schwabenland expedition in 1938/39. The Swedish glaciologist Walter Schytt who participated in the NBSX later served as the secretary of the Special Committee for Antarctic Research that with its offices in Stockholm, preceded SCAR. Paradoxically the Swedish government, owing to its emphasis on the Arctic during the Cold War period did not back up its scientists to follow up on this initiative, and consequently Sweden never became a party to the club of founding members of the Antarctic Treaty Organization. It was not until the mid-1980s that interest in south polar research revived, mostly because it was feared that a re-evaluation of the ATO regime in 1991 might lead to the loss of a future window of opportunity (after 1991).

The paper will probe the significance of scientific internationalism as an ethos embraced by scientific communities and its limitations in practice owing to the dependence on support from government and the concomitant ability to interplay at a level of inter-governmental organizations. It was on the successful interplay of non-governmental communities of science and state politics that the formation of the IGY and in its wake the ATO ultimately rested. Sweden as a promising player with a proven track record in science lost out for a number of reasons that will be discussed. Possible general requirements needed to realize international cooperative regimes for the development of new knowledge in polar regions will be highlighted.

Wilhelm Filchner and Antarctica

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Wilhelm Filchner (*13.9.1877 Munich, †7.5.1957 Zurich), being a cadet in the military, used a three-month leave to undertake his spectacular ride over the Pamirs in 1900. In order to get a scientific basis for new expeditions he studied surveying, geography, and geophysics at various military and civil institutions. His next expedition led to North-East Tibet and Western China (1903-05) for carrying out Earth-magnetic measurements as well as mapping.

For preparing an expedition to Antarctica, Filchner had intensive contacts with Norden-skjöld, Shackleton, Nansen, and Neumayer. A test voyage to Spitsbergen was undertaken in 1910. The main island was crossed from Advent Bay to Wiche Bay. At the

same time as Amundsen, Scott, and Shirase, Filchner started the Second German South Polar Expedition (1911-1912). At that time it was still not clear, whether Antarctica is a continent with continuous mountain ranges or a continent, divided in an eastern and a western part by an inlet filled with ice going from the Weddell Sea to the Ross Sea. The main tasks of Filchner's expedition were oceanographic measurements in the South Atlantic, meteorological and magnetic measurements during the winter and geological observations during sledge trips.

Filchner's ship "Deutschland" left Bremerhaven on 3.5.1911 and arrived in Grytviken/South Georgia on 21 October. On 11 December the expedition started to the southern Weddell Sea, where they discovered "Prinzregent – Luitpold – Land" on 30.1.1912. Caused by a sudden spring tide the attempts to install a wintering station in the "Vahsel-Bay" on a previously solid iceberg failed. However, Filchner was lucky to observe and to survey the decay of a gigantic ice field leaving the "Herzog-Ernst-Bay". Another attempt to install the station on the inland-ice was not successful. Due to these unfavourable conditions Filchner decided to return to the open sea, but soon the ship was inevitably trapped by ice at 71°20' S, 26° 40' W on 15 March. Unable to move, it started an 8-month drift generated by the Weddell Gyre. A station for scientific observations was installed on solid sea ice and the scientific work was continued. On 19 November the ship got free at 63°37' S, 36°34' W and immediately returned to South Georgia, arriving there on 19.12.1912, where the expedition was dissolved officially due to a mutiny against Filchner.

The results of his expedition showed that there was no inlet in the Weddell Sea, but a limiting ice shelf - today called "Filchner-Ronne Ice Shelf". Pioneer work was done with aerological ascents to describe the condition of the upper air above the Weddell Sea. Oceanographic investigations described the temperature distribution of the southern Atlantic Ocean for the first time. Most interesting was the discovery of four alternate ocean layers transporting warmer and colder water south and north respectively.

During further expeditions (1925-28, 1934-38, 1939) to Western Asia, Filchner carried out extensive magnetic surveys. After his interment in a British military compound, he finally returned to Europe to settle in Zurich (1949), where he spent his last years.

Filchner's estate is placed in the Filchner-Archive of the Bavarian Academy of Sciences and Humanities. It holds diaries, correspondences, books, movies, pictures, and personal belongings. The scientific records are deposited in Potsdam.

Argentine Scientific Interests in Antarctica, 1946-1959

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Between 1946 and 1959 Argentina engaged in Antarctic science research primarily, although not exclusively, for political purposes. During this period Argentina was involved in a complicated dispute with Britain and Chile for the sovereignty of the Antarctic Peninsula and the surrounding sub-Antarctic islands. Argentine governments – in a similar fashion to their British and Chilean counterparts – used the scientific activities of Argentine nationals to support their claims to legal possession of the region. This

paper will investigate the various connections between Antarctic science and politics at three levels: the organizational structure of Antarctic science; the nature of the scientific research conducted, and the use made of Antarctic science in Argentine political rhetoric. The conclusion will briefly address broader questions relating to the politicization of science and ask to what extent Argentine Antarctic science research of this period was affected by the political context in which it took place.

1) The Organizational Structure of Argentine Antarctic Science.

This section will investigate the changing ways in which Argentine governments organized and funded Antarctic research between 1946 and 1959. An understanding of this organization structure gives a general idea of the underlying political priorities. Bitter internal divisions within Argentina complicated the story, and were reflected in changes to the organizational structure of Antarctic science. For example, President Perón created the *Instituto Antártico Argentino* and launched the “First Argentine Antarctic Scientific Expedition” in the austral summer of 1950/51, in part to take power away from the Navy. The section will conclude by investigating what impact the International Geophysical Year of 1957/58 had on the organization structure of Argentine Antarctic Science.

2) The nature of Argentine scientific research.

Descriptions of Argentine scientific activities and their published results will be used to examine what types of scientific research Argentine scientists conducted over this period. A major source for this section will be the papers published by the *Instituto Antártico Argentino*, which include contribution number 41 of 1959 by R.N. Panzarini entitled “Argentine Scientific Interests in Antarctica.” This section will be used as the basis for comparisons with the scientific agendas of other countries.

3) The use made of Antarctic Science in Argentine political rhetoric.

This section will use political speeches, official publications and popular newspapers to investigate the ways in which Argentine politicians made use of scientific research in their claims for Argentine sovereignty in Antarctica. For example, President Perón repeatedly stressed the geological continuity of the Andes Mountains into the “Antarcandes” of the Antarctic Peninsula as a reason for Argentine sovereignty.

The Antarctic sovereignty dispute of this period was to a large extent caused and shaped by the broader dynamics of the Anglo-Argentine-Chilean triangle, the internal politics within each of these countries, and the rapidly changing nature of international relations. The dispute formed part of the contest between an assurgent South American Nationalism and an embattled British Imperialism. This study of Argentine Antarctic science will suggest that scientific research in the Antarctic Peninsula during this period took the form that it did as a direct result of this broader political struggle. Such an observation in itself should detract nothing from our appreciation of the scientific work undertaken. But it does raise several interesting questions:

- To what extent were the results of Argentine Antarctic scientific research influenced by the political situation in which it took place?
- Is it possible in this period to distinguish between a “pure” science and a “political” science?
- Is it even possible to go as far as discussing an Argentine “nationalist” science?

The History of Astrophysics in Antarctica

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Although Astrophysical research in Antarctica has been present from almost the very first time explorers have set foot on the new continent, it has for a long time existed as small scale experiments in comparison to the earth sciences research efforts undertaken.

This presentation will give you an overview from the very start, when Mawson's Adelie Land expedition discovered the first Antarctic meteorite, to the large scale meteorite finds in the 1960's, the dawn of high energy and solar Astronomy in the 1970's up to the recent projects in high energy and sub millimetre Astronomy, including some of the results obtained. Information on how Astrophysical research is performed, both logistically and politically, as well as a brief outlook on future projects is given in the end.

The Political Dimensions of the Norwegian-British-Swedish Expedition to Antarctica 1949-52

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The Norwegian-British-Swedish (NBS)-expedition is analysed within the framework of a larger study aimed at investigating the representation of the Swedish Polar Policy 1945-2000. The NBS-expedition, as well as other polar expeditions have traditionally been studied and described as instances of pure scientific enterprises. Although the scientific components are utmost importance the political dimensions ought not to be neglected in the on-going project of writing the human and social history of Antarctica.

The aim of this presentation is to reread the official "stories" of the NBS-expedition from a Swedish horizon by means of placing the NBS-expedition within a wider foreign – and security policy analysis. By comparing various types of sources I will show a somewhat less coherent picture of the NBS-expedition than the one usually presented in general polar history. Swedish polar policy at the time will be reassessed as well as some parts of the repertoire used in service of Swedish foreign- and security policy at the time.

Karl Maria Herrligkoffer's private „German South Pole Expedition“ 1957/58 – A failed initiative

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In January 1953, during the planning of the International Geophysical Year (IGY, 1957-1958) a German Journal addressed arguments about the South Pole and the political interests in Antarctica. It also described possible German territorial claims, which were introduced by three expeditions. These claims were seen as very important in respect to whaling and the global fat production. This might have influenced the medical doctor and specialist of anatomy Karl Maria Herrligkoffer (1916-1991), who was just organising the first successful expedition to the top of Nanga Parbat (8125 m) in the same year.

In 1955 he founded a committee consisting of politicians and scientists to support his plan of a new German South Pole Expedition. He also could interest expedition members of the last (3rd) German Antarctic expedition (1938/39) to Neuschwabenland under the leadership of Alfred Ritscher (1879-1963). Herrligkoffer's attempt deviated from the governmental decision not to send any German expedition to Antarctica, but to expand routine measurement at home. A negative recommendation of the German Geographers Day at Hamburg followed in August, thus preventing other scientists from supporting the expedition.

Fighting for his plan, Herrligkoffer first used newsletters to obtain financial aid. He even asked the old Wilhelm Filchner (1877-1957), leader of the 2nd German Antarctic expedition (1911-12) to the eastern Weddell Sea, to take over the scientific leadership of the new expedition, which should continue the research at Neuschwabenland, which Ritscher could not accomplish due to World War II. But Filchner had been already warned to support the expedition. Besides he had received instructions to prevent Herrligkoffer to include his expedition in the frame of the IGY. Finally he wrote an agreement, but still continued his private plan. The tasks covered geodetic, cartographic, geological, geochemical, geophysical, meteorological, oceanographic, biological, zoological, and physiological investigations. Herrligkoffer judged the expected results to be of great economic and political significance.

In his pamphlet distributed in August 1956, Herrligkoffer referred to a paper focussing on the strategic gaps in a possible future war and on Antarctica as a potential base for missiles. American and Russian territorial claims after the IGY were seen in this context. Another paper published in the Czechoslovakian journal "New Technology" described a Russian experiment in Antarctica, where an atomic explosion went off in October 1955 to melt snow and to raise the air temperature. This new method could be used to remove the icecap for prosperous mining of the supposed rich mineral resources among which uranium was the most interesting. Herrligkoffer argued that Germany with its long tradition in Antarctic research had to be included amongst the nations making Antarctic claims, when different parts of the sixth continent were to be portioned out. If his expedition would not be financially supported the first three German Antarctic expeditions had been totally useless.

In the end Herrligkoffer could not realise the fourth German Antarctic expedition, neither during the IGY nor in the early sixties. The presentation will show how the planned non-governmental contribution to the IGY could not be accomplished due to political and scientific decisions.

It is interesting to note that many issues on the agenda addressed by Herrligkoffer's plan were later realised by the establishment of the German "Georg von Neumayer" station at Atka Bay (1980-81) and the construction of the research ice-breaker "Polarstern" (1982).

Russia in the Antarctic

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Russian polar explorers have added number vivid pages to the history of the geographic discoveries and study of the Arctic and the Antarctic environments. Assuredly, the Arctic region traditionally was in the sphere of Russian scientific and economic interests. Nevertheless, the Antarctic was not kept out of our interests.

After the discovery of the Antarctic continent in 1820 by the Russian expedition headed by F. Bellingshausen and M. Lazarev the Russian ships did not visit the Southern Ocean for more than 100 years. The Soviet Union planned to organize the first Antarctic expedition with the wintering station on Peter I island and oceanographic studies in the Atlantic and Pacific sectors of the Southern Ocean within the framework of II International Polar Year (1932-1933). Due to some reasons these activities were cancelled:

From 1946, soviet scientists started regular oceanographic, hydrobiological and meteorological studies in the Antarctic waters onboard the whale boats of the Soviet whaling flotilla "Slava" and the First Soviet Antarctic Expedition (SAE) was organized in 1955 by the decision of the Soviet Government to participate in research activities of the International Geophysical Year (IGY). The first Soviet Antarctic station Mirny was opened on February 13, 1956 at the Davis Sea coast.

The main tasks for the First SAE were to organize the infrastructure for the national activities within the framework of the IGY and fulfill the reconnaissance studies in the Antarctic region. As a result, a network of stations and bases including the well-known Vostok station situated in the vicinity of the South Geomagnetic Pole was set up in the East Antarctica. A number of large-scale geographical features such are the IGY valley, Gamburtsev Mountains and etc. were discovered during the first years of SAE operating. Our country was among the leaders, who in the thick of the "cold war" established the Antarctic Treaty and created the International Scientific Committee on the Antarctic Research.

In 1992, the SAE was transformed into the Russian Antarctic Expedition (RAE). This fall we shall celebrate the 50th anniversary of the national Antarctic expedition.

During 50 years in Antarctica a great deal of scientific discoveries, that appoint our country as one of the leaders in the Antarctic science were made. Among others, they include the influence of the solar wind on the Earth magnetosphere, the effect of anabiosis of microorganisms in deep ice cores, paleo-climate reconstructions over the last 420kyr using the ice core data from Vostok station and the influence of geophysical fields on the biochemical processes.

Two Russian scientists, Drs. I. Zotikov and A. Kapitsa were among the co-authors of the last great geographic discovery of the 20th century – subglacial Lake Vostok. From 1995, RAE has proceeded to the study of the lake. As a result, data on ice thickness above the lake and spatial distribution of the water layer and bottom deposits were collected. The geochemical composition of the lake water and biodiversity of microorganisms were studied from the deep ice cores.

A 50 year experience in Antarctica allows us to organize transantarctic heavy vehicle traverse expeditions to the inland areas of the continent, launch geophysical rockets up to the altitude of 100 km, provide winter navigation in Antarctic waters and conduct deep ice drilling.

Since 1999, all national research in the Antarctic is carried out under the Federal Program with participation of the Russian Academy of Science, Roshydromet and a number of other institutions. The first stage of the Russian Federal Program “Study of the Antarctic” (1999-2002) allowed combining all main directions of the Russian activities in Antarctica: scientific studies, applied developments, environmental monitoring, environmental protection and the logistics support of the annual Russian Antarctic expeditions under one program. The second stage of the Program (2003-2008) includes studies on geosciences, physical sciences and biosciences. The aim of the studies is acquisition of new data on the Antarctic environmental state, determination of the past, current and future changes in the natural environment and assessment of their influence on the global change. We plan to focus on the main tasks for IPY 2007/08 in Antarctica including a wide participation in the SCAR international programs.