

REVIEW

**On the fingers of one hand: Social  
science research and the  
Antarctic**

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from  
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*I would like to do a review of the length and breadth of Antarctica-related social science research. I have searched various databases and other sources and realise there is a reasonable amount of work that has been done in this area, even if there is also a fair amount of confusion about quite what it is and where it fits in.*

*It seems that as Antarctica is popularised in various ways, then the interest of social science will increase, be it in psychology, sociology, political science, economics, or whatever. No longer is Antarctica that remote and virtually unreachable place. People are going to it in increasing numbers and it is getting to people in increasing amounts of easily accessible information and images.*

*I am curious about the type and amount of social science research that has been carried out to date. I am interested in looking at it in terms discipline, subject, amount, and proportionality. I would like to draw conclusions from this and signal any discernible direction.*

*I believe my proposed topic meets the requirements of Anta 502 in that most of the social science research involved relates to Antarctica as an extreme environment, global linkages and influences, and the future of the Antarctic as such.*

## **Abstract**

Social science research on matters to do with the Antarctic is few and far between, particularly compared with the natural sciences. The research that has taken place is dominated by psychological studies into the effects of living in stressful environments such as prolonged isolation in small groups and in situations of confinement and deprivation. Social science research is carefully prescribed by controllers and gatekeepers – namely Governments and their agencies and Antarctic’s natural science community. There is a growing world-wide interest in the Antarctic, continuing development of existing and new bases by more-and-more nations, including the development of virtual communities, and an ever-increasing complex of issues. This review argues for a greater role for social scientists in determining the future of the Antarctic.

## **Introduction**

It will not come as a surprise to many that social science research to do with the Antarctic trails a distant second to so-called natural science research. After all, when the Antarctic Treaty came into force in 1961 it included the premise that Antarctica was to be a “continent for science”. While some would have assumed that this included any relevant social science it is easy to imagine that it would not have crossed the minds of most.

The sciences to which they were referring, at least by implication, were the sciences of physical discovery – the natural sciences – because there was clearly much to be learnt from the coldest, driest, highest and windiest continent on the planet, and one entirely without an indigenous people. Virtually without people of any sort. Terra nullias.

The social sciences are “the scientific study of the structure and functions of society; any discipline that attempts to study human society, either as a whole, or in part, in a systematic way.” (Oxford English Dictionary)

Activities by all people are by definition an expression of the social nature of individuals and groups. The activities by all individuals and groups to do with Antarctica are by definition the same. Yet in some way as soon as those individuals and groups disappear over the horizon in the direction of Antarctica they appear to be lost to the world of societies – they disappear from the societies to which they belong and go to another world – one without individuals, communities and societies who call it “home”. Yet they take their social nature with them. They do not become unhuman. They retain their human nature unavoidably and irrevocably.

Social scientists have made some forays into this other world, albeit it often fleeting and superficial, and sometimes without visiting it as such.

## Limitations

This review is of the social science research that has taken place and been recorded in English-language journals. The aim of the exercise is to test the length and breadth of such research within these confines. It does not pretend to be a definitive study in that undoubtedly some recorded English language studies have been missed let alone those that remain in the language of other nations with an interest in the Antarctic e.g. Russia, Germany, and Japan.

Further, there is a definitional problem amongst the social science as to quite where a particular study should fall. Social science disciplines perhaps more easily overlap than natural sciences. Sociology and psychology share an overlapping interest in human behaviour. Politics and geography share an interest in geopolitics. Demographers interface geography with sociology. And there are a number of fringe disciplines such as linguistics and semantics.

As in the old adage - “never mind the quality, feel the width” – this review sought to “feel the width”.

## Databases

A number of databases were searched and a number of abstracts and articles were accessed. With one exception, all searches were limited to “scholarly journals”. The databases were:

- Cambridge Scientific Abstracts (sociology, political science, social services, psychology)
- Expanded Academic ASAP 1980-03
- NZ National Bibliographic Database
- Web of Science
- Wilson Social Science Abstracts (social sciences, sociology, social sciences + text)

Wilson Social Science Abstracts for the social sciences in general was particularly revealing. The total number of abstracts thrown up was 154 but was culled to 73, the rest being not social science research at all or reviews of texts, many with only marginal apparent relevance. Those on law and the various protocols and on tourism were left in for this exercise.

The 73 fell generally into the following seven categories, in order of frequency:

- 1) Psychology - 32
- 2) Politics - 18
- 3) Law/protocols – 12
- 4) Sociology – 5
- 5) Tourism – 3
- 6) Geography - 2

## 7) Economics – 1

Cambridge Scientific Abstracts listed 210 in political science with the vast majority being descriptions and some analysis of the treaties, territorial claims, and related, three in social services (about environmental protections), one only in psychology, and 233 in a category called psycinfo, most of which were to do with non-human animal behaviour, and only a few of which were about humans.

Expanded Academic ASAP 1980-03 had one listing only. NZ National Bibliographic Base had 10,000 listings of newspaper and magazine articles and various other articles and the like and really just a catch-all for anything about the Antarctic. Web of Science had nothing on the social sciences.

Compare this with the 5709 references to science and the Antarctic in Wilson General Science Abstracts, the 11,311 in the Expanded Academic Index, the 3311 in Wilson Applied Science and Technology index, the 9111 in Biosis (biological sciences), the 9079 in Geobase, and the 28,139 in Georef (both predominantly geology).

This review focuses on what appears to be the most useful database - Wilson Social Science Abstracts.

### **Psychology**

The psychological studies in Wilson Social Science Abstracts are dominated by those into human behaviour under extreme conditions, including relative confinement. These studies have implications for the type of stresses future space travellers will undergo and some have deliberately made the link. A context for this is laid out in an article on the applications to life in space of the human experience in Antarctica (Harrison, Clearwater, and McKay 1989) and further the overview of psychobiological studies of individuals and small isolated groups in the Antarctic and in space analogues by Ursin (1991).

More specific examples are the study of the moods of those wintering over in the Antarctic (Palinkas and Houseal 2000, Steel 2001), and similar with the natural laboratory and space analogue research of Suedfeld and Weiss (2000).

The studies of psychological adjustments in polar environments by the Italians Peri, Scarlata, and Barbarito (2000) and the Indians Bhargava, Mukerji, and Sachdeva (2000) relate similarly as does the work by Palinkas and Browner (1995) in their studies of the effects of prolonged isolation in remote and extreme environments.

Others have focused on particular aspects such as the perceptions of danger and risk of those operating in the Antarctic (Burns and Sullivan 2000) and comparisons of negative and positive experiences (Wood, Hysong and Lugg 2000). Earlier Wood, Lugg and Hysong (1999) looked at the psychological changes in hundred-day remote field groups. Kahn and Leon (1994) focused on group climate and individual functioning in an all-women Antarctic expedition team.

Palinkas (1992) looked at the cultural context of stress, illness and coping in Antarctica and, earlier, the effects of physical and social environments on the health and well-being of winter-over personnel (1991). Potter, Yan, Krug, Kuivinen and England (1998) looked at polar field tent shelters and the well-being of users. The levels of anxiety aboard two expeditionary ships have been explored (Mocellin 1995). Carrere and Evans (1994) did a qualitative study of the role of the designed environment on life in an isolated and confined environment.

Rosnet, Le Scanff and Sagal (2000) looked at how self image and personality influence performance in an isolated environment. Western scientists have researched psychological adjustments of personnel during three Japanese Antarctic research expeditions (Weiss, Suedfeld and Steel 2000).

Some have sort more particularly to extract some general rules and lessons from their studies such as Rothblum's work on "psychological factors in the Antarctic" (1990) and a look at "the big five" personality characteristics of the circumpolar sojourner (Steel, Suedfeld, and Peri 1997).

## **Politics**

The political research is mainly on so-called geopolitics and Antarctic human activity control mechanisms. Examples of the former are a study of US-Chilean Antarctica rivalry 1939-49 (Moore 2001) and Child's study entitled "Antarctica and South American Geopolitics" (1989).

The political area includes studies related to environmental concerns and issues such as Dalziel's and Goldworthy's (1994) consideration of whether or not the concept of "world park Antarctica" has a future, a look at the international environmental politics surrounding protection of the Antarctic (Joyner 1997), and Dodds' study of geopolitics, Patagonian toothfish and living resource regulation in the Southern Ocean (2000).

Others have touched on the above but focused more directly on related issues such as looking at the overall management of the Antarctic and mineral exploration in particular (Child 1989).

## **Laws/protocols**

Some studies or reviews of law, protocols and the Antarctic appear under the category of social science as well yet it is debateable how well they fit. Laws and protocols are expressions of social behaviour and organization and to that extent they do yet they are usually considered as a category in their own right. There is a clear over-lap with geopolitics, even simply as an under-pinning or as an influence.

Leaving that to one side, examples of those that make it into the social science databases are Blay's (1992) look at new trends in the protection of the Antarctic environment (and the Madrid protocol in particular), Joyner's (1989) review of studies on mineral exploitation and overall management and the evolving Antarctic legal regime, a review of America's approach to Antarctica (Peterson 1997), and a more wide-ranging review on "proper" protocols in Antarctica (Rudback 1994).

## **Sociology**

Sociology as such can only muster four entries although one could argue that some of these would be better located elsewhere and that others categorised elsewhere should indeed be here.

Of the four listed for the purpose of this review, two are “women’s studies” – “Women in Antarctic science: forging new practices and meanings” (Burns 2000) and Suedfeld’s (1999) overall look at women in Antarctica.

The other two are Herber’s (1991) study into common heritage principles with its focus on developing nations and a gastronomic foray into the eating of wild foods in the Antarctic (Rubin 2003).

## **Tourism**

Two studies of tourism make it into the list of social science reports. This belittles the work done in this area, however much of this is on risk and environmental impact and on trends, most of which do not fit the social science paradigm as such. Carvallo (1994) is listed for her review of tourism and argues for management, not elimination, and Goodall (1996) for his overall review of Arctic and Antarctic tourism.

## **Geography**

Geography gets two entries only however they are fairly general looks and barely qualify as “scholarly”. The social science geography is human geography and demography and the physical geography rightly rests elsewhere.

## **Economics**

Economics – one of the major social sciences – has only one entry. It is White’s (1994) review of Martijn Wilder’s economic history of the “the last continent”. With increasing interest in the economic benefits associated with the Antarctic – fishing, bioprospecting, and “early warnings” for established economies from studies into climate - there are bound to be others.

## **Comment**

In the way that the conquered take on the language of the conqueror, social scientists have had to generally undertake Antarctic research that suits the mindsets of those who control access to this remote region of the world.

The mindsets are those of the Governments and their institutions who fund and control the bases, the other support services, and the research itself, and and the great cabal of natural scientists who act as gatekeepers and self-appointed guardians to the world of Antarctic research.

Social scientists face a double dilemma. They require funds and they require access to people. While they might be able to gain access to independent funds, they require the co-operation of the authorities to access people to study. If the Antarctic communities are in any way societies they are not free societies; they are autocratic to a high degree. Democracy and its attendant principles are abandoned the moment someone signs the contract documents. When the servants and the scientists fly or boat south they leave the free world.

There are limited exceptions such as the few who visit independent of the authorities – organizations such as Greenpeace and the few determined individuals who travel by their own means. Even the independent tourism operators are not free of the Antarctic authorities for just about all have to connect with at least one of the Antarctic nations on their home soil in order to go about their business e.g. Adventure International who operate out of southern South America and the Orient Line who operate large cruise vessels such as the Marco Polo from many ports.. Adventurers need the co-operation of the national bases for such matters as the holding of supplies and will play the game accordingly. Social science research opportunities amongst these groups is not only limited but of somewhat less interest than elsewhere.

A further exception are those studies that do not require a visit to the Antarctic and do not require access to material controlled by the authorities e.g. reviews of geopolitical matters based on publicly available documentation and commentary.

Unlike in western and some other national societies, social scientists wishing to study people in the Antarctic cannot select a sample from a telephone book or a mailing or emailing address list. They cannot advertise in newspapers or elsewhere for people to interview. They cannot approach schools and sports clubs with the offer of a donation for people to take part in a focus group. They have to ask the Antarctic authorities for permission and the authorities will only permit what they want to; what they believe is in their interests.

Even so, a sword of Damocles is raised high and any social scientist, or indeed other scientist, journalist, or support staff of any sort, who steps out of line – bites the hand that feeds them – will be smote, will be cast out, or so the anecdotes would have it. “Blackballing” appears a very real fear of those who manage to step inside the circle.

Yet there are some good reasons for the tyranny. The Antarctic is a difficult environment and the nations who have operations there assume all-encompassing responsibility for those within their ambit and indeed others who may accidentally or otherwise come within their ambit. Much of the freedom allowed in other societies needs to be curtailed. People need to be trained to deal with the environment, need to have the right gear, and need to follow the tried and true processes. Without this the authorities know well that they and their agents will be put at risk and to unnecessary expense.

The natural science gatekeepers are another matter indeed. They not only dominate science in the Antarctic but the various committees and so forth that approve projects and recommend them for funding. Generally, a social scientist has to run a gauntlet of natural scientists to get to the ice.

It is therefore not surprising that most social science research fits what the authorities see as potentially useful and the natural scientists see as complementary.

The authorities can be persuaded by offers of studies designed overtly to help operations in the Antarctic e.g. the personality studies with their messages for what type of people to recruit for work in a stressful environment, and for studies on human behaviour a priori to long-distance space travel – the so-called “space analogue” research.

The natural scientists can be persuaded by research that is complementary to their own e.g. psychological reactions to confined living and constant dark to complement physical studies into matters such as heart rate, haemoglobin, and hormone levels. Another example could be the attitudes and behaviour of people visiting bird rookeries and seal colonies to complement studies on physical signs of stress amongst those animals.

Thus is the way social science research in the Antarctic is prescribed.

## **Future directions**

There is a suggestion that a few social scientists are determined to build on their existing track records – their keeping of the faith – to expand into areas yet to be investigated. Even so, they will be careful to ensure that their new research will be of benefit to the authorities or at least will not damage the goodwill they have built up over time.

Sense of community is one area that has been barely touched on yet communities of various sorts exist. The “capital of Antarctica” – the United States of America’s McMurdo Station (or “Mactown” in the colloquial) – is the most obvious case in point. Here, one main contractor – Denver-based Raytheon – and their various sub-contractors, virtually provide the community through their own recruitment processes. The United States Science Foundation and the military basically provide the rest.

Yet Mactown has the appearance of an ordinary community, with a general hospital, fire department, church, gymnasium, basketball court, bowling alley, indoor climbing facilities, a shop, café, bars, and so forth; but it is no ordinary community. Citizens do not have the right of free speech. They do not have appeals to independent review panels; at least while they are in the Antarctic.

Some of the people who work in Mactown virtually live there, as others do elsewhere and in bases as small as New Zealand’s Scott Base. Some live there throughout the year and have done so for several years, with relatively short breaks overseas for holidays and such like. Others travel to or work temporarily in other places during the winter months before returning once again for the summer. In some ways these people are becoming virtual citizens of Antarctica; not indigenous as such but at the beginning of that process.

The time for sociological studies on “sense of community” and psychological studies on “those who call it home” has come and should be of interest to the authorities. The authorities could learn from such studies to determine the role of a sense of “community” in maximising the efficient running of operations and the strengths and weaknesses inherent in the archetypes of those who feel it provides their home, their sense of belonging.

The other area that begs for the attention of the social scientists is the natural scientists themselves. What are their motivations? Do they believe that they are contributing to the social concept of the greater good? Are those on the inside using their position to keep others out? What is the value of their research compared to research proposed but rejected? How are cost benefits determined? Are taxpayers getting best value for money? Indeed, what is the nature of the scientific community itself? Do they express the same basic behaviours and have the same basic attributes of any sub-group within society e.g. motorcycle gangs?

International relations and the interests and activities of the ever-increasing parade of nations to the Antarctic is another area demanding the attention of social scientists

There are many other areas of interest to social scientists and of use to those who control access to the Antarctic and prescribe the activities there.

## **Conclusion**

Social science in the Antarctic is prescribed by the controllers and gatekeepers – namely Governments and their agents and the natural scientists. Because of this, the social science that has taken place is heavily biased towards certain types of research.

This research is that seen by the authorities and the natural scientists as both useful (to those recruiting and controlling personnel) and complementary (to natural science).

Interest in the Antarctic is growing exponentially, not only through the increasing numbers who visit for one purpose or another, but as well amongst those who will never visit e.g. through interest in such matters as global warming, fishing in the southern oceans, aviation and other “adventures”, and Hollywood’s recent depiction of the hero Ernest Shackleton. Virtual communities exist and have for some time. In all likelihood they will expand and multiply. More and more countries want a presence there.

The Antarctic is no longer a place of determined men from a small number of countries battling the elements in the interest of discovery and science and nor has it been for some time. Its growing complexity needs to be recognised and social science brought in to help chart the way forward. It is too important to be left to nations taking a strategic interest in a simple sense – a wait and see sense – and to their fellow travellers and frontispieces – the natural scientists.

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