

**INUIT WOMEN'S PERCEPTIONS
OF POLLUTION**

**BY
CHRISTINE EGAN**

**A Thesis
Submitted to the Faculty of Graduate Studies
in Partial Fulfilment of the Requirements
for the Degree of**

DOCTOR OF PHILOSOPHY

**Department of Community Health Sciences
Faculty of Medicine
University of Manitoba
Winnipeg, Manitoba
Canada**

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Inuit Women's Perceptions of Pollution

BY

Christine Egan

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
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I dedicate this thesis to my dear friend,

Tony Swanson

who dared me to do it

and

to the memory of some wonderful women in Coral Harbour:

Jeannie Jones, Pooka Kolit, Nadleopar Kudluk and

Seekooliak Paliak

and

Joseph Leonard Egan, my father;

he would have been so proud.

ABSTRACT

Inuit women's perceptions of pollution are examined through a qualitative ethnographic study conducted in Coral Harbour, Nunavut. Pollution is evident in the Arctic food chain through the presence of such substances as polychlorinated biphenyls (PCBs) and heavy metals. This study examines the cultural construction of Inuit women's perceptions of pollution. A broad cultural conception of pollution was utilized in which pollution is understood as the culturally constructed disintegration of social boundaries. Using a feminist methodology, in-depth interviews were conducted with 47 Inuit women in order to highlight women's voices and to contrast their discourse with the scientific discourse and the discourse of the popular press regarding pollution in the North. For many Inuit, cultural identity is linked to the procurement and consumption of traditional foods. The possibility of access to their foods being limited by pollution or perceptions of pollution in the Arctic food chain concerned Inuit women as this would pose a threat to their cultural identity. Many women stated a willingness to consume their foods despite the potential risk of contaminants. Inuit women are aware of the discourses on contaminants but their concerns focus on pollution and the social. Their perceptions of pollution focus on the invasion of pollutants, such as drugs and alcohol which have been brought into their communities from the outside and which are causing disruptions.

ACKNOWLEDGEMENTS

To all *Sallirmiut, qujanamik*. An especially big thank you to all the women in Coral Harbour who contributed to this research project. Potogok Adamie was indispensable once again as my interpreter and research assistant. Joe and Rhoda Angootealuk (as well as little Joey) helped make my stay in Coral Harbour most comfortable and pleasant. Thank you.

Many other friends, colleagues and faculty have helped me along the way including Joe Kaufert, Pat Kaufert, Gail Marchessault, Pat Martens, Rosemary Powers, Suzanne Rajotte, and Moneca Sinclair. Mary Lambert, Tony Swanson and Arlene Thompson have been a tremendous support from the days of Preliminary Training School at the Hull School of Nursing, England.

Ellen Judd greatly facilitated my being able to juggle study, work, and everyday life. Ann Herring provided me with an essential piece of equipment to enable me to write in comfort--an air conditioner. My brother, Michael, unstintingly gave his support by enabling me to visit our mother on a regular basis. My cousin, Roz, has been a pillar of support for me as well as for my mother. Pam Orr contributed in her usual style by providing a grand social event to celebrate the completion of the Ph.D. journey.

I would like to thank the members of my advisory committee: John O'Neil, Jill Oakes, and Annalee Yassi. In true Inuit style, my advisor, John O'Neil magically pulled everything together for an August defence; he understood (in a culturally appropriate manner) my desire to graduate before the new millennium.

I should also like to acknowledge Keith Best, Rosemary Brown, Anne Gregor and Sharon Hunting of the Keewatin Regional Health and Social Services Board for their continuing support and encouragement. I thank the Hamlet Council of Coral Harbour and the Science Institute of the NWT for granting me permission to conduct research in Coral Harbour.

The Ph.D. endeavour would not have been possible without the financial support--from 1995 until 1998--of a doctoral fellowship from the National Research Health Development Program (N.H.R.D.P.). Fieldwork costs were offset by grants from the National Scientific Training Program, for which I am grateful.

Throughout my thirty years association with the Inuit I have been shown friendship; I have learned much about life from them.

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CHAPTER ONE

Introduction

*"Pollution is in the world—I think made by Qallunaat"*¹ was told to me by an Inuit woman in Coral Harbour, Nunavut.

Statement of the Problem

When fishing was no longer a viable means of subsistence for the Ojibway on Grassy Narrows Reserve in Northern Ontario because of mercury contaminated rivers, the residents moved from 95% employment to 95% unemployment within a year (Vecsey, 1987). The social pathology which ensued was multilayered, and community members continue to suffer from the devastating effects of pollution. In 1969, very high levels of mercury were found in fish from the southern part of the English-Wabigoon River, downstream from the Reed Pulp and Paper mill. A decade later, Vecsey (1987), an "expert" (*sic*) researcher engaged by the Chief of Grassy Narrows learned about the "20,000 pounds of mercury dumped into the English-Wabigoon River system" (p. 288) which resulted in the closure of commercial fishing on all its lakes and tributaries for residents on the Grassy Narrows and Whitedog Reserves (Vecsey, 1987).

Fish in the 300-mile river system from Dryden, Ontario, to the Manitoba border "carried body burdens of mercury that were sometimes forty times the standard of 0.5 ppm

¹*Qallunaat* means more than two white people (Euro-Canadians) and is the plural form of *Qallunaaq* (singular).

parts per million² set for export and human consumption by the federal [Canadian] government” (Shkilnyk, 1985, p 187-189). Some fish were found to contain mercury burdens comparable to those found in the fish of Minamata Bay,³ Japan, and several Ojibwa individuals on the reserves tested as high as 300 ppb; this compares with the “safe” level of less than 100 ppb (Shkilnyk, 1985). The initial injury (mercury contamination) was a direct effect but it was also insidious and persistent. Effects of poisoning were evident on individuals' bodies--high levels of mercury were detected in blood and hair samples, and people exhibited physical symptoms consistent with mercury poisoning (though a medical diagnosis remains inconclusive). However, more pernicious effects continue to be revealed by the disintegration of the social body of the community. Suicides, child and wife abuse, and alcoholism are just some of the problems faced by this community which is now in despair (Shkilnyk, 1985; Kidd, 1993).

Not only are there the possibilities of physical health problems developing from contaminants, but, as evidenced in Grassy Narrows, it has been shown that psychosocial effects, defined as a “complex of distress, dysfunction, and disability” which manifest in a wide range of “psychological, social, and behavioural outcomes as a consequence of actual or perceived contamination” commonly develop (Dunn et al., 1994, p. 1093).

Because of accounts in the literature portraying disruptions in Northern communities

²0.5 ppm is equal to 500 ppb (re body burdens of fish).

³Village residents in Minamata were severely affected by mercury poisoning from effluent dumped by a petrochemical company. By 1970, more than 100 people were dead and over 1,000 were left with irreversible neurological damage. Minamata disease was one of the first indicators that humans could be affected by pollutants in the food chain (Shkilnyk, 1985).

subsequent to various types of contamination, I became concerned about the possibility that Inuit in the Canadian Arctic could be affected by such a calamity. Having spent many years working among the Inuit, I grew attentive to the likelihood of significant quantities of contaminants being found in the Arctic which might result in a curtailing of their traditional subsistence activities. Northern examples of pollution include radioactive fallout, mercury contaminated rivers, and oil-slicked beaches and oceans where it was evident that more than the immediate physical environment was polluted; pollution of the social body of the community also occurred. (Beach, 1990; Miller, 1990, Kidd, 1990; Palinkas et al., 1993).

In response to these events, a *contaminants discourse* has emerged--which is represented in various milieux. Discourse (a form of conversation⁴) is contextual, and is dependent upon the speaker's/writer's knowledge or interest in the topic under discussion. Discourse is also cultural--inasmuch as the intended meanings may be readily understood only by another person in, or familiar with, the same cultural milieu. In their effort to describe the current topicality of the environment where "facts abound...and meanings flow and collide," discourse is described by Myers and Simon (1996) as "the totality of things written and read, spoken and heard" (p. 4). Most scientists develop a discourse related to their specific discipline, for example, biologists may concentrate on contamination of marine mammals; nutritionists might examine pathways of Arctic food sources; and biochemists often track contaminants such as organochlorines and heavy metals. In addition, there exists a thriving contaminants discourse in the popular media. The scientific and popular discourses may in themselves pose a threat to Inuit perceptions of pollution as the fear of contaminants

⁴Kaufert and O'Neil (1993).

(chemophobia) may be as alarming as the actual contaminants. For example, psychological effects on the Inuit could lead to a reluctance in consuming their traditional foods.

Objectives and Purpose of Research

My primary objective in undertaking this research project was to explore perceptions of environmental health risks on the part of Inuit women living in Coral Harbour, Nunavut, by gathering data that represent a discourse; this discourse may be seen as an alternative to published accounts about contaminants. My purpose was to highlight Inuit women's voices so that their concerns could be heard and understood by "outsiders" who are trying to communicate to the Inuit about the risks of contaminants in the Arctic.

The idea of an Inuit women's discourse was developed further when I decided to explore contrasting discourses on pollution in two other genres--those of the scientific and of the popular press. These two domains of discourse were initially intended to be utilized as contributing to the review of the literature. However, further examination of the differences in the discourses augmented a deeper understanding of Inuit women's perceptions of contaminants, and these domains developed into essential components of the critique. Each of the three domains of discourse in this study articulates an independent discourse--though it is evident that the discourse of the popular press emerges from that of the scientific; Inuit discourse is rooted in their lived cultural experience as well as being somewhat influenced by the popular media. The result of my analysis of these discourses is a subjective interpretation of the relevance of the print media to Inuit women's perceptions of pollution. I believe that this type of examination is necessary, not only to demonstrate that each domain of discourse

is appropriate in its own context, but that when the intent is to communicate pertinent contaminant information, the speaker of each discourse understands or at least listens to the message (or effects) of the other discourses. Because each domain or discipline represents a different model of reality, one domain cannot claim to be the ultimate authority regarding pollution.

Related objectives of the study were:

1. to identify nutritional and sociocultural advantages for Inuit who consume traditional Arctic foods, and to explore some of the potential risks of consuming foods which may have been contaminated by environmental pollution;
2. to describe the changing influence of cultural beliefs and practices related to food on health status and health care decisions undertaken by the Inuit; and,
3. to explore a range of potential risk behaviours on the part of Inuit women and their families if faced with health threats in the context of environmental or social pollution.

The Basis for My Research Enquiry

My exploration of Inuit women's perceptions of pollution started with a narrow conception of contaminants--effects of chemicals on Inuit women's lives. I moved into the broader conception of pollution largely as a result of listening closely to Inuit women's voices in my exploratory study in Povungnituk, Nunavik in 1994. There I asked Inuit women what their perceptions were of potential problems associated with the ramifications of reports of pollutants such as PCBs (polychlorinated biphenyls) in the Arctic food chain. Because their responses to questions of pollution highlighted their current social problems, I extended my

original question prepared for the larger study to include pollution in any form that was considered by Inuit women to have an impact on their family and community lives.

In order to take an ethnographic and culturally sensitive approach to pollution as perceived by Inuit women, I concluded that I needed to conduct the major study in a community where I was well-known. The community which immediately came to mind was Coral Harbour, Nunavut, (formerly Northwest Territories, or NWT) where I had successfully conducted research in the past. I spent November and December, 1995, in Coral Harbour gathering my data. In addition to talking with Inuit women in that community, I examined various types of media reports about contaminants that were accessible to Inuit (such as Northern newspapers and television reports) and I compare this discourse with that found in the scientific literature--and not usually accessible to Inuit.

The discourse of science assumes its authority by its very (dominant) existence; popular discourse tends to over-simplify or exaggerate and heighten fears (of unknown risks of pollution), whereas Inuit discourse, which is embedded in their everyday life, reflects changes in material (including social) conditions. It has been suggested that the form of Inuit contaminant discourse is a knowledge that "acts to delimit the impact of scientific statements which may describe their food as contaminated" (O'Neil, Elias & Yassi, 1997, p.31). This "counter discourse" or "subjugated knowledge" can be seen as a resistance to scientific discourse which has generally been accepted as the dominant form (Elias and O'Neil, 1995). Discourse itself is knowledge (not just text), and entrenched in this definition is the important factor of the role of communication in its dissemination.

Before I made the decision to explore differences in discourse (although my main

objective remained to highlight Inuit women's perspectives), I initially looked at the problem of contaminants in the Arctic from a practical perspective. By considering problems that have arisen from occurrences of contamination of food sources in other geographic areas, I believed that we should be able to anticipate potential difficulties that might appear in the Canadian Arctic if sufficiently high levels of contaminants were discovered. Recognition of potential problems--particularly social problems--is a first step toward their resolution or prevention.

For example, in 1985 it was discovered that the people of Smithville, Ontario were exposed to PCB contamination through leakage to the groundwater from a nearby PCB transfer station built in 1978. PCB incineration and clean-up commenced in 1989, and it was during this period of time that Smithville residents became very concerned and psychosocial distress became manifest at the individual, family and community levels. A study conducted in 1992 showed that the chemical exposures were insufficient to cause physical health effects in the population; hence, any observed effects can be attributed to *perceived* risks. Impacts of perceived risks to environmental contaminants are as real as the impacts of actual contamination, and effects at each level of social organization must be understood in its relation to the others. These psychosocial effects are influenced by characteristics of the wider social, cultural, and community systems (Dunn et al., 1994).

Both anticipation and recognition of potential problems in a timely manner could help alleviate stress and allow any issues to be dealt with before they became intractable. Unfortunately, the Canadian Arctic is not excluded from the list of "polluted places"--in fact, it has been described as a "sink" for contaminants (Muir et al., 1992). Harmful environmental

substances, such as PCBs, and heavy metals such as mercury, are known to exist in food chains at various locations throughout the North. Pollutants are carried to the Arctic by the atmosphere and by ocean currents from distant areas around the globe; they are deposited in the Arctic environment (the air, land, and water) where they are ingested by benthic organisms, biomagnified up the food chain, and finally consumed by humans (Dewailly et al., 1993).

The recognized social and psychological impacts of the *Exxon Valdez* oil spill in Alaska provide a model for anticipated impacts from similar events that could occur in the North (Palinkas et al., 1993). In Alaska various kinds of losses developed, including loss of both women's and men's work, mainly related to a dramatic decrease in traditional hunting and fishing pursuits. In affected Native communities, in addition to the loss of actual foods and the pride of being able to feed one's family, important sociocultural elements, such as the camaraderie of the hunt (for men), and the sharing of the fruits of the hunt (women's task) were lost. Although women continued to be immersed in childcare and household responsibilities, it was reported that some men with empty time on their hands instigated domestic violence, and drug and alcohol problems escalated in the community. Women became victims of abuse from jobless men, and, in addition, suffered from feelings of uselessness and of becoming burdens on the already stressed resources of the community (Palinkas et al., 1993; Miller, 1990).

Focus on Inuit Women. "Women and babes" is the answer to a question that is, perhaps, rhetorical, "who would be most effected by such a catastrophe as a total loss of Inuit

foods?" Not only are women the most likely to suffer from unhealthy domestic circumstances, it has also been postulated that various physical health problems could result if high levels of PCBs were found in Inuit women.⁵ It is known that because organochlorines (such as PCBs) easily cross the placental barrier and bioconcentrate in milk fat, it is likely that foetuses and breast-fed babies would become the most heavily exposed, and thus comprise the most susceptible group. Adverse neuro-developmental effects have been observed in exposed children in some studies, correlating with the estimated maternal exposure and presumably with *in utero* exposure (Dewailly et al., 1993).

Not only are Inuit women's bodies potential victims of contaminants, their immediate social bodies would also suffer deeply as a result of cultural losses. Most Inuit prefer consuming their traditional food, not only for its superior nutritional benefits, but most particularly for the sociocultural values associated with the hunt. Because I had been told that they still rely on local food sources for approximately 50% of their diet (Egan, 1990), I was interested to learn from Inuit women what aspects of hunting activities they would miss the most if an abatement were necessary. How could women find substitutes for such activities as the drying of fish or the preparation of animal skins--skills that would have to be abandoned? Because I thought that it was important that Inuit voices be heard (particularly women's voices), I wanted to hear from the Inuit women themselves what their opinions were

⁵PCB-contaminated cooking oil in Taiwan was ingested by women who were still producing malformed children six years later. PCBs have an estimated half-life of seven years in humans (Shane, 1989). In addition, Seager (1993) reports that "women suffered disproportionate effects" from the Bhopal disaster in 1984 when thousands of people were exposed to methyl isocyanate (MIC), and writes about the "overlooked gynecological and reproductive problems" (p. 100). For example, of 2,210 live births at the time of the gas leak, 150 infants died within six months and spontaneous abortions increased from 9% to 31% in a year (Seager, 1993).

regarding the contaminant controversy. What would they do in such a situation? Would they change their diet, or continue to eat Inuit food that was potentially contaminated? Would they become victims of cultural pollution?

There is little evidence that Inuit women's specific concerns regarding contaminants have been considered to date in planning the management of environmental health issues in the North. Elucidation of their perceptions and concerns--which are based on culturally-framed qualitative factors--is critical to risk management efforts in Northern communities. Contaminants in the Arctic food chain, and understanding of these contaminants, could alter the traditional hunting patterns and dietary habits of Inuit in the Arctic. Because food is one of the major pathways for contamination in humans, any modifications to the Inuit's access to their traditional foods would play critical roles in sociocultural change. Even without the threat of environmental contamination, rapid sociocultural change may bring problems of resentment, alienation, depression, and powerlessness (Briggs, 1985). Today, not only are their traditional hunting grounds at risk from southern-generated contamination, their whole future and identity as Inuit is at stake.

Inuit Identity. One example in the academic literature which illustrates cultural influences in food preference is the acknowledgement by Clyde River Inuit that their traditional food is a marker of their identity; they assert that by choosing to eat hunted animals Inuit identity is maintained (Borré, 1991). Being a genuine Inuk (*Inummarik*) means that the individual holds a cumulative knowledge that is derived from direct contact with the environment (O'Neil, Elias & Yassi, 1997). Briggs (1997) recognizes that it is when cultural

traits (such as hunting, or eating Inuit foods) are threatened, that they are accorded emblematic status; these emblems, or markers of identity, serve to strengthen their “sense of ethnic rootedness” (p. 229). The mutual benefits experienced by both animals and hunters (the hunter is able to sustain human life and the animal agrees to become part of the body of the Inuit) is analogous to the symbiotic relationship which the Inuit have with their land (Borré, 1991; Mauss, 1979). If “blood is made of what you eat and determines who you are” (Borré, 1991, p. 54), it follows that a switch to imported food might change a person who was born an Inuk into an adult who is less than real (true) Inuit. It is not merely the pursuit and product of the hunt which signifies a preference for traditional foods, rather, it is an overall feeling of well-being which prevails when a more traditional lifestyle is assumed. Although it has not yet been shown, it is possible that changes in the physical Arctic environment in the form of detectable or perceived contaminants in the food chain may influence changes in dietary behaviour among the Inuit, which could then erode their feelings of identity and well-being.

Potential and Known Contaminants in the Arctic

It is well documented in the scientific literature that substances such as organochlorines and heavy metals exist (in relatively low concentrations) in food chains throughout the Canadian Arctic; however, a direct link between contaminants in the Arctic food chain and ill health among the Inuit has not been clearly established (Lockhart, 1995). The possibility of contamination of food chains anywhere is a threat to all species and is of no small importance to Inuit in the Canadian Arctic. In addition to its nutritional value, traditional food is very important to the psycho-socio-cultural aspects of Inuit life.

Prior to 1972, there were no regulations governing land use in the Arctic with the result that wastes from work projects, including mines and equipment from the Distant Early Warning (DEW) lines, were abandoned throughout the Arctic (Government, 1991). An estimated 10 tonnes of PCBs were taken into the Canadian North for the DEW line stations, of which only 2.7 tonnes have been recovered. However, this represents only a fraction of the total PCBs deposited north of 60° annually--about 6 tonnes (Barrie et al., 1992). Without significant pollution sources of its own (because of its small human population and general absence of industrialization), the Canadian Arctic, as well as almost all other areas of the circumpolar Arctic, is becoming the receptor of chemical contaminants released elsewhere on the globe (Barrie et al., 1992). Over the last twenty years, scientists have detected an increasing variety of toxic contaminants in the North (see Table 1), including pesticides, heavy metals and radioactive fall-out (Twitchell, 1991).

Primary sources of Arctic pollution include local mining activities (which are increasing in the Northwest Territories and Nunavut), and heavy industry in industrialized America, Europe, and Asia (traces of pesticides and related chemicals from southeast Asia have been detected in snow samples and in the tissues of Arctic wildlife). This is in addition to areas of current and potential hydrocarbon (oil and natural gas) production in Arctic Russia, Canada, and Alaska (Arctic, 1990; Lockhart, 1995). Although levels of pollutants are lower than in most urban areas, Arctic ecosystems are more susceptible to biological damage at lower levels. One explanation for the fragility of the Arctic is that, because many Arctic organisms are adapted to systematically storing biological energy, they become

Table 1

Arctic Environmental Contaminants

- 1 **Chlorinated industrial organic compounds**
Chlorobenzenes (CBZs)
semi-volatile agents: PCBs
PCDD/PCDFs--polychlorinated dioxins/furans

- 2 **Organic pesticides**
Polychlorinated camphenes (PCCs), eg Toxaphen
Hexachlorocyclohexanes (HCHs)
Chlordane
DDT/DDE
Aldrin/Dieldrin

- 3 **Polycyclic aromatic hydrocarbons (PAH)**
Eg Benzo(a)pyrene (B[a]P)

- 4 **Metals**
Mercury
Cadmium
Lead
Arsenic

- 5 **Acids**
Sulphur oxides
Nitrogen oxides

- 6 **Radionuclides**
1950s/60s bomb test product
Chernobyl products (e.g. Cs¹³⁷)

Adapted from Barrie et al. (1992)

accumulators and concentrators of organic pollutants and toxic metals. This means that animals (including humans) at the top of the food chain may carry much higher pollutant concentrations than those in the ambient environment (Arctic, 1990). In contrast to southern and temperate biological systems which have, for the most part, cleansed themselves of radioactive fallout deposited in the 1950s and 1960s, the Arctic environment has not been able to do so. For example, arctic lichens accumulate radioactivity and then transmit it to animals (caribou) and humans, where it remains in their bodies (Thomas et al., 1992). When a pollutant in solution is deposited on the ground it can then be carried through the root system of plants into the plants themselves or it can be leached out and carried to underground aquifers, or through surface runoff to lakes, streams, and eventually the sea (Stern, 1973; Government, 1991).

Because the organs and fatty tissues of Arctic marine and terrestrial animals are major concentrators of organochlorines and heavy metals--and mammals form a large part of the Inuit diet--large amounts of toxic substances may be accumulated by humans. Studies have shown that those Inuit whose diet includes a high percentage of traditional foods have high levels of identifiable "chemicals used only in the south" (pesticides) in their body tissues and breast milk (Arctic, 1990). Humans around the globe are unequal victims of their own participation in the destruction of the environment, but the Inuit are victims only of the consequences. Their traditional way of life has not contributed to environmental degradation, but it has been affected by various types of anthropogenic pollution. People's perceptions of pollution are important factors in determining their choice of response to the risks of pollution. They are influenced by a complex of sociocultural factors arising from historical and

contemporary community life, and one of the main objectives of this study is to place Inuit women's perception in context and elucidate the impacts of pollution perceived by Inuit women in one Canadian Arctic community.

Conceptual Framework

In my endeavor to explore the broad topic of pollution, I have been guided by cogent analyses on this theme by Mary Douglas (1984;1992). Her insight in regard to issues encompassing notions of dirt directed my preparation for field work for this study. In particular, the cultural model Douglas constructs (illustrating pollution behaviour) has greatly facilitated the analysis of my research data. Cultural theory assumes that a culture is a system of individuals who hold each other mutually accountable; the social environment, moreover, is systematically drawn into the picture of individual choices (Douglas, 1990; 1992). Other researchers too, have noted that it is in the context of the local community that significant influence is exerted on the psychosocial effects of environmental pollution (Dunn et al., 1994).

Following Douglas' (1978) recommendation of taking a phenomenological⁶ approach in the research process, I undertook a systematic analysis of Inuit women's perceptions of pollution and of how they arise from a complex of sociocultural factors, including social norms, policies, and institutions. The influence of the sociocultural environment of the Inuit will become apparent in Chapters Six and Seven where I present the voices of Inuit women.

In seeking to understand notions of pollution, I anticipated (thanks to Mary Douglas

⁶ Phenomenology in sociology is approached by examining how the common-sense knowledge about society feeds back through social action into the moulding of society itself (Bullock et al., 1988).

and the women of Povungnituk) that we cannot examine various given meanings in isolation as all concepts of pollution are parts of a cultural whole. This anticipation was realized in my conversations with women in Coral Harbour when they told me about their current health and social problems. Mary Douglas (1992) advises us to consider "links between taboo-thinking, which uses natural dangers to uphold community values, and our modern approach" (p. 4). I was particularly interested in connecting traditional Inuit values with modern ones, and I explored various aspects of cultural change. I asked women their thoughts on possible disruptions in social networks (including symbolic and social relations associated with traditional food in gift exchange) if access to Inuit foods were diminished. Would there be a change in family roles in order to establish protective strategies and coping behaviour?

It is understood that cultures are not static; they are continually evolving, and cultural values are consequently modified in order to retain some semblance of order in the ever changing lifestyle. Technology forces change, and few can resist the compelling conveniences it brings; for the Inuit this includes new forms of housing, clothing, transportation and communication. Many Inuit with whom I spoke lamented the loss of traditional simplicities (or inconveniences), and state that modernity arrived too quickly (and unannounced) for them to adequately cope with all the ramifications. Pollution is deemed to be one of the more disagreeable consequences of modernity.

Religion and Pollution (the Sacred and the Profane) Many Westerners believe that cleanliness is next to godliness—establishing its place among the sacred. Holy things (the root meaning of holiness is "set apart") must be protected from defilement (or dirt); indeed,

separation of the sacred and profane is essential (Douglas, 1984). Practical expressions of these notions were presented to me by Inuit women when they talked about the necessity of preserving the separation of the lake used for drinking water and the sewage lagoon. According to Durkheim (1961), the sacred can be distinguished from the profane by rules expressing its "contagious" character. (Sacred) expressions of morality are treated as contagious--contact with them is believed to be a danger--as when crossing forbidden boundaries. External boundaries refer to those in a society or a human body; dirt (pollution) must be kept out to avoid harm or danger. Hence, because it needs to be protected from the profane, the sacred (or cultural norms) is continually surrounded by prohibitions. Because I had learned that spirituality was an important issue among the Inuit, some of my interview questions addressed issues of good and evil and community cohesion.

Earlier ideas in the West can be traced to Robertson Smith (1889) who classified religions as advanced or primitive on the basis of their viewing a distinction between the sacred and the profane. He also advocated an ethical view of religion, stating that true religion was rooted in the ethical values of community life. This idea was taken up by Durkheim (1961) who believed that primitive gods were part of the community and that their powers and influence helped structure the general social order; a cultural commitment to a common set of values Durkheim termed *collective conscience*⁷.

In the New Testament, which informs both Western and contemporary Inuit views, there are references to the bestowal or withdrawal of blessings as, respectively, the sources

⁷Durkheim used the term *collective conscience* in referring to those simpler societies which are based on mechanical solidarity, i.e. where the division of labour is less advanced. In more complex societies where organic solidarity operates, a shared collective conscience is less important (Jary & Jary, 1991).

of good things and of danger. In Deuteronomy XXVIII, 1-24, blessings are given when order is created; women are made fertile and food is provided in the form of livestock. When transgressions have been committed, chaos follows; the fruits of the body as well as of the fields/hunting grounds are cursed. Evidently, fertility/prosperity is permitted only when conformity to expected rules of behaviour are followed.

There is an Inuit folktale which echoes warnings of chaos/disorder following the commission of sins. Sedna (*Nuliajuk*) is the goddess of the sea--also known as the Sea Mother⁸ of the Inuit, or "the one down there" (Merkur, 1991). There are several versions of the story (Rink, 1875; Boas, 1901; Rasmussen, 1931) but from a compilation of the accounts I have heard, it emerges that when all is as it should be and people (Inuit) are conforming to the proper ideals, Sedna wears her hair in neat plaits and sends food in the form of sea mammals for the Inuit to hunt and consume. However, if improper behaviour has occurred, Sedna's hair becomes entangled in the rough waters she creates, and she withholds their food sources. During such periods of poor hunting, it is assumed in the camp that a transgression has occurred. The camp leader will entreat the transgressor to publicly admit her sins so that Sedna will once again restore order.

This parable-like account may seem to have an orientation whereby social order is fundamental to sociocultural norms. Sociocultural beliefs regarding pollution (disorder) may be seen as coercive in that they help maintain social solidarity and the concept of shared values. One of the older women in Coral Harbour told me:

⁸Sea Mother mythology has been differentiated into three tale types: the dog-husband myth, the storm-bird myth, and the myth of the origin of the sea animals (Merkur, 1991). The latter has a wide polar distribution--from Alaska, across Canada to West Greenland.

"Some angakoks [shamans] used to heal the sick...they were not like gods but like prophets; if somebody made a mistake or did something wrong--that angakok would know."

Anachronistic explanations usually ignore social change whereas folktales and traditional beliefs are continuing in their influence and relevance to a community coping with constant, and in some cases, escalating change.

Perceptions of Pollution Just as beauty is deemed to be in the eyes of the beholder, pollution is construed by all senses of the perceiver. Mary Douglas uses the term "dirt" as a synonym for pollution, and in this research study the word pollution was used by many Inuit women to describe an invasion of dirt in various forms (such as "smog," "smoking," "the ozone layer") from the outside. The Inuit cultural/community boundary was crossed when such pollutants as alcohol, drugs, PCBs and tobacco were brought in by outsiders. Intrusions from without are regarded as potentially threatening because it seems that not only are the physical boundaries of the society/community being threatened, but the spiritual/cultural limits are being tested continually.

The Western idea of dirt is dominated by the knowledge of pathogenic agents, but Mary Douglas (1984) acknowledges that Western ideas also express symbolic systems in a manner similar to less complex cultures, and that differences in pollution behaviour are just a matter of detail. Western ideas of pollution include regarding dirt as offensive, and it is with this understanding that she asserts, "dirt is essentially disorder" (Douglas, 1984, p. 2). Hence, in order to get rid of dirt (disorder) we re-order our environment; this may be seen as a positive, creative action which makes the achievement conform to our cultural ideas of

cleanliness. Dirt is described as a residual category--a by-product rejected from an orderly system. Douglas explains that whatever we perceive is organized into patterns conceived by us; individuals approach issues through their own unique and cultural lenses and a frame is constructed that establishes a set of assumptions (Gitlin, 1980). The act of perceiving is not merely a passive effort. From stimuli affecting our senses we select those with which we are familiar and which have meaning to us; this filtering system is a pattern-making tendency called schema. In perceiving, we accept and reject cues according to their fit into the pattern we are building. Ambiguous cues are treated as if they harmonized with the familiar but blatantly discordant ones tend to be rejected. Facts which may be related but do not fit into the categories we are devising we tend to ignore--so that they do not disrupt established assumptions. When anomalous cues are accepted, assumptions may need to be modified. That is, we accommodate a new experience, label it, and take ownership of it. As these new experiences accumulate, we gain more confidence in our (refined) assumptions (Douglas, 1984).

Distinct cultures support distinct concepts of pollution--though cultural patterns of values regarding pollution usually change over time. Culture provides a positive, perhaps even rigid, pattern of values by which we organize our precepts. Individuals in any society may re-order their own perceptions privately (as will be seen in later chapters when I discuss my research findings), but in the public arena anomalies⁹ are confronted in a culturally defined,

⁹Mary Douglas (1984) reports that in some West African tribes the rule that twins should be killed at birth eliminates the social anomaly that a human womb cannot bear two babies at the same time. It has also been reported to me that in earlier times Inuit would nurture only one of a set of twins after their birth as there was room for only one baby in the *amoutik* (a woman's outer garment).

acceptable manner.

In any discussion of perceptions of pollution, what is actually being asked is “what do you believe are the risks of (xyz) happening?” Mary Douglas (1984; 1990) asserts that the word and the concept of “risk” has changed over time. The original meaning of ‘the probability of an event occurring’ invokes a neutral concept,¹⁰ but today, risk tends to be associated with only negative outcomes.

Risk

As a construct, risk may be defined as the probability of a (usually unwanted) event occurring, key components of which are probability and hazard. In the context of contaminants, the probability of occurrence of a particular effect depends on (a) the potency of the toxicant, (b) the susceptibility of the exposed individual, and (c) the level of exposure. The latter depends upon the sources of the toxicant, the events surrounding its release, and the pathways through which it can reach humans. Hazard refers to factors which cause adverse health effects, such as viruses, bacteria, and chemicals. Risk then, is a function both of the nature of the effects induced and of the probability of their occurrence (Krevski, 1987).

The process of risk assessment and management has usually focused on the scientific identification of health hazards and the determination of health risks. It is the conscious

¹⁰The concept of risk originally emerged in the seventeenth century where, in the context of gambling, a specialized mathematical analysis of chances was developed. In the eighteenth century, the analysis of risk had uses in marine insurance--the chances of a safe return of a ship compared to it being lost at sea. In the nineteenth century, humans were considered to be risk averse as economics was the motivating force. Its current construct has less to do with technical calculations of probability than with politics, and hence, power (Douglas, 1990).

attempt to identify the sources of risk, to define the conditions of exposure to humans, to relate the conditions of exposure to harmful effects, and to estimate the experienced risk (Krevski, 1987). The calculation of risk for the scientist is an objective endeavour conducted without ideology, politics, or preference, and hence, it is unbiased.

It is accepted in the scientific community that in any discussion of risk we usually distinguish between "real" and "hypothetical" risks; the real type of risk can be identified and quantified. For example, cigarette smoking has been shown epidemiologically to pose a known health hazard--there is a real risk of early death from lung cancer or heart disease. The use of food additives or low-level exposure to some chemicals poses hypothetical risks; they may contribute to cancer mortality, but there is no evidence to prove a definitive causal link. Hence, it may be difficult for the public to sort out what is real and what is not. As will be seen below, for many of the Inuit women with whom I talked, a risk is not considered real unless they have witnessed its untoward effects.

Risk analysis seems to presume that choice among hazards should follow a purely rational model of decision making but the choice of risks people take is heavily influenced by social and cultural contexts. Mathematical models aid in the scientific assessment of risk, but, as explained by Boyer (1991) "ultimately the gap-filling is not a purely scientific act; it reflects the values of individuals who are making the decision and the political culture in which they operate" (p. 23). Some risk analysts admit that it is they who must broaden their "own concept of risk using expressed public preference as a guide" (Hohnemser, 1981, p. 51).

Perceptions of Risk

Because risk is, in part, a social construction, then evaluating perceptions of risk is a social process. For the general public, low probability events are not usually deemed important in their evaluation of risk. Risk aversion is mainly attributed to becoming aware of vivid but unlikely events (like Three Mile Island). In these case, because their knowledge is socially derived, and constructed in socially approved terms, their knowledge limits are confined to their world view. Public perceptions, in general, are often based on concern over a different set of consequences than those in technical risk assessments. For example, personal relevance, familiarity with and complexity of the risk, as well as control over exposure to it, affect peoples' perceptions of risk.

In order to address issues surrounding the problem of risk in a particular ethnic group, a holistic approach is needed, whereby a whole view of human action is explored (Douglas, 1992). In fact, only by taking cultural values into account (including concepts of mutual accountability) can an outsider study risk perception in a specific cross-cultural situation. Because I was cognizant of the history, mores and customs of Inuit culture, I was better able to construct an overview of the community's attitudes towards risk. Even then, as I was told by several Inuit, the concept of risk must be considered in a specific context--such as the risk of drowning in an old, dilapidated boat, or the risk of falling through thin ice. In fact, I was told by several women that "nobody talks about risks" and that it is an individual's decision to take risks. As other researchers too, have found, the concept of risk is a construct which can take on different meanings depending on the context of the discourse (Kaufert and O'Neil, 1993).

Some people (in any ethnic group) appear to be more risk averse than others. A chosen risk is usually taken with some knowledge of possible harmful consequences, but in response to my asking women if they thought that Inuit take risks (in the abstract sense), some told me that they thought that Inuit took risks such as abusing drugs and alcohol without realizing that they would become addicted.

Perceptions of the risks of pollution--starting with the individual body, including the social body, and extending to the body politic--are influenced by a complex of sociocultural factors arising from historical and contemporary community life. Inuit traditional ecological knowledge (TEK) has guided their risk decisions throughout time and this knowledge has been communicated to contemporary Inuit who now want to demonstrate that their extant ideas about risk are still relevant to competent management of the Arctic environment.

Research into risk perception based on a cultural model reveals that risk (in all its implicit meanings) may be seen as a social construct (Douglas and Wildavsky, 1982) and as a collective construct (Brown, 1987). As I learned from the Inuit, people's risk perceptions and attitudes are influenced by the accumulation and assimilation of personal experiences over a lifetime, as well as by interpersonal communication in a variety of networks (Brown, 1989). Individual preference can be understood only by cultural theory, as risk-taking behaviour adheres to a reasonably predictable pattern of understandings between the person and others in the community (Douglas, 1992). This is a concept I was able to employ in Coral Harbour because I was familiar with the Inuit ideology of individual choice being accommodated within the context of community cohesion. For example, most women told me that they were willing to take the individual risk of eating potentially contaminated hunted food because,

besides enjoying the taste, they needed Inuit food to survive--as Inuit.

Individuals in a cultural group are assumed to sift information through a "collectively constructed censor" (Douglas, 1990, p. 11); hence, it is essential to take cultural values into account when studying risk perception. The veracity or authority of (new) facts, Douglas (1990) concedes, is advanced by a consensus that supports the current political system--thereby creating a politico-cultural bias--because each culture is based on a distinctive attitude toward knowledge. For example, individualistic (Western) culture may praise and reward new knowledge--and it attempts to discredit the old cultural knowledge. But in a hierarchical culture--or even in a society like the Inuit which tends to be more equitable--self-protection of the system is assured by demonstrating confidence in its old knowledge. New knowledge is not disregarded, but it is how the new knowledge is perceived and assimilated by the individual--whether it is accepted or rejected from the established patterns of belief--that reinforces a person's cultural allegiance. When I tested this assertion in Coral Harbour, I understood the real promise of Nunavut: new ideas are selected, sieved, and successfully utilized within a traditional framework. (However, some Inuit women consider Nunavut to be a risk.)

For Mary Douglas, the modern Western dialogue about risk "plays the role equivalent to taboo or sin" (Douglas, 1990, p. 7). To be "at risk" states Douglas, is equivalent to being sinned against and vulnerable to events caused by the behaviour of others (who are also opponents). It means to be in danger. The sin/taboo discourse, belonging in the discourse of religion, is aimed at the conservation of morality and community solidarity; to be "at risk" is the reciprocal of being "in sin" and to be "in sin" means to be the cause of harm or the

perpetrator of a deed that results in harm. In contrast, states Douglas (1984), the aim of (secular) risk discourse appears (to some) to be community disintegration in the style of an individualistic culture--which is skeptical of religious faith but supports industrial expansion. This differs, in my estimation, from the significance of risk discourse in the Inuit context--where individuals are able to develop their own concepts of risk without contributing to social disintegration. For example, when I asked women what other people knew about pollution, I was informed that they could not speak for others. In addition, I was told that individuals make their own choices regarding which risks they choose to take. No comments were made that appeared to denigrate individual perceptions or actions as having the potential to taint Inuit culture.

A "chemophobia" epidemic (fear of chemicals--a sort of chemical reaction) is the cause of much fear among people who may be confused or uncertain as to the reality of the risks, and what it means to them and their families (Whelan, 1993). For example, Shkilnyk (1985) reports that she was told by a resident of Grassy Narrows Reserve, "...I got a letter from the government saying that I had a high mercury level. I think it was over 200. The letter said I was 'at risk.' But what does that mean for me...?" (p. 192).

Risk Communication It is accepted and understood that the public often responds to risk differently from the experts, and this has implications for risk communication and management. Kasperson (1987) notes that risk managers who operate on the basis of technical risk assessment only, using numerical estimates of mortality and morbidity, continue to be surprised by the broader perceptions of risk of the general public. Although people are

generally rational in their approach to risk, greater attention needs to be paid to the qualitative (sociocultural) aspects of risk. The scientific literature on the risk of Arctic contaminants is, generally, inaccessible to the Inuit.

But, because they had received contradictory messages from scientists in the past, Inuit women told me that they were suspicious about their advice. Risk communication should adapt to the social contexts in particular communities and strive to recover lost trust in expert knowledge.

For the Inuit, the qualitative attributes of hazards assume greater importance than the numerical level of risk. Because their concept of risk is embedded within the local context, it is at the local level that dialogue on risk should be established. Kaspersen (1987) advises:

“A broader approach to consequences of a multidimensional conception of risk will almost certainly provide greater insight into public response and concern” (p. 294).

Communication in the form of health advisories is one vehicle for informing the public about health risks. Health care providers could use the local radio to provide culturally appropriate advice on topical health issues, or printed bulletins could be distributed in public venues such as the health centre, the schools, stores, and community centres. In adapting to the social contexts communication efforts can help improve the understanding of public information and health professionals can continue in the maintenance of public health and safety.

Outline of the Thesis

The remaining chapters of this thesis follow the path of the research process beginning

in Chapter Two where I discuss how the research was actually conducted within an ethnographic framework. The qualitative research method I used coalesced with a feminist perspective which allowed me to engage in a collaborative relationship with all participants. Women's voices are distinctive and distinct in this study; they are the dominant voices because I chose to conduct in-depth interviews with women only. An important element in the success of feminist ethnography is the part played by the researcher; my being accepted as a known quantity--one who has worn several hats (nurse, researcher, friend)--was critical in the gathering of rich data.

Chapter Three provides the socio-cultural background information essential for understanding the meanings of my observations and conversations. The context of risk perception encompasses people and places in the North, and includes a history of Arctic peoples and characteristics of the Arctic ecosystem. Consideration is given to the politico/social aspects of Arctic life as such issues are influential in Inuit perceptions of pollution and in the choices Inuit make. In Chapter Four I present a review of the scientific literature describing various contaminants found in the Arctic (mainly organochlorines and heavy metals) and an examination of this discourse is compared with the popular media discourse of pollution--mostly newspaper articles--in Chapter Five.

Chapters Six and Seven are devoted to the voices of Inuit women in Coral Harbour. The following themes emerged: food; health; contaminants; perceptions of pollution; perceptions of risk; trust; power and blame; and community wellness. Themes described encompass the large range of health and social issues current in the community. My findings in these two chapters show that, for the women with whom I spoke, pollution can appear in

many forms, from drug and alcohol consumption to visible air and water contaminants to possible invisible contaminants in Arctic wildlife. Erosion of traditional Inuit social structures by various forms of southern-generated pollution was identified as having a negative impact on Inuit identity. As well as asking about types of pollution, I asked Inuit women about the status of their current lives and how they thought this might change if Inuit food became too contaminated for consumption. This was the worst scenario they could imagine as they have suffered multiple losses in recent decades. Losses were recounted in our conversations and they are presented in this manuscript as contributions to the overall picture of their perceptions of pollution. Women thought that it was important that their voices be heard because the so called “experts” look at things differently and are not always cognizant of important facets of the lives of the people involved. I was told that if the real problems were identified by the people suffering from them, then realistic solutions could be initiated.

In Chapter Eight I address the related study objectives, summarize my conclusions, and provide explanations of my interpretations of some of the meanings in the three domains of discourse. The focus remains on Inuit women’s voices and their perceptions of pollution; this is compared with the language¹¹ of the risks of pollution published in the popular press and in the scientific literature. Central to my thesis that perceptions of pollution are culturally constructed was highlighted in my final question to participants, “how would you feel if you couldn’t eat Inuit food any more?” Their answers are enlightening--and unforgettable:

“I would feel that part of our tradition had been taken away from us. It would be a big loss;”

¹¹I use the term “language” in the same sense as Kaufert and O’Neil (1993): concepts, values, symbolic forms, as well as words.

"I would feel terrible. I don't think I would last too long--I'm too used to eating it...we crave for certain Inuit foods--worse than wanting a cigarette;"

"I would die right away. I think everybody would die."

CHAPTER TWO

The Research Process

The year before I conducted my fieldwork in Coral Harbour, Nunavut, I carried out a feasibility study regarding perceptions of environmental health risks on the part of Inuit women in Povungnituk, Nunavik. At that time substantial work was being done (and continues today) in Northern Québec in connection with the Arctic Environmental Strategy; similar research on environmental health issues, though on a much smaller scale, was proposed for the Keewatin Region of Nunavut.

In the first study (which Yin, 1993, would describe as an exploratory case study) I spoke with key informants including the mayor, the employment officer, physicians, nurses, native midwives, and the head of the women's organization. I informally interviewed 18 women (not in-depth) regarding their perceptions of the risk of contaminants in the Arctic food chain. Before going to Povungnituk I had constructed a short interview guide based on my own knowledge of Inuit ideas of food, but in conversation with people there, perceptions of pollution were expanded to include sociocultural issues which were of current concern to Inuit in that village. My stay in Nunavik was enlightening as it was here that I was informed by a member of the women's committee that of course people have concerns about the possibility of their traditional food being contaminated; however, other problems, such as drug and alcohol abuse as well as child and wife abuse were more significant at that time than fear of contamination of food. This assertive, well-informed, Inuit feminist spoke with a frankness and an authority that is rare in any town. I will never forget my long conversation

with her--it was pivotal in the re-formation of the interview guide which I subsequently used in Coral Harbour.

After spending a few weeks in Povungnituk--a new and unfamiliar Inuit community for me--I more fully appreciated the advantages of working in an aboriginal community where I had been known and trusted for an extended period of time. I value the cooperation of people in Povungnituk, but the feminist methodology I had decided upon for my project requires a close connection with local women (and men), and I was fortunate in having these ties already established in Coral Harbour.

Fieldwork Preparation

In order to be able to conduct research in Coral Harbour, it was first necessary to obtain a science licence from the Nunavut Research Institute in Iqaluit. At that time this entailed: completing an application form indicating university affiliation, sources of funding, and writing a short research proposal; requesting permission from the Hamlet Council of Coral Harbour and the Keewatin Regional Health Board; and because my project was "contaminant-related research," I also had to apply to the chair of the Policy Advisory and Technical Committee on Arctic Contaminants in Yellowknife (see Appendices A, B,C, and D). Evidence of approval from the Ethics Committee at the University of Manitoba (Faculty of Medicine) was also mandatory (Appendix E). Before going to the field I developed two forms: one was a consent form (which was subsequently translated into Inuktitut) for participants to complete before granting me an interview; the second was an explanation of the study itself (see Appendices F, G,& H). The interview guide (Appendix I) was initially

created from knowledge gained in my previous experiences of working with Inuit as well as ideas gleaned from copious reading on topics regarding cultural constructs of risk. It was augmented by invaluable contributions from Inuit women in Povungnituk.

After I received my letters of approval to conduct the research, I phoned some people in Coral Harbour in order to engage an interpreter and to locate a place to stay. A friend announced my project on the local radio prior to my arrival.

Research Participants.

Because it had been announced that I was conducting research in the community, no one was surprised to be asked to take part. In the 128 households registered in Coral Harbour, there was a total of 672 residents, and 37 of these individuals were *Qallunaat*. Of the 635 Inuit, approximately 48% were under the age of 18 (n=304). Fifty-one percent of the remaining 331 individuals were women (n=165); of these, 133 were eligible for this study. Those who were excluded were: non-Inuit women; women who had a disability that prevented them from participating; those who were absent from the community during the study period (either away at school, visiting other communities, or hospitalized); members of the family with whom I lived; the interpreter who worked with me; and women under the age of 18.

I conducted in-depth interviews with 47 Inuit women, supplemented with input from numerous other informants in the community. Each woman was provided with a study explanation sheet and was invited to ask any questions; she then signed a consent form. She was assured of confidentiality and understood that she would not be identified in the

completed manuscript. Fifteen of the 47 participants did not speak English, and since my Inuktitut is somewhat limited, I engaged an interpreter I had worked with in the past to translate when necessary. All of the women with whom I spoke, who ranged in age from 18 to 63, were mothers of adopted or natural-born children, or were pregnant at the time. I wanted to interview women from all age groups, so I purposefully limited the number in each group. Group A was composed of women in the 18 to 29 age range (n=15); group B, 30 to 44 years (n=14); group C, 45 to 59 years (n=12); and group C+,¹ over 60 years of age (n=6). The women aged 44 and younger usually spoke English as most of them had attended school.

Within the purposeful sampling approach, I used the stratified purposeful strategy in order to “capture major variations rather than to identify a common core”--though this happens too (Patton, 1990, p. 174). I selected a number of women from each age group by the opportunistic method. I simply met people on the street, in the stores (in exchange for an interview, I carried home the groceries for one participant!), at people’s houses, or sometimes I called women to request an interview. Initially, I had aimed to interview 20% of the sampling frame (n=27) because I thought that this would be a manageable number, but because the interviews were going very well, I decided to continue until it was time for me to leave the community. Forty-seven women out of a possible 133 eligible for inclusion in the study represents more than 35% of the total. Nobody declined to be interviewed.

Research Schedule During the weeks I spent in Coral Harbour, I conducted in-depth

¹For some partly explicable reason, I did not want to assign anyone (particularly the elders) to the ‘D’ category--perhaps because this has connotations of failure. My cultural (academic as well as Qallunaaq) baggage is evident.

interviews every day of the week and on weekends, either during the day or evening-- whichever was the most convenient for the participants. I tried to interview those women who did not speak English during the day on weekdays so that my interpreter would not have to forego family responsibilities. With one exception--where the interview was held in the workplace--all interviews with participants took place in their homes. If there were many visitors in the house at the time of my arrival, or if other members of the family were watching the television, or listening to the local radio or the CB radio, I was taken into a bedroom in order to conduct the interview without undue noise interrupting us. Of note the following modes of communication were in operation when I entered the houses: television, 30; radio, 18; CB radio, 23 (the easiest and quickest method of contacting someone or of getting a message out to the community). No one appeared shy with me or reluctant to allow me into their house, as I had visited many of them in their homes on previous occasions and, as Finch (1984) explains, I was treated as a guest--not merely an inquisitor.

Research Process and Analysis All of the interviews were voice-taped and I checked that each tape had been properly recorded after each interview. When I returned to Winnipeg I then transcribed all of the tapes. I entered all pertinent data into Paradox (version 7), a relational database management system which enabled me to link and sort variables. Besides entering the answers to each of the 53 questions on the interview guide I posed to the 47 participants, I also added another 18 variables--such as, which methods of communication were in operation when I entered the house (television, radio); the number of adults and children living in the house; in which language the interview was conducted; and the

participant code number. Sometimes several questions became fused into a single variable/field (for, example, where they appeared to be asking for the same information and if similar responses were given). In other cases--those for which everyone gave the same response (such as belief in God, or milk is good food for growing children)--answers were not entered into the Paradox table to prevent it from becoming unnecessarily cumbersome.

As well as entering a single word or syllable for many of the responses (there were 68 fields), I also typed in all comments *verbatim*. These comments were often supplemental to a simple yes/no answer and they also comprised the total answers for several questions such as “what do you think the government could do to help the Inuit be healthier;” “what kinds of things do you think are dangerous;” and “what do you think others know about contaminants.” I created a database table for each of these questions--one record per participant. From all of the data entered, major themes were revealed by the use of “queries” and were compared across all interviews. Records were sorted across numeric, Boolean (true/false), and text fields, and were filtered. For example, I might ask what is the most common food consumed in a particular age group; or, what was the health condition most feared by all participants; or, for Inuktitut only speakers, what was the most common concept of pollution. I also counted how many people mentioned TB, drugs or abuse in their responses (that is, without being prompted). I then determined which topics appeared to be the most important or common in the interviews and constituted themes. Themes may be described as topics, issues, or concerns which a person talks about at length or to which she constantly returns during the interview. Hence, themes can represent topics which are the most meaningful to the person at the time of the interview (Hayes, 1994). In this research

study, themes were derived from the total number of responses; recurring themes were determined in this study by asking Paradox to group, count or sort answers to a particular question.

By using the thematic process, concerns are contextualized as they are then linked to the way people experience everyday life and each other. The relational database system, however, did not solely determine the form and content of my interpretation. In addition to data entered into Paradox, I also examined my field notes for references to themes identified in the Paradox tables. These notations, as well as responses to my questions regarding food, health, and contaminants, illustrate a kind of mapping of evolving health concepts and precepts (such as increasing fears of cancer) in the community of Coral Harbour. It was important that I, as a researcher, be cognizant of the socio-cultural determinants of health relevant to the culture. For example, I knew most of the people who had died of cancer in recent years and the women expected me to understand the depth of their concerns. I did not solicit specific answers to my questions, and all of the explanations/associations which I discuss in later chapters in this thesis were presented to me by my research participants, though the interpretations are my responsibility.

I had an opportunity to return to Coral Harbour the following summer--for just one day. I was asked to take part in a television documentary for the World Wildlife Fund.² I was able to arrange some interviews with community residents who were willing to talk about contaminants in Arctic wildlife--their food resources. It was interesting for me to observe

²The WWF obtained verbal permission to conduct the documentary from the Department of Health in Yellowknife who also recommended that the film makers contact me. Their approval mechanism was much simpler than the process that I (and other academics) must undergo.

someone else conducting interviews on this topic—even though their focus was more on the plight of the animals! Six months later, in February 1997, I returned to Coral for two weeks. I spoke with most of the women who had participated in the 1995 study and I asked them if my interpretations were sound. They validated my analyses and brought me up to date on the happenings in the community.

The greatest factor which contributed to the success of this research endeavor lay in the rapport established between myself and community members over a span of 13 years. In addition to interviewing in the field, and examining published accounts in the academy and popular press, I believe that the most salient feature of this qualitative research dissertation is the overriding influence of feminist methodology whose effect is conspicuous throughout the study.

Qualitative Method

Qualitative research was the obvious choice for this ethnography as it is the site of multiple methodologies. By crosscutting disciplines and subject matter, I was able to gain an in-depth understanding of how Inuit act in, and give meaning to, their lives (Hayes, 1994). Qualitative research involves an interpretive approach by its emphasis on the interpretation of phenomena in terms of their meanings for people affected in the investigation. Such a naturalistic inquiry examines real world situations as they naturally unfold, that is, without any intervention or manipulation on the part of the researcher--although quantified data may be included (Patton, 1990; Strauss & Corbin, 1990). My inclusion of quantitative data is restricted to percentages and ordinals, that is, how much or how many participants furnished

particular responses. Lévi-Strauss' (1966) idea of researcher-as-*bricoleur* (a worker who gets the job done) may be applied to the qualitative researcher. She collects the data, and in the interpretation of the information, she produces the *bricolage*--a set of practices which constitutes an emergent construction of the *bricoleur's* method; this changes as different tools/practices are added to the puzzle (as explained in Denzin & Lincoln, 1994).

Qualitative research may involve the use of a variety of empirical materials, research practices, and theoretical paradigms such as grounded theory, case study, feminist methodology, Marxism, life history, participant observation, or whatever other strategies appear to be suitable in a given context (Denzin & Lincoln, 1994). One of the advantages of qualitative research is that because there is no unified set of practices, an individual researcher is free to make use of selected elements she finds most suitable for addressing a particular research question. However, in all qualitative research there are three major components: 1) data, which are gathered from a variety of sources--interviews and observations being the most common; 2) analytic procedures which may include coding or diagramming of conceptual relationships; and 3) written and verbal reports of the research findings (Strauss & Corbin, 1990). Reliability in the traditional meaning of replicability is meaningless in qualitative research (Janesick, 1994), but "validity" of the research findings is enhanced by procedures which reduce the possibility of misinterpretation in the communication process. These procedures are termed triangulation³--a process of using multiple understandings to clarify meaning by identifying different ways the phenomenon is being perceived (Stake,

³Triangulation is an alternative to validation. It is the combination of multiple methods that adds rigor, breadth and depth to a single study (Denzin & Lincoln, 1994).

1994).

The (gendered) researcher approaches the research process with an idea (or theory) that specifies a set of questions which renders the data to be analytically examined (Denzin & Lincoln, 1994). Stake's (1994) dictum that the most effective and simplest rule for the qualitative research method is to "place the best brain available into the thick of what is going on" (p. 242) promotes a degree of reflectivity⁴ on the part of the researcher. Because I was not following a rigidly predetermined theoretical perspective, I tried to explore my own cultural understandings and anticipate the subsequent readers' interpretations by including and contemplating a combination of local actors' meanings.

Qualitative research is a set of interpretive practices of which grounded theory is one example. Grounded theory (referred to as "theoretical sampling" by Janesick, 1994, p. 209) uses an iterative process through a succession of questions and answers. It is derived inductively from the study of the phenomena it represents, for example, theory derived from the phenomenon of risk perception. Hypotheses proposing relationships among concepts (such as fear of loss of Inuit identity if access to Inuit food is lost) are systematically derived from actual data related to the phenomena, and the research findings constitute a theoretical formulation of the problem under investigation (Strauss & Corbin, 1990). I utilized grounded theory in this study because a new approach was needed to look at an old problem, that is, the problem of perceptions of risk and pollution in the Arctic. It has been postulated that grounded theory may now be the most widely employed interpretive strategy in the social

⁴Reflectivity is a term used by Stake (1994) in reference to the problem posed by the researcher's etic bias; reflectivity is used to challenge her frame of reference.

sciences (context is imperative), as emerging explanations or categories from empirical data illustrate its utility in its explicit commitment to theory development and theory verification (Yin, 1993; Denzin & Lincoln, 1994).

Feminist Methodology

The selection of feminist methodology for this qualitative study was not a difficult decision to make. It was not based solely on the fact that Inuit women were to be the subjects (in contrast to the objects) of the research, but that I wanted to include them as active agents in the gathering of knowledge (Strathern, 1987). As in many other societies, Inuit women are usually responsible for the preparation and distribution of food, and I planned to place emphasis on eliciting women's knowledge regarding food. Admittedly, I wanted to find out Inuit women's perceptions of risk in consuming potentially contaminated Arctic foods, but more importantly, I was resolved to undertake a polyvocal ethnographic enquiry that would encompass aspects of feminism appropriate to the Inuit cultural context.

Although there is no uniform canon of feminist research principles, it is still possible to characterize some dominant conceptions, the most salient of which is feminist support for qualitative methods (Stacey, 1988; Jayaratne & Stewart, 1991; Reinharz, 1992). By promoting feminist methodology I am not advocating an essentialist position. Like Seager (1993), I want to examine "the ways in which gender and gender relationships enter into environmental issues, and the ways in which environmental issues are shaped by gender-specific constructs" (p. 5). In the Inuit context, gender relationships could be affected by changes in family roles if hunting and fishing pursuits were curtailed because of highly

contaminated country foods. Would women (or children) become the breadwinners?

Some will undoubtedly question (or even *speculate*) how a feminist analysis of problems regarding the seemingly genderless environment could contribute to our understanding of the issues involved. Environmental problems in the Canadian Arctic (as in most areas of the world) are not simply physical systems in crisis; they are the result of bureaucratic arrangements and non-Inuit cultural conventions that create conditions of environmental destruction. The “environmental crisis” which is forecast by some is not just the sum of such signs as the depleting ozone layer and global warming; it is a crisis precipitated by the dominant ideology (Seager, 1993). The question of agency⁵ is seldom addressed in conventional evaluations of environmental problems, but it is a central issue in a feminist enquiry as feminism is rooted in an analysis of associated social, cultural and political institutions. If one accepts that the institutions that control our environment are constructs of male culture, then it becomes clear that only a feminist enquiry will reveal the gendered consequences of environmental stress at the social level.

Undisputedly, there are many feminisms (the term itself is contested), but feminist methodology may be seen as the sum of feminist research methods⁶ (Reinharz, 1992). By utilizing feminist methodology, which involves engaging in a collaborative approach where no hierarchical relationship is established, I had the opportunity to be involved in every step

⁵Agency refers to individual or group capacity to exert influence or power.

⁶“Methods,” as defined by Harding (1987), are the particular procedures used in the course of research (e.g. interviews), whereas “methodology” applies to the broad principles of how to conduct research and how theory is applied (e.g. survey research methodology, and epistemology as a theory of knowledge.) In the sphere of the qualitative method, for example, feminist methodology refers to a much broader theory of how to do feminist research (Jayatne & Stewart, 1991).

of the project--from research design to negotiating the study site, and to the finished written product. Moreover, I personally interviewed each participant and analyzed the data.

An important objective of feminist methodology is to conceptualize women's behaviour as an expression of social contexts (Reinharz, 1992). In response to Mohanty, Russo and Torres' (1991) call for a more finely honed historical and context-specific feminist approach, the exploration of Inuit women's perceptions which I undertook addresses all pertinent sociocultural factors--such as disruptions in family and community activities. Feminist research is not only about women (and often by women); it is for women. As a feminist, I believed that I was able to place women's own definitions of their problems or concerns at the centre of the enquiry. This enabled the women with whom I spoke to formulate problems themselves and plan for potential action.

In general, I prefer to designate the methodology in which I engage as a "feminist perspective," and at the same time I align myself with Moore's (1988) view of feminist anthropology, which she sees as the study of gender--of the interrelationships between women and men in a context where gender cannot be marginalized. Gender (not sex) is socially constructed, and it is reconstructed within a framework that interacts with, but is not limited to, biological considerations (Farganis, 1989). Feminism and anthropology have been described as having an "awkward relationship" (Strathern 1987). Their views may be seen as not readily reconcilable as both disciplines rise out of, and focus on, the two fundamental and political systems of difference: gender and race, each of which is rooted in self/other distinctions. Anthropology, claims Moore (1988), offers a critique of feminism based on the deconstruction of unifying categories which are based on oppression. However,

anthropological discourse is also described as the discourse of the self and of dominance (having its roots in colonization), and paradoxically it defines self (reflexively) as the study of the Other (Abu-Lughod, 1990; Mohanty, Russo & Torres, 1991).

There is an implicit assumption in anthropology that there are many truths, and the discipline has become critical of the notion of objectivity (Abu-Lughod, 1990). Objectivity used to be accepted as a necessary characteristic of ethnography (Spradley & McCurdy, 1981), but in the promotion of (subjective) feminist ethnography, rather than endorsing an inferior project, I am advancing an *interested*, more complete research process. By studying and describing what women in a particular society really do—as opposed to what they are assumed to do—I, like other feminist researchers, am attempting to overcome a long history of the systematic neglect of women (particularly the indifference to women’s representation⁷) in the ethnographic literature. I elected to focus on Inuit women because their views on contaminants in Arctic foods have not been considered to date. By positioning Inuit women at the centre as “subjects” of my enquiry, those who have traditionally been constituted as Other are turned into selves, that is, transformed from objects to subjects. In the traditional Western hierarchical system, women have long been Other to men’s self.

Abu-Lughod (1990a) asks “what difference feminism could make to the doing of anthropological research” (p. 9), and answers that, because women are recognized as knowers, their experience is taken into account throughout the feminist research process. For

⁷Representation is explained by Edward Said (1978) as a discursive system involving political choices and political forces—authority in one form or another. Representations, he adds, are put to use in the domestic economy of an imperial society. Attention to the politics of representation, states bell hooks (1992), has been crucial for colonized groups in the struggle for self-determination.

myself, having undertaken several years of training in anthropology, I believe that the practice of conducting research as ethnography emphasizes direct participation in, and experience of, social realities. Feminism's contribution to the ethnographic process, particularly in a cross-cultural setting, is that it reinforces an unsettling of the boundaries that have formed in the enquiry of the self studying the Other (Abu-Lughod, 1990a). I have found that ethnographic fieldwork is enabling for all participants: women's lives are made visible and their voices are heard. In summary, feminist methodology is an egalitarian approach which is characterized by authenticity, reciprocity, and intersubjectivity (Stacey, 1988).

Ethnography

Both the activity of doing anthropological research (which includes nondirective interviewing and participant observation), and the written results of the endeavor constitute ethnography--the process of describing a culture. Many feminist scholars, such as Reinharz (1992) and Mies (1991), identify the ethnographic method as being well suited to feminist research because its contextual, hands-on approach allows for a reciprocal relationship between researcher and participant. Ethnography emphasizes the interplay among variables situated in a natural context, and credibility is established in the identification and examination of all related factors (LeCompte & Goetz, 1982). Because the only possible approach to ethnographic fieldwork is an inter-subjective one, fieldwork may be seen as *translation* and the resulting ethnography as *text*. The text becomes the product of an interactive process between the describer and described (Clammer, 1984).

The concept of the "ethnographic present" is a familiar one in anthropology and it is

commonly used in the writing of the ethnography. However, this does not mean that as an ethnographer, I can ignore the facts and interpretations of history, or any diachronic changes in the community, or across Inuit culture. These aspects of cultural change are woven into the description and analysis of data in order to produce a credible ethnography. A feminist enquiry is also an appropriate choice for an ethnographic community study as it emphasizes the experiential, and values engagement with all those participating in the research process--in contrast to the objective stance of detachment.

In this ethnographic study, it was essential that I take a holistic perspective of the focal issue because the whole phenomenon (of perceptions of pollution) is examined as a complex system formed of interdependent parts. Some investigators, however, advisedly warn against the pitfall of "ethnographic encyclopaedism" whereby the researcher collects countless pieces of information⁸ which are not relevant to the focus of the study (Clammer, 1984). I tried to avoid doing this by centering the study on the inter-relationships of relevant facts and their interpretation. I have to admit, though, that in the past when I have left the fieldwork setting and I am in a later stage of completing the ethnography, seemingly meaningless facts can illuminate a perplexing question (good field notes are indispensable). Consequently, a comprehensive view of the community, ranging over the social fields of kinship, politics, and customs, is a necessary feature in ethnography--in contrast to a purely thematic study. In the current study, although I focused my questioning on matters of pollution, I learned more about health and social problems in general, and about types of pollution specifically, by

⁸Malinowski, on the other hand, insisted that an ethnography should deal with the totality of all social, cultural and psychological aspects of the community (Malinowski, 1922/84).

inviting participants to delineate their perceptions of general problems in the community. Identification of current problems undoubtedly influenced their response to inquiries regarding their perceptions of risk of environmental contaminants.

By concentrating on (thick)⁹ description, ethnography is not disregarding theory. In fact, in the phenomenological method, it is the description of experience which is the focus, not only of what subjects do but also their voiced intentions, the manner in which they classify their world, and the ways in which they endow it with meanings (Clammer, 1984).

Feminist ethnographies, by revealing what it means to be a woman in different places and under different conditions, can offer those feminists exposed to a single image of womanhood a way of replacing these premises with a grounded sense of our commonalities and differences. Ethnographic feminism is described by Cole and Phillips (1995) as referring to theoretical grounding of feminism in fieldwork as well as to gender as an experience, process, and identity which varies both cross-culturally and within cultures. This type of ethnography makes women visible without denying the problematics of writing about and representing women's lives. A necessary component in a feminist approach to the ethnographic research method is participant observation, the hallmark of fieldwork.

Participant Observation

When participating in the everyday events of another culture (or “subjective soaking”

⁹The term *thick description* was originally coined by Gilbert Ryle but it has come to be more associated with Clifford Geertz, particularly in his *Interpretation of cultures* (1973) where he describes ethnography as a an elaborate venture in *thick description*, that is, the description of densely textured facts about a social context. Minute attention to detail is deemed to be the basis for more general assertions about a particular culture.

as Clammer, 1984, describes it), the fieldworker merges herself into the culture being studied and necessarily abandons the idea of absolute objectivity. The success of participant observation depends on the ability of the researcher to adjust and adapt to changing conditions of daily life. As an outsider she strives to gain access to phenomena that are usually obscured from a non-community member (Jorgensen, 1989). By doing this, I was able to discover what was going on rather than assuming what might be going on. Of course, preconceived ideas on my part could contaminate the reality of what I found--as well as impede efforts in the generation of new concepts from the data gathered. Naturally, we all have some preconceived ideas about how people might think and behave, but when these notions are recognized, made explicit, and controlled, such foreshadowed problems can serve to focus and limit the research effort (Fetterman, 1989).

The following characteristics of participant observation are pertinent to my research study: the research problem is concerned with the insiders' (emic) world of meaning (pollution); the problem can be addressed by qualitative data gathered by direct observation (in-depth interviews); the phenomenon of investigation is observable in the natural environment of daily life (social ramifications of pollution); the phenomenon is sufficiently limited in size and location to be studied as a case (Coral Harbour only); and, the researcher is able to gain access to the community and develop relationships (Jorgensen, 1989).

In contrast to the use of concepts that are defined from existing theories and hypotheses, as data are collected, coded, and categorized in participant observation, a tentative conceptual framework (or grounded theory) is generated (Jorgensen, 1989). Some (positivist) researchers may regard participant observation as nonscientific, or as useful only

during the preliminary stages of an enquiry for initial exploration and description of a research problem. However, participant observation cannot be presented as a series of mechanical steps; it is an iterative strategy whereby the direct involvement in people's daily lives provides a point of reference for the logic and process of this humanistic methodology.

As in all qualitative research, the presence of the researcher should be freely acknowledged because all elements of the research process can affect the research outcome. The very presence of an outsider spending time with members of the research community will, to some extent, change the dynamics of the "everyday activities." After some time has elapsed the researcher practising participant observation should become less visible and less of a hindrance to those who want to get on with their daily lives. Scheper-Hughes (1983), in reminding us that ethnographers used to deny their visibility, explains:

"By pretending that the self was an invisible, permeable screen through which cultural information could be objectively recorded and transmitted, traditional ethnographers did not have to critically examine the often subjective bases of the questions they asked and the kinds of data they collected" (p. 115).

The feminist qualitative researcher does more than observe and participate. By drawing on her own lived experience in the creation of the research process, her voice is included in the text. This idea is enlarged upon later in this chapter. The type of methodology in which I engaged for the collection of data for this project may be more accurately termed "observer-as-participant" (Field & Morse, 1985), since I was more of an observer than a participant. In this approach the participants in the setting are aware of the researcher's purpose and responsibilities but she does not intrude or interfere with their everyday life.

Fieldwork In Coral Harbour I became a temporary member of the Inuit family with whom I was living. I stayed with Rhoda, the sister of Potogok--the person I had stayed with in the past. Potogok's family had increased in size by two and there was no longer a spare room for an extra person. I contributed to such household responsibilities as shopping and cooking, and, occasionally, baby-sitting. In addition, I attended the local church and joined in community activities such as bingo, dances, games, meetings and a court session. Since I had engaged in similar behaviour in the past in this settlement, community members did not find my activities unusual. People in Coral Harbour know that I like to eat Inuit food and I was given lots of caribou and fish and several people invited me for meals.

I spent time visiting with people whom I did not formerly interview, for example many Inuit friends as well as the nurses and teachers. Others, such as the police, wildlife officer, store managers and store personnel, I met with at their workplaces and talked with in general terms about life in the community. People working in the Hamlet office, Arctic College, the Housing Office, the Health Centre, and those working in small business ventures were helpful in many ways. It was also interesting for me to meet another graduate student; Carrie Ann was a young woman studying the past and present use of dog teams for three months. I found it a real treat to be able to discuss mutual anthropological interests--as well as issues related to fieldwork. For example, Carrie Ann informed me that she had been told that meat on a *qamutik* that is being pulled by a dog team tastes better than on one being pulled by a snowmobile--no fumes to mar the taste. This was a question I had not thought to ask.

I took many photographs of people and events, and when I returned the following year later I presented my participants, as well as others, with their photographs. I did not pay

women for their interviews as funds were low! I had a spare \$200.00, and rather than give each participant \$5.00 (which would only buy two cans of pop at northern prices), I decided to put all 47 names into a hat and give two \$100.00 prizes. The two year old in the house where I was staying drew the names and the winners were announced on the CB radio. The fieldwork proceeded very well because I was well known, I had a comfortable place to stay, plenty to eat, and women were happy to be interviewed.

Women's Voices

Although it has been said that women, in general, are a "muted group" (Ardener, 1975), it does not follow that women are silent. Admittedly, there are contexts--particularly those public domains controlled by dominant male power--where women are barely audible. Instead of contesting such disadvantageous spheres, we should acknowledge that talk and interaction are gendered; hence, the advantages of "woman to woman" talk in female-only settings are promoted by Dale Spender (1985). Here women are more likely to listen seriously to each other and thus strengthen ties of communication. I have also found that by establishing areas of shared experience, a research topic can be augmented. In the past in Coral Harbour I have joined Inuit women in sewing circles, egg picking groups and bannock baking contests--just for the fun of it. On reflection, I recognize many benefits in developing such relationships with Inuit women, and I value their pivotal positions in serving as key informants in the research setting. With a few significant key informants I have been privileged to observe life changes, and in some instances participate in changes they have experienced in a period spanning 13 years. From them I have learned first hand of their

perceptions of the Inuit world view, the quality of marital relations, and the challenges of living in an Arctic community where change continues to accelerate.

Women's voices are becoming more audible in the North; conferences for Inuit women are becoming more common and quite popular across the Arctic (see Shirley, 1995; George, 1996b). Pauktuutit is the national organization representing all Inuit women in Canada (there are more than 20,000 in 53 communities). The organization has been involved in various projects including the child care initiative; health projects; a tobacco use reduction programme; the housing and violence reports; and, a project involving Inuit women and the administration of justice (Nunavik, 1997). Excerpts from one workshop, which were published in a volume by Northern women (Kataujuk, 1990), indicate support for the feminist ethnographic technique. Participants reported that they appreciated the opportunity to understand their own uniqueness and similarities, to "tell their own stories," and to feel accepted for who they were. Equipped with this kind of current sociocultural knowledge, the feminist researcher may ascertain the most appropriate approach to be undertaken with participants in the research community.

Personal Reflections

One of the salient features of a feminist approach to research is the role of reflexivity (Fonow and Cook, 1991). As well as its utility in the process of consciousness-raising, reflexivity characterizes the tendency of feminists (and others not claiming that distinction) to reflect upon, examine critically, and explore analytically the nature of the research process.

After several years of living, as well as conducting research, in the North, I can now

appreciate that the research process for me began in 1969 when I first went to the Canadian Arctic. Initially, I worked in the hospital in Iqaluit (then Frobisher Bay) and within a few months I was delighted to have the opportunity to transfer to the nursing station in Cape Dorset. Following this, I spent two years working in the nursing station at Pond Inlet in the high Arctic. In the hospital I had met Inuit from all over Baffin Island and I was curious to find out about the way of life in smaller communities. At that time I had no idea that I was embarking upon what would become a lifetime alliance with the North.

By the time I started my data collection in Coral Harbour in November, 1995, I had lived and worked in ten Inuit communities in the Baffin and Keewatin regions over a period of 26 years as well as in one Nunavik community. I had also visited many more communities during this interval where I had spent only short periods of time. All of my experiences in the Arctic, as well as in reserves in Northern Manitoba, have had a profound effect on my approach to research in the North. My association with Keewatin Inuit began in 1982 with a visit to a friend in Rankin Inlet. I was not looking for a job at that time (I had one in Manitoba) but within months I was back working among the Inuit. The changes that had occurred during the ten years since I had left Pond Inlet were amazing: television had arrived, there were many more air flights available, bread could be bought in the local store, as well as a good range of vegetables; but best of all, flush toilets were installed at the nursing station--no more honey buckets! There were other changes too--in the education system, the health system, and in job availability for the Inuit (no change in the weather, though). I worked for a few weeks in Rankin Inlet and then spent a month in Coral Harbour (alone) while the regular nurse went on holiday. I enjoyed the intimacy of a smaller community and

a few months later (March 1983) I transferred to Coral Harbour where I was to spend the next two and a half years. I returned to work in Coral Harbour for several summers while I was attending university, but I also worked in Chesterfield Inlet, Repulse Bay, and Sanikiluaq for short periods.

I have always been made welcome in Coral Harbour, both as a nurse and as a researcher. People have accepted me with ease in whatever role I assumed; for many Coral Harbour people, I am now a friend. Fortunately, I also have the opportunity to meet Coral Harbour people when they come to Winnipeg for medical appointments--these occasions enable the link to continue in friendship. My long association in the North serves me well. As a feminist researcher, I draw upon my own lived experience in the continuing development of the research process and I admit that my voice is just one of many included in the text. I find that by a critical examination of my own values and a willingness to make those values explicit, I am accepted as an honest and trustworthy person.

The planning and implementation of a feminist inspired research project entails a series of decisions, and reflexivity is required at each step of the process. Continuous reflection is necessary in order to focus on the researcher-participant relationship, both in the gathering of data and in the analysis.

Unquestionably, we are always part of what we study, and when we start with our own experience (in contrast to the custom in main [male] stream research of "writing up"), we feminist ethnographers start from the standpoint of women, by merging public and private lives, and describing how the project originated and why it was conceptualized. The actual research process may well be described as "lived experience," and the feminist researcher is

likely to reflect on what she learned from the process (Smith, 1987; Reinharz, 1992). However, it is only in the hands of a feminist that a description of a culture--an ethnography--becomes feminist.

As an undergraduate in anthropology I had two opportunities to conduct research in my third and fourth years. In my first project I wanted to determine the relative value of men's and women's contributions to household economy in Coral Harbour, first in terms of wage labour, and, more generally, in terms of the relative value of services performed in sustaining the family group (Egan, 1988). I enquired into employment history and patterns, as well as employment opportunities in Coral Harbour at that time. The data showed that women were less often employed, for less pay, and more commonly on a part-time basis in comparison with men. A substantial part of family subsistence, however, still derived (in 1988) from hunting, and this was supplemented from food purchased at the local store. The general trend seemed to be that men were allowed the first opportunity to secure full-time employment and that women were under-utilized in the wage sector. Interestingly, some working Inuit men told me that they thought it was unfair that men were more often given jobs; they suggested that women be given these jobs instead so that men could take up hunting full-time and be assured of money for the necessary equipment (ammunition, gas, vehicles).

The following year I conducted a study in the same community exploring the perceived and observed health status of Inuit receiving social assistance (Egan, 1989). This study stimulated my interest in the concept of perception. Out of the 83 families living in Coral Harbour, 31 were receiving social assistance and I interviewed a member from each of these recipient families. A comparison of the interview results with the medical files showed

a high frequency (>50%) in the recipient families of social and family problems and of chronic diseases, compared to 14% of the employed population ($p < .001$). Some people told me that lack of cash in the mixed economy was having a deleterious effect on the health of many indigent Inuit. However, the majority expressed a desire for greater access to land food--perhaps by a hunting subsidy--as all of the Inuit conveyed an overall feeling of well-being when a more traditional life-style was assumed. This expression of well-being in relation to traditional food was to become the seed for my subsequent research project for my Master's thesis in 1990 (Egan, 1990).

In February and June of 1990 I conducted research in Coral Harbour using diet records for both months and participant observation for the month of June. I camped with one family during the summer month and recorded everything each member consumed every day for that month. A member of the family kept a similar record for the month of February. In addition, I informally interviewed another twenty people in order to solicit their opinions regarding feelings of well-being in relation to the type of food consumed. Besides confirming that those who consume a traditional diet of land foods feel healthier than those who eat mainly store-bought foods, it also became apparent that the nutritional value of traditional foods was not sufficient in itself to produce perceptions of good health among the Inuit; feelings of well-being were also induced by the symbolic aspects of hunting and related activities. This was illustrated by the finding that qualitative differences were demonstrated between the summer and winter seasons in the self-perceptions of "well-being" in the group of Inuit under study. This was associated with measurable differences in the foods consumed by the study group during these seasons. This study illustrates how the powerful symbolism

attached to food can account for dimensions of well-being which otherwise would go unrecognized by health care workers who understand only the biomedical model. I have come to appreciate that perceptions of well-being, risk, or sickness can only be explored in a trusting relationship--such as the kind I established with people of Coral Harbour.

The manner in which we elicit information by means of a reflexive approach is created through our personal interactions with individuals in specific cultural contexts (Abu-Lughod, 1990). The generous contributions of the Inuit women I interviewed--as well as being pivotal to this thesis--greatly facilitated the research process for me.

CHAPTER THREE

The Northern Context of Risk Perception:

People and Places

Arctic Physical Environment

The Arctic is actually a central basin of water--the Arctic Ocean--which is surrounded by the islands and coastal regions of Russia, Alaska, Canada, Greenland, and Scandinavia; the latter, consisting of Norway, Sweden, and Finland, are known as Fennoscandia. The Arctic Ocean is characterized by a low salinity surface layer (<50 m) as a result of Arctic river runoff (which inhibits vertical mixing, thus enabling organochlorines to enter the ocean via the runoff) and summer ice-melting, which also creates a relatively stable surface layer (Muir et al., 1992). Globally, the Arctic includes an area of over 40 million km² or about 8% of the surface of the earth; it takes up 15% of the planet's land area and 5% of the world's oceans (Young, 1992). The word "Arctic" literally refers to the area north of the Arctic Circle (66° N) though the term is often used to describe areas somewhat south of this demarcation (including Coral Harbour). Nearly 40 % of Canada is above the 60th parallel, and above 66° N the Arctic encompasses 24% of Canada's land area and more than two thirds of the country's 244,000 km of coastline (Government, 1991).

Latitude plays a role in the seasonal pattern of solar energy available in the North, because at 66°33' N, the Arctic Circle marks the northern limit of the year-round occurrence of daily alternating daylight and darkness. That is, it marks the point at which the sun is above the horizon for 24 hours during the longest days of the year, and below the horizon for 24

hours during the shortest days of the year. One boundary of the Arctic, characterized as climatic, is the mean 10°C isotherm in July, and though there is considerable disagreement among researchers, it is the most frequently recurring mappable limit (Sater, 1969). Other boundaries often referred to are the southern limit of continuous permafrost and the tree line, both of which lie in more southern regions in the eastern part of Canada. The tree line in Canada varies from 69° north latitude near Inuvik to 55° in northern Ontario, runs diagonally from the Beaufort Sea to a point just north of Churchill, Manitoba, and continues through the Ungava Peninsula in Québec and Labrador. Those areas north of the tree line experience mean temperatures of less than 10° C in the warmest month, less than minus 30°C in the coldest month, and below minus 10°C average for six or more months of the year (Stager & McSkimming, 1984; Government, 1991).

The Canadian Shield, an area of ancient (Precambrian) rock that contains minerals such as uranium, gold, radium, silver and iron ore, extends into the central Arctic (Lloyd, 1966). Infertility of the Arctic soil—as well as its aridity resulting from soil type and generally low precipitation, short growing season, high wind velocity and frequency—encourages the development of a structural uniformity of vegetation resulting in a lack of diversity among animal habitats. Low availability of nutrients (including light) provides the major limitation to production of plant and animal material in the Arctic terrestrial environment where there are fluctuating population levels of certain dominant species (Stager & McSkimming, 1984; Freeman, 1984).

A unique characteristic of the Arctic physical environment is its relative absence of heat energy. Although there are marked regional differences in insolation, in Arctic regions

where the sun is very low on the horizon, the annual amount of insolation is small--causing a negative radiation balance. In order to compensate for the net radiation loss to space from the atmosphere and the earth's surface, polar regions must import heat from southern regions. An upper air flow is then generated which redistributes heat energy northward, and because of the rotation of the earth, the flow pattern becomes circumpolar and moves from west to east in a counterclockwise direction (Stager & McSkimming, 1984). An understanding of Arctic air currents is useful in order to appreciate paths of air pollution in the Arctic.

Modern Inuit

The direct descendants of the Thule Inuit are those who were encountered by the first Europeans during the period from the middle to the latter part of this millennium. Franz Boas presented data based on observations made by whaling captains traveling around the Hudson Bay--for example, early encounters with the Sallirmiut of Southampton Island (Boas, 1888; Collins, 1984). The era of the "modern" Inuit probably ended around the 1950s and 60s when the influence of the Canadian Government helped to change substantially the way of life of the Inuit. It is estimated that before Contact, there were about 22,000 Inuit in Canada (Crowe, 1974), and Oswalt (1979) deduces that there was a total of 51,200 Inuit living across the Arctic from Alaska to Greenland at the beginning of the twentieth century.

Social Organization There are significant aspects of variation among the different Inuit groups--even among those designated as Central Inuit (the Copper, Netsilik, Iglulik, Caribou, and Baffinland Inuit). The nuclear family was the focal group but the extended family formed

the unit of cohabitation and cooperation, particularly in hunting activities; both men and women were involved in the decision-making process. Food sharing was practised not only with family members, but with anyone else in the community who was in need (Crowe, 1974; Rousselière, 1984).

The Inuit woman gave birth alone in a separate shelter, and afterwards, because she was considered impure, she spent time in another igloo and observed various taboos (such as using separate utensils). Amulets, especially for babies and pregnant women, were worn to guard against evil spirits; beliefs and taboos were heeded for the maintenance of social cohesion (Philippe, 1952). Parents gave almost unrestricted freedom to their children, and later they were rewarded with obedience that continued after maturity. Adoption (in and out) of children has been (and continues to be) a custom that permits families to regulate their size, and older individuals to continue to have children who will take care of them in their later years. Adoption also creates special ties between the adopting parents and the natural parents. A special familiarity is created, too, when an individual is given the (genderless) name of a deceased person--they are *atiyik* (namesakes) (Crowe, 1974; Rousselière, 1984).

Those who encountered Inuit in the early days considered them to be a spiritual people. A shaman or *angakok* (who could be female or male) intervened in times of poor hunting and tried to cure ailments. Her powers included the healing of sickness, influencing the weather, locating game, and searching for stolen souls. The *angakok* was seen as the intermediary between the community and supernatural forces; the (Catholic)¹ priest is said

¹Catholics were virtually excluded from Hudson's Bay from 1670 to 1870. When the Hudson Bay Company was given its charter in 1670, the Company "adopted a line of conduct favourable to Protestant missions and hostile to Catholic missions" (Turquetil, 1954, p. 5). The first Catholic priest

to have been seen by the Inuit in a similar light. The priest listens to confessions--much like the goddess, Sedna, to whom public confessions of transgressions were made (Vandevelde, 1956). In the camp, a mature man and proficient hunter was chosen as the leader (*isumataq*: "he who thinks"); often, the *isumataq* was also the local shaman. Folklore and origin myths were important oral traditions which tended to reflect values such as courage, generosity, and hospitality (Rousselière, 1984).

Traditional Material Culture Before Contact, the Central Eskimos were nomadic--living in snow-block structures in the winter ("igloos"), with windows made of blocks of ice. When a number of families were established in the same area, they often built separate but interlocking snow houses. In parts of Baffin, Labrador and Greenland, winters were spent in semi-subterranean houses made of sod or stone--the top covered with animal skins and snow. In the summer, the Inuit erected a double lean-to or tents made of animal skins (seal or caribou) (Oswalt, 1979; Dumond, 1987). One important and distinctive item of Inuit culture everywhere was the *kulliq* (stone lamp), used almost exclusively by women for cooking, light, and heat; animal blubber was used as fuel and the wick was made of moss. For most of the year, transportation was by sled (*qamutik*) pulled by dogs; in the eastern Arctic the dogs were harnessed in a fan-formation. The runners of the *qamutik* were made of whalebone, wood, bone, or antler, and were iced with a piece of fur dipped in water. The skin *umiaq* (boat) seems to have disappeared by 1820, but all Inuit are thought to have used the kayak (Crowe,

to preach in Inuit territory was Father Gasté in 1906 near the Kazan River, and the first Catholic mission for the Inuit was founded at Chesterfield Inlet in 1912 (Choque, 1987).

1974; Rousselière, 1984). All Inuit wore clothing made from seal, caribou, polar bear, birdskin or fishskin--depending on what resources were available locally. They preferred to live in coastal regions, but in the Barrenlands, caribou hunting was an important pursuit on the extensive tundra and in the lakes.

Impact of Whaling “The whalers were the start of change in the North” was the message given to Dorothy Eber (1989) when she explored Inuit recollections of whaling days in the eastern Arctic. For instance, even today, Saturday is still called *sivataqbik* (meaning “the day of the biscuits”) because that was the day the Inuit were paid by the whalers--and their paychecks consisted of (among other supplies) biscuits, molasses and coffee. Whaling was a lucrative business conducted on a large scale by foreigners: by 1650 English, Dutch, and Basque whalers were hunting sea mammals between Greenland and Baffin Island (Dickerson, 1992). After leaving the Hudson Strait, the vessels would sail around Southampton Island and pass nearby Coats Island (*Appatuuqjuaq*--the place of many *appaks*-thick-billed murre), and after passing Marble Island, they would hunt for whales around Roes Welcome Sound where the richest catches were available.

In 1851, Americans were the pre-eminent whalers in the world and they introduced the practice of wintering into the Canadian Arctic. Whaling then became a mutual endeavour as an interdependence was created between the Inuit and whalers. Instead of returning to their traditional life in the winter season when the whaling boats would leave, now the Inuit continued to be of service to the whalers--providing them with fresh country food and making their winter clothing. In return, the Inuit received tobacco, firearms, ammunition, and new

foods. Even after the whale stocks became depleted and most of the whalers had left, in some areas the Inuit continued working in the stations for another twenty years--whale hunting as well as harvesting other sea mammals (Eber, 1989).

Commercial whaling came to an end around the time of the First World War, and by that time many changes had taken place. All along the whaling routes new communities emerged and many new customs were introduced. Days of the week and hours of the day as measured by the whalers were taken up by the Inuit. New games and musical instruments were adopted, and European goods were put to new uses (for example, spoons and coins were incorporated into the decoration of parkas). Inuit were given nicknames or English names; Scotch Tom (*Angutimmarik*), Shoofly (*Nivisinaaq*) and her son John Ell (*Oudlynmock*), were well known individuals on Southampton Island. Nicknames were also conferred on the whalers: the well-respected whaling captain, George Comer, was given the name *Angokok* (shaman) as he was able to produce pictures out of a piece of paper; he performed "magic" when he developed photographs with glass negatives (Eber, 1989).

Contemporary Inuit

Aleut/Eskimos have the greatest linear distribution of any people in the world, extending for 6,000 miles from Greenland and Labrador, through northern Canada and Alaska to the Bering Strait, and from the northeast coast of Siberia to Prince William Sound on the Pacific Alaskan coast (Collins, 1984). The language spoken by Canadian Inuit is called *Inuktitut* in the eastern Arctic; in the Kitikmeot region (central), the term *Imuinnaqtun* is preferred; the western Canadian Arctic dialect is termed *Imuvialuktun*. But all of these

dialects are considered to be one language (Condon, 1996). In Canada, the category of “Inuit” has undergone a number of redefinitions. Initially, the Inuit were placed under the control of the *Indian Act* (1876), but shortly after, they were placed (and continue to this day) under the direct jurisdiction of the federal government under the *British North America Act*. In the *Indian Act* amendments of 1924, Inuit were placed under the jurisdiction of the Superintendent General of Indian Affairs, and for a short while, they were given Indian status, but it was later withdrawn. Jurisdiction was resolved in 1939 when the Supreme Court of Canada declared the Inuit to be Indians for the purposes of the *British North America Act* (Frideres, 1983).

In order to establish how many Inuit there were in Canada, the government issued numbered discs² to those officially defined as Inuit. However, this practice ended in the early 1970s—just as social security numbers were being bestowed upon the Qallunaat! In 1978, in an agreement between the Government of Canada and the Committee for Original Peoples’ Entitlement (COPE), an Inuk was defined as a member of those people known as Inuit, Eskimo, or Inuvialuit who claim traditional use and occupancy of the land. Interestingly, for the purposes of the James Bay Agreement (1975), an Inuk was defined as “any individual who possesses a disc number, or has one-quarter Inuit blood, or is considered an Inuk by the local community, and such other persons as may be agreed upon” (Frideres, 1983, p. 13).

²Eskimo Disc numbers (E or W numbers, i.e. from eastern or western Arctic), originally proposed in 1939, came into use in 1941 or 1945 (there is some uncertainty about the date). The disc list of E numbers—each number commenced with that of the community and was followed by a personal number—was updated annually for each settlement by the R.C.M.P. Abe Okpik was responsible for replacing E numbers (*Project Surname*) with surnames of each person’s choice in the early 1970s (Alia, 1994).

Population Currently, in the Canadian North (1996 projected population according to the Department of Health, Government of NWT) Inuit number about 30,000 and although fertility rates are starting to decline from their traditionally high levels, the Inuit population is expected to double over the next generation (Merritt, 1989). In Canada (1996), over 7,000 Inuit live in Northern Québec, about 6,500 in the Keewatin, and about 8,500 in Baffin region, and the remainder live in the Kitikmeot and Mackenzie districts of the NWT. From 1981 to 1986 there was a 14.2 % increase in the total population of the Northwest Territories (from 45,700 to 52,200), and in the same period, the Keewatin Region claimed the largest natural rate of increase in Canada--an increase of 34.5 percent which amounts to 172 individuals (Bone, 1992).

Seasonal Variations of the Inuit (with apologies to Marcel Mauss). The mode of life of the Inuit, states Boas (1888) "all depends upon the distribution of food at the different seasons" (p. 11). In earlier times, fluctuations in group size corresponded with the season, and the migrations of game compelled bands to regroup; Inuit had to regulate their dwelling places in search of food--particularly the seal. In the Arctic environment there are dramatic seasonal fluctuations in temperature, daylight, precipitation, ice and snow conditions, and game availability. Hence Inuit had to be enormously flexible in everything from basic subsistence to social organization. Winter starts early. In September, freshwater lakes and large rivers begin to freeze over and the weather is often stormy. The sea near the land gradually freezes over but because the ice is often broken up by early winter storms, hunting is difficult. By the end of October, the modern snowmobile may be safely driven over the ice.

Throughout the winter, as the sea ice becomes stronger, hunting of seals is still carried out by harpooning through a breathing hole (*aglu*)--often detected by specially trained dogs (Graburn & Strong, 1973; Crowe, 1974). This collaborative practice is cited as one of the major factors underlying the aggregation of local populations into large winter villages (Damas, 1969). Caribou hunting is pursued throughout most of the year, and fishing can be undertaken both through the ice and in open water. In the winter, when social cohesion was the most concentrated, dances were held in the *qaggeg*; one of the most important was the midwinter festival where masked individuals supervised the events (Graburn & Strong, 1973; Crowe, 1974). In former times, early winter was also the season when new skin garments were made by the women.

Freshwater ice breaks up earlier in the spring than saltwater ice, and as the season advances, food becomes more plentiful and varied. The difference in hunting techniques requires the dispersion of families over a wide area, and the selection of the summer settlement depends on ice conditions as well as upon traditional hunting grounds being favoured by certain families. In the open waters of summer, fishing (by spearing the char in weirs), and hunting for all marine animals was pursued, though inland hunting activities were also intensively conducted (Crowe, 1974). Jigging for fish through holes in the ice continues to be an enjoyable family activity in the spring. During the summer months food would often be cached for later consumption by the nuclear family--though consumption of fresh food was shared with whomever was around. In Coral Harbour, June is the month when goose hunting is undertaken--both goose meat and goose eggs are sought.

A research study I conducted in 1990 in Coral Harbour included a comparison of food

consumption during one winter month and one summer month. I found that in the summer there was a higher (22%) absolute intake of food recorded compared with the winter. In the winter, less than half of the food consumed was Inuit (42.2%) but in the summer this rose substantially and significantly to 65.9% ($X^2 = 6.19$, $p = .013$, $df = 1$). In the summer month of June, more Inuit meals were consumed at camp (as in pre-Contact times) while Qallunaaq meals were more frequently consumed in the settlement. Significantly more gifts of Inuit food were received than of Qallunaaq food at any time of the year, but the abundance of food gifts received at camp (compared to those received in the settlement) in the summer was substantially increased--symbolic of traditional food sharing (Egan, 1990). Camping away from the settlement in the summer affords greater access to Inuit foods and contributes to an overall feeling of well-being which prevails when a more traditional lifestyle is assumed. Some food procurement activities are collaborative efforts, but in the summer, social bonds slacken and the extended family establishes as the summer unit. As denoted by Mauss (1979), this pattern is distinguished from, and alternates with, the cultural pattern of the winter season when there is tighter social cohesion. The seasonal dual morphology is still extant, though to a lesser degree.

Characteristics of the Arctic Ecosystem

As well as the social, cultural, and material characteristics of the Arctic, I also undertook a primary analysis of ecological relationships; I saw this as a preliminary step in the exploration of perceptions of pollution on the part of Inuit women, because I believe that it is essential to consider the total complex of interacting factors. Some of these factors

(including the anthropogenic) are comprised of behaviours of populations that can only be fully understood in the context of their total environment. For example, the relatively short food-chains in the Arctic are associated with simple predator-prey relationships (phytoplankton-zooplankton-fish-seal-polar bear-human or phytoplankton-zooplankton-whale-human). In addition to Arctic organisms being long-lived, there is also low species diversity (Barrie et al., 1992)--hence there is a fewer number of resources to be accessed. Human exploitation of the environment is necessary on the one hand for survival of the human species, but on the other hand, environmental destruction is being caused by human-generated contaminants which are not of Inuit making. An appreciation of the development of the physical characteristics of the Arctic ecosystem is useful for an understanding of why contaminants are particularly potent in this environment--and for predicting impacts of pollution in the Arctic.

Air pollution in the Arctic Once contaminants are released into the environment at middle and lower latitudes, air pollution is carried to the Arctic by long-range atmospheric transport, waterways, and ocean currents (Dewailly et al., 1993). Eastward moving air masses in northern latitudes become polluted near the surface; they are then carried to higher elevations in the Arctic regions where they descend and deposit their impurities. Chemically stable and slow-reacting pollutants from eastern North America are carried by winds and rivers into the Atlantic Ocean and northward to the Arctic Ocean by the Gulf Stream making the northeast Atlantic the major marine point of entry for pollutants to reach the Canadian Arctic. Under the Arctic ice, pollutants remain protected from sunlight and vigorous

oxygenation which would hasten their chemical breakdown. One example of the effectiveness of transport of pollutants from southern latitudes into the Arctic is the rapid transport of radioactive contaminants from Chernobyl (southwestern Russia) to northern Scandinavia (Arctic, 1990). Cesium¹³⁴--unambiguously from the 1986 reactor accident at Chernobyl--was also detected in snow collected at Hawk Lake on the northwest coast of the Hudson Bay, NWT (Lockhart, 1995).

One clear indication of hemispheric pollution reaching the North is the air mass known as "Arctic haze"--which reaches its maximum in February and March (Muir et al., 1992). Arctic haze consists of suspended particles of soot, hydrocarbons and sulphates (industrial chemicals) but appears to have little deleterious effect on the Arctic environment at the present time--though the warming of air through sunlight absorbed by the haze may directly affect weather patterns in the northern hemisphere (Arctic, 1990; Barrie et al., 1992). Haze may influence Arctic temperature directly, or fallout from these pollutants may affect the reflexivity (albedo) of snow and ice. Recent studies have shown that the pattern of TCDD (tetrachlorodibenzo-*p*-dioxins) contamination in polar bears and seals--which have the highest levels in the high Arctic--is consistent with an Arctic haze vector from Eurasian combustion sources (Norstrom et al., 1990).

Arctic Ozone depletion Chlorofluorocarbons (CFCs) are industrial chemicals and together with related compounds known as "halons," they and other ozone-depleting chemicals are responsible for the ozone decrease in the polar regions. In intensely cold air masses (below -85°C), ice clouds form in the ozone layer and provide nuclei that facilitate the

chemical reactions that destroy ozone. Although the Arctic ozone depletion has minor environmental and biological effects at the moment, it is a potentially serious problem and therefore is of great significance for the world environment (Arctic, 1990). It is hypothesized that if a disproportional warming took place at higher latitudes, Arctic communities would experience great changes, including a concomitant rise in sea levels. Postulated increases in ultraviolet radiation as a result of a depleted ozone layer could also cause changes in vegetation in the Arctic. A deeper annual thawing of the permafrost would encourage the emergence of new plant communities; however, such a warming trend (which is still a contentious debate) would have a profound negative influence on marine ice and mammals. The most adversely affected would be the polar bears which depend on ice for travel and hunting (Livingstone, 1995). Estimates indicate that the size of the polar bear population in western Hudson Bay is stable, but changes consistent with a population approaching carrying capacity have occurred (Stirling & Derocher, 1993).

Although causes of pollution in the Arctic are the same as elsewhere in North America and Europe, detection, monitoring and clean-up are more difficult in the Arctic environment because of its remoteness and climatic conditions (Arctic, 1990). One example is the two to three metre thick layer of ice which covers the Arctic Ocean for most of the year and acts as an insulator; it effectively severs the exchange of heat between the ocean and the atmosphere (Government, 1991). Solar radiation speeds up the break-down of contaminants, but in the Arctic, where there is a much reduced level of sunlight (and warmth), this degradation process is retarded--increasing the likelihood that toxic substances will persist, accumulate, and enter the food chain (Arctic, 1990). Cold temperatures tend to condense volatile organic

contaminants and slow down evaporation rates leading to the progressive transfer of chlorinated organic compounds into the Arctic. Oil spills take longer to clean up as oil degrades slowly in the Arctic; at 5°C oil degrades 10-25 times more slowly than at 25°C, thus exposing the Arctic environment to the contaminant for a longer period of time than in temperate waters (Government, 1991).

Northwest Territories of Canada (until April 1, 1999)

The Northwest Territories constitute about 35 % of the area of Canada (3,376,698 sq km). Although it is the largest political jurisdiction in Canada, in the Northwest Territories (NWT) there are only 57,649 people; the Dene, Métis, Inuit and Inuvialuit constitute about 58% of this population (Dickerson, 1992; Keewatin, 1995). The largest town on Baffin Island, which lies in the eastern part of the territory, is Iqaluit (formerly Frobisher Bay) and in the 1997 election it was selected by vote to be the capital of the new territory of Nunavut.

Evolution of the NWT

When the Dominion of Canada was created by the Constitution Act of 1867 (British North America Act), Rupert's Land and the North-Western Territory were also brought into Confederation. For two hundred years, Rupert's Land, which had been administered by the Hudson Bay Company, became the Northwest Territories by a federal government act in 1875 providing for its administration. Five years later, the Arctic islands were ceded to Canada by England. In spite of many changes, the constitutional basis for the territorial administrative system continues to be the 1875 Northwest Territories Act, which was

amended in 1905 in order to restate Canada's claim to the Arctic islands. Foreign interest in the Canadian Arctic had been increasing--as evidenced by the passage of 750 ships in the Arctic which captured over 8,000 whales in the last decade of the 19th century (Purich, 1992; Dickerson, 1994). In 1912, Ottawa allowed the province of Québec to extend its northern border to the waters of Hudson Bay and Hudson Strait, thus forfeiting this large area from the Northwest Territory. The Inuit and Cree were not consulted in this matter, and conditions for the Ungava Inuit were very poor throughout the first half of this century. In 1975, however, Northern Québec reached an agreement with the Aboriginal people of Nunavik: the James Bay and Northern Québec Agreement allowed Québec to create the massive hydroelectric dam in the James Bay (Weller, 1981).

The North-West Mounted Police first established posts in the Arctic in 1903 in order to affirm Canadian sovereignty, and by the 1920s, there was a police post wherever there was a trading post. In 1938, when Charles Camsell was the Commissioner of the NWT, he took a petition back to Ottawa which led to the granting of an advisory committee on local affairs. Prior to active government intervention in the 1950s, missionaries took on responsibility for Inuit health and education. The Department of Northern Affairs and Natural Resources was operative from 1954 to 1965 (replacing Resources and Development), and in 1966, the Department of Indian Affairs and Northern Development (DIAND) was created. Other federal departments which had been responsible for administration in the NWT were the Department of the Interior (until 1936); Mines and Resources (1937-49); and Resources and Development (1950-53) (Dickerson, 1994).

The Second World War brought the military to the North; the United States built

strategic air bases at Coral Harbour and Frobisher Bay, and after the war ended, five joint American-Canadian weather stations were opened across the Arctic. Construction also began along the 55th parallel on the Mid-Canada line of radar stations (62 in total). The purpose of this Distant Early Warning (DEW) Line was to protect North America from Soviet attack by providing an impenetrable radar shield (Coates, 1985; Purich, 1992). The clean-up from decayed military installations throughout the Arctic continues today. The Frobisher base was used from 1951 as a trans-shipment point for materials going to the Thule base in Greenland and, between 1959 and 1963, the United States Strategic Air Command (S.A.C.) used it as a base for long-range bomber aircraft. When the S.A.C. building was closed and turned over to the Canadian government, it became known as the Federal Building (McElroy, 1973). This green edifice was my first home in the Arctic (in 1969) as the building was used as living quarters for employees of the federal government.

New communities were established around many of the military bases; one example is Resolute Bay which started as a Royal Canadian Air Force base in the high Arctic. Its creation apparently came about when a ship that was carrying supplies became icebound at the site, so the town was built right there. In the 1950s, Inuit were moved to the settlement where they formed a source of labour (Purich, 1992).³ A comparison of income between Inuit and Whites in 1963 is very revealing: the average Qallunaaq earned \$2,922 a year whereas an Inuk earned only \$426 a year (Dickerson, 1992). During the 1950s and 60s policy changes were initiated in the areas of housing, health care and community development. For

³The relocation of Inuit from Northern Québec to Grise Fiord in the high Arctic in 1953 is still an issue of contention.

example, the first Co-operative was established at George River in 1959, and by 1966, the number had grown to 19 Co-ops operating in the NWT (Fournier, 1963; Dickerson, 1992). In 1965 a Northern Rental Housing Programme was developed which contributed significantly to the establishment of permanent communities; however, there was never enough housing to accommodate the increasing number of Inuit who moved into town from camp. Education was provided by the building of local schools, and nursing stations were built throughout the NWT (Dickerson, 1992). The NWT population in 1962 (exclusive of white DEW line personnel) was 23,230, of whom 8,282 were Inuit (Rousselière, 1964). It has been argued that it was only after the war when new interventionist ideology dominated northern affairs that true colonialism began (Dickerson, 1992). Until the early 1950s, the North had been treated with benign neglect--the government acting by default rather than implementing state control through a bureaucratic apparatus on the ground. Prime Minister St. Laurent admitted in 1953 that the North "had been administered in an almost continuing state of absence of mind" (Dickerson, 1992, p. 63).

The Beginnings of Nunavut

In 1959 a decision was made (the natives had no input) to divide the Territories into two parts: the Mackenzie District would have its capital at Fort Smith, and the Eastern Arctic would be called Nunnassiaq (beautiful land) (see Figure 1). Because there were no real towns in the east, no capital was suggested; Rankin Inlet was a purely industrial (mining) community and Frobisher Bay was an American military base. In 1961, two bills regarding division were put before Parliament, but they were shelved. The question surfaced again in 1962 when the

territorial council proposed, essentially, self-government for the western Mackenzie territory, and continued colonialism for the unnamed eastern territory (Purich, 1992). By the mid 1960s, many communities in the NWT were moving toward some kind of municipal status, and in 1969, the federal government transferred responsibility to the Government of the NWT (GNWT) for education, welfare, economic development, and municipal affairs. Transfer of health services was to come later. By 1970, the Keewatin and Eastern Arctic administrative districts were added to the responsibilities of the GNWT (in addition to the Mackenzie District). After the 1969 transfer of power, the territorial council passed an ordinance allowing communities to declare themselves hamlets, even if they had no tax base. Without this status, a community was managed by an appointed settlement manager (Hamilton, 1994). In 1966, Simeonie Michael of Frobisher Bay was the first Inuk to be appointed to the territorial council, which later became the Legislative Assembly, and the number of elected members was increased to seven. By 1992, the number of seats stood at 24 (Purich 1992; Hamilton, 1994).

It is interesting that political parties have never operated at the territorial level in the NWT, although they do function in federal elections. Therefore, there is no partisan base by which ministers are chosen; the government functions on the basis of a consensus. The eight executive members (who hold the government portfolios) and the sixteen non-government (or ordinary) members of the legislature are able to negotiate policy proposals without the influence of party discipline. However, the eight person executive needs to persuade only five of the ordinary MLAs in order to attain a majority in the legislature (Dickerson, 1992).

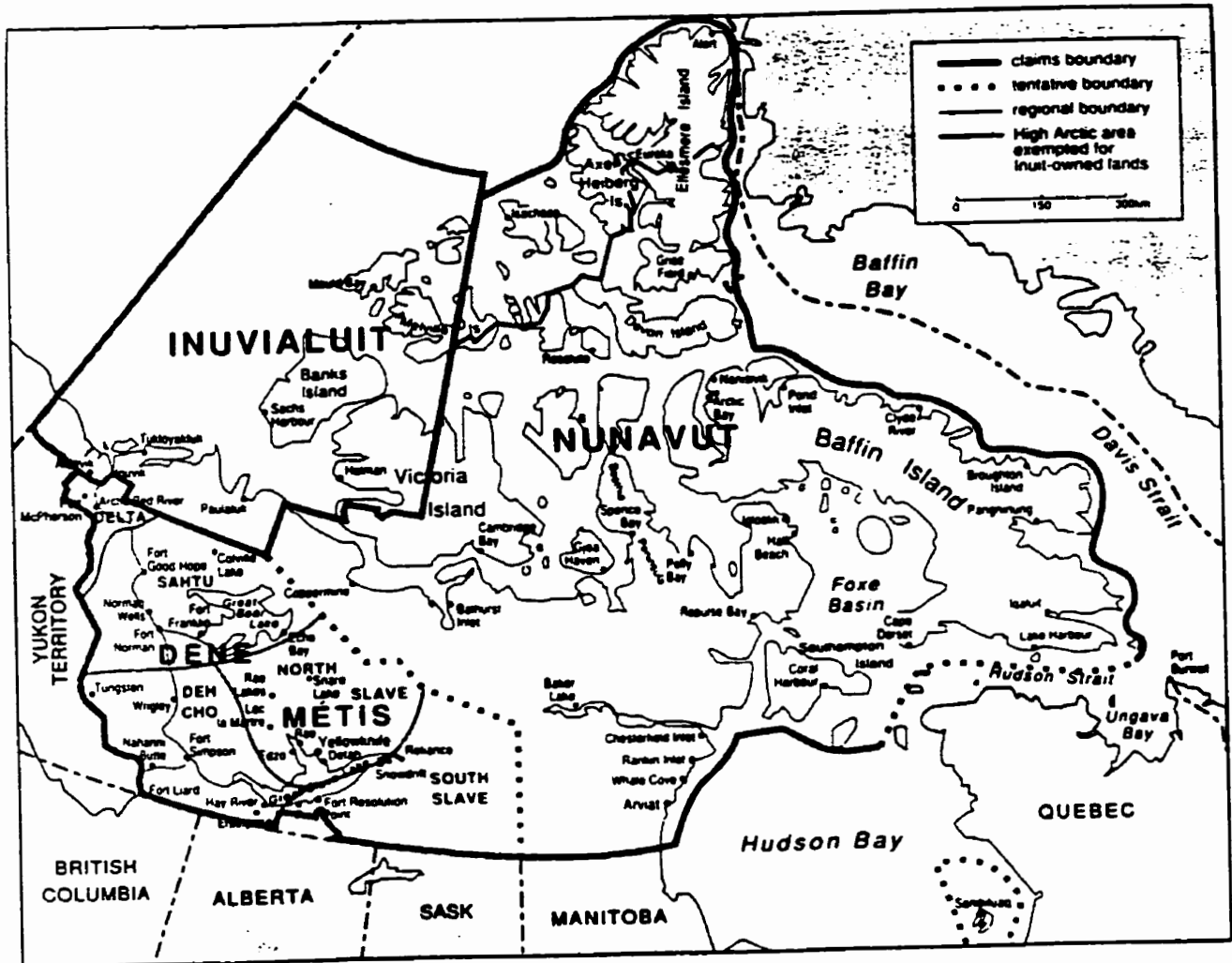
A Remapping of the Arctic In 1971 the Inuit Tapirisat of Canada (ITC, an umbrella organization for all Canadian Inuit) advocated the formation of Nunavut (Figure 2), a territory for all NWT Inuit except the Inuvialuit—who made their own agreement with the federal government. And in 1976, the ITC submitted a claim for its formation. The promise of their own territory was formalized for 20,000 Inuit in the eastern Arctic when, in 1993, the federal government signed an agreement for the establishment of Nunavut on April 1, 1999. Nunavut now occupies about 20% of the land mass (2,000,000 km²) in Canada. Eighty percent of the population in Nunavut is Inuit and they own 350,000 km² of land and 36,237 km² of subsurface mineral rights. In addition, they will receive total financial contributions that will amount to (when paid over time) \$1.15 billion (Dickerson, 1994). Under the agreement, the Inuit agreed to give to the Canadian government their aboriginal title to the lands, waters and offshore areas of Nunavut. They extinguished their aboriginal rights, but they will continue to enjoy the rights protected by the Canadian Constitution.

Essentially, Nunavut is a territory similar in function and authority to the present NWT, with an Ottawa-controlled commissioner and a Legislative Assembly with powers somewhat more limited than those of provincial governments. Nunavut provides a form of “home rule” for the Inuit—similar to that which operates in Greenland.⁴ The remaining portion of the NWT, the Mackenzie Valley, is divided among non-Natives, Dene, Métis, and Inuvialuit (Dickerson, 1994). The Nunavut Planning Commission (NPC) was established as a new co-management institution in the Arctic; Inuit now have control over all activities on

⁴Under home rule in Greenland, Denmark retains control of the constitution, citizenship, external affairs, defence, monetary policy, and the justice system. Since 1958 Greenland has had legislative powers similar to a Canadian province (Bone, 1992).

Figure 1

Nunavut



Dickerson (1992), p. 13

their settlement lands as well as major input regarding Crown lands. Members of the NPC were nominated by Inuit institutions as well as by the federal government and the GNWT. This planning commission examines land use issues throughout Nunavut. For example, clean-up of abandoned waste sites (mining exploration camps, abandoned DEW line sites) is a priority. The potential environmental impact of mineral development in the region, including effects on the Bathurst Caribou Herd which calves in the region, the mapping of wildlife populations, human use, waste sites, and areas of archeological significance are also important issues that the commission will be addressing (NPC, 1997).

Inuit Organizations Encompassed in the National Inuit organizations in Canada are now the six regional affiliates of the *Inuit Tapirisat of Canada* (ITC), including the *Kivalliq* (Keewatin) Inuit Association (KIA). The ITC was originally formed in 1971 by a group of Inuit from Nunavut, Baffin and the Keewatin and it became the foundation for many other organizations including the Inuit Cultural Institute (ICI), Pauktuutit (Inuit Women's Association), and the Inuit Broadcasting Corporation (IBC). In 1982, the then 15,000 Inuit of the NWT (which increases by about 450 per year) formed their own organization and became the Tungavik Federation of Nunavut (TFN). The Committee for Original Peoples' Entitlement (COPE)⁵ separated from the ITC in 1976 as the 2,500 Inuvialuit of the Western

⁵A final COPE agreement was reached in 1983, and 81 percent of voters in the six Inuvialuit communities supported the accord; the Western Arctic (Inuvialuit) Claims Settlement Act was passed in Parliament in June 1984. The COPE agreement set the parameters for future agreements between aboriginals and the federal government. It acknowledged national control of the offshore, thus permitting unhindered exploration in the Beaufort Sea. However, the Inuvialuit settlement accepted the government's demand that their claim to aboriginal rights be extinguished--this provision guaranteed that aboriginal rights would not interfere with economic development in the Western Arctic.

Arctic wanted (and succeeded in attaining) their own land agreement with the federal government (Coates & Powell, 1989). *Makivik* is the Inuit Development Corporation of Northern Québec that was created as a result of the 1975 James Bay and Northern Québec hydroelectric power agreement. The Northern Québec Inuit Association (NQIA) had negotiated this agreement, but nearly a third of the provincial Inuit opposed it and founded the *Inuit Tungavingat Nunami* (ITN), literally, “Association of Inuit Standing Their Ground” (Jetté, 1994).

The Keewatin Region The Keewatin (*Kivalliq*) is an administrative region in the eastern Northwest Territories and one of three districts in the territory of Nunavut. It occupies the western shores of the Hudson Bay and, for health services, the Belcher Islands (Sanikiluaq) which are located in the south-eastern part of this bay, are also included. Encompassed within its 592,500 km² are the other seven communities in this region: Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Rankin Inlet, Repulse Bay and Whale Cove. The communities in the Keewatin are dispersed over a large area and there are no road links between them. Supplies arrive once a year by ship, usually in August and September, but air services are the most important means of transportation of cargo and people between communities. Each community has an airstrip, and Rankin Inlet, the region’s largest

In return, the Inuvialuit received \$45 million, plus \$17.5 million for social development and to promote economic enhancement, as well as title to 91,000 square miles of land which included surface and subsurface rights to 700 square miles around each community. For an additional 30,000 square miles, rights for sand and gravel were included—but not for oil and gas. Hunting needs, however, were protected, and representation on advisory boards responsible for land and resource management were guaranteed (Coates & Powell, 1989).

settlement, has jet service to Winnipeg, Iqaluit, and Yellowknife. Sanikiluaq is the only settlement in the region linked with scheduled commercial flights to Montréal. Chartered aircraft for medical evacuations anywhere in the region are stationed in Rankin Inlet, and in Churchill and Thompson in Manitoba.

In 1991 there were 6,360 people living in the Keewatin (projected to 7,291 in 1996), and of these, 90% were of Inuit ancestry. According to the 1991 Census of Canada, 83 percent of the total population in the Keewatin speak Inuktitut compared with 13 percent who speak English as their first language. Since the growth rate of Inuit communities is about 3 percent per year, it is estimated that the population will double in about 25 years. So, by 2016, there will be about 13,000 people in the Keewatin region (Keewatin, 1995).

Rankin Inlet, with a population of 2,058 in 1991 (estimated to have increased to 2,700 in 1999), acts as the regional service centre, including health administration. It does not yet have its own hospital--though plans are underway for its construction. In a health survey conducted in 1991 it was found that in the 2,840 dwellings in the region, there was an average of 4.3 people living in each house; this compares with a Canadian average of 2.7. The population is young, with 51 % under the age of 20, and 8 % over the age of 50. The economy is described as "not robust," as many of the jobs are funded through various levels of government or are subject to factors not in the control of Keewatin residents (e.g. hunting and weather conditions, sale of art and artifacts). About one third of men in the region are unemployed, and of the women, over 30 percent are solely involved in activities of homemaking and child care. In general, then, it appears that slightly more women than men are employed in some capacity, but this figure includes both Inuit and non-Inuit (Keewatin,

1995). Today, in all communities in the Keewatin, grade twelve is offered in the local high school and Arctic College offers continuing education, secondary school equivalency, and various skills upgrading courses including business and computer skills (Keewatin, 1995). There were no mines operating in the Keewatin region at the time of my research--though mineral extraction has since been established close to Rankin Inlet and to Baker Lake. A nickel/copper mine was established in 1953 near Rankin Inlet and Inuit workers were recruited from all over the Keewatin, but the operation was terminated in 1962 (Coates, 1985; Choque, 1987).

Many northerners have questioned the legitimacy of the GNWT, just as they did that of the federal government. The main issue is that because decision-making occurs in Yellowknife, local community participation is denied. For example, Peter Enerk, a former MLA from the Keewatin region asked, in 1990, how can people in the Keewatin feel that they have the authority to deliver health matters when the chairperson of the Keewatin Regional Health Board (KHRB) is appointed by the minister in Yellowknife? The question of devolution and the transfer of authority is an issue which continues to be debated at the present time, particularly for the smooth running of Nunavut (Dickerson, 1992). This question is one that was considered soon after April 1, 1999. One of the first changes the new government made was the dissolution of the regional health boards and the creation of a Department of Health.

Coral Harbour, Southampton Island

Physical Environment.

Southampton Island, which covers 20,000 square miles, lies in the north-west corner of Hudson Bay. Whaling activities were conducted between 1860 and 1915 in the narrow waters of Roes Welcome Strait which separates the island from the mainland. The island is situated at a latitude of 64° 08' N and a longitude of 83° 10' W; the mean wind velocity in January is 68 knots and the mean temperatures are -26.2° C (high) and -34.7° C (low); in July they are 13° C (high) and 4.1° C (low). In midwinter, hours of sunlight vary between three and four hours, and in midsummer there are approximately 20 hours of sunlight per day (Atausiunasuarniq, 1982).

Southampton Island (Figure 3) is composed of a complex pattern of glacial and post-glacial beaches, bars, and terraces. The island is divided into two regions: a Paleozoic flat lowland in the west and south (the community of Coral Harbour is located here, near South Bay) whose surface material is comprised of shattered limestones, gravels, and clays. This lowland also contains some small shallow lakes and ice wedge polygons. A plateau of Precambrian Shield rocks lies in the north-east. The most important river is the Kirchoffer, which empties into South Bay, and there are also the Sutton and the Boas rivers which flow westward out of the plateau and southward to the coast. Continuous permafrost forms an impervious layer over the island impeding drainage and enhancing surface flow, particularly during snowmelt. Around the settlement, because the active layer above the permafrost is only a few inches deep, ice accumulates in the ground. Moisture then enters the rocks along cracks, freezes, and the rocks are subsequently split into blocks; rocks such as sandstones and

Figure 2
Southampton Island



Encarta 97 World Atlas (CD Rom)

Paleozoic limestones are rapidly broken up in this manner (Atausiunasuarniq, 1982).

Flora and fauna Because of the relatively recent retreat of the continental ice sheets that covered most of the region during the Pleistocene era, there is a lack of diversity in the Arctic ecosystem. Hence, the structural uniformity of the vegetation results from the low fertility of the Arctic soil (Freeman, 1984). However, the tundra is littered with hundreds of species of plants, some of which are eaten or used for medicinal purposes. The most important resources on Southampton Island are the wildlife species which are sources of food and clothing. Polar bears (*Thalarctos maritimus*) are plentiful, though quotas have recently been reduced to only 34 per year (this is about 30 fewer than when I first went to Coral Harbour in 1982). Types of seals hunted around Southampton Island--which supply food, fuel and clothing--are the bearded seal (*Erignathus barbatus*), the ringed seal (*Phoca hispida*), and the harp seal (*Phoca groenlandica*). The white beluga whale (*Delphinapterus leucas*) is plentiful around Coral Harbour, and its skin (*maktaa*) is considered a special delicacy. Bowhead whales are now seldom hunted, though one was captured in Repulse Bay in 1996. The walrus (*Odobenus rosmarus*), is plentiful around the island and one animal provides up to 1,800 pounds of meat. Caribou (*Rangifer arcticus*) are again plentiful on Southampton Island, despite having become extinct in 1952. Fifty animals from nearby Coats Island were transported in 1967 by the Canadian Wildlife Service in order to start a new stock (Macpherson & Manning, 1968). The transplantation was successful, and after carefully maintaining strict quotas for many years, an organized commercial caribou hunt is now being carried out each spring. The ptarmigan (*Lagopus mutus*) is a small tasty bird, but the meat of

Canada geese (*Branta canadensis*), as well as their eggs, which are abundant in the month of June, are a favourite. The most common fish is the arctic char (*Salvelinus alpinus*), though cod (*Gadus callarias*) are also caught and eaten. In the late summer, mussels (*Nytilus sp.*) are collected at low tide. Clams (*Sxidomus muttale*) are retrieved from the stomachs of captured walrus and are considered a delicacy.

Ethnohistoric Background

The original inhabitants of Southampton Island were known as *Sallirmiut*.⁶ It has been suggested that although the culture of the Sallirmiut included many Thule features, they were, in fact, a remnant Dorset group (because of their distinct dialect and use of chipped stone tools). However, evidence from as yet undiscovered 10th to 14th century sites on Southampton Island would be needed to confirm either view (Collins, 1984; McMillan, 1988).

The Sallirmiut were encountered by Parry in 1821 in York Bay, and by Lyon in 1824 who reported meeting 18 Inuit on nearby Coats Island who appeared to be Sallirmiut-- because there was no evidence of European material goods in their possession (Beckett, 1949; Ross, 1975). The Sallirmiut inhabited the southern part of Southampton Island (Sallim), which was an area which isolated them from adjacent groups on the mainland, and have been described as having singular features of culture developed under conditions of extreme isolation. It is unlikely that many of them ever saw whaling company ships, and it is surmised that they avoided contact through fear of the unknown (Mathiassen, 1927; Ross,

⁶Inuit whalers gave the natives of Southampton Island the pejorative term *Pujait* which means "dried up oil," but South Baffin Islanders called them *Takugataraq*, meaning "we are shy with them" (Eber, 1989).

1975). It was not, in fact, until the late 1890s that the natives of Southampton Island came into direct contact with Qallunaat. In 1896, Captain George Comer first met with the Sallirmiut on Southampton Island and estimated their total population as 70 individuals. Their dwellings, seven in number and located near the coast, were circular in shape, constructed of limestone and sod, and built partly underground; the roofs were fashioned with the long jaw-bones of a whale. Before Contact, it is estimated (by the number of dwellings?) that the population on the island was 300 (Oswalt, 1979). In 1902, the total population--including Inuit who were imported to work at the whaling station--was counted to be around 120 to 144 (Ross, 1975). However, within three years all but a few of the Sallirmiut were dead. A report documented by Therkel Mathiassen of the Danish Fifth Thule Expedition (1921-24) records events which led to the extinction of the Sallirmiut (Mathiassen, 1927).

The *Active* was a steam whaler and supply ship of the Scottish Kinnes firm which arrived in the summer of 1902 at Cape Low, a whaling station established on the southwestern part of Southampton Island. Some of the visiting Aivilik Inuit (from Repulse Bay) at the station became ill and died, and some of the Sallirmiut also contracted severe diarrhoea (typhus?) and had to be sailed back to their camp, Tununirmiut (now known as Native Point) in the station's whaleboat. However, when this settlement was visited during the winter, all of them had died. One Sallirmiut woman and four children who had remained at the whaling station survived the fatal epidemic; they were later transported to Repulse Bay where they were adopted by the Aivilingmiut (Ross, 1975).

Captain Comer, at that time, assumed that the extinction of the Sallirmiut had come about because of scarcity of game and suggested that this was due to over-hunting on the

island by imported Inuit (Aivilingmiut) with guns. However, Mathiassen reports that in the winter of 1902, when the deceased Sallirmiut were discovered at Tununirmiut, “there was a great deal of meat and blubber in the depots” (Mathiassen, 1927, pt. 1, p.284). The starvation hypothesis may have been plausible for certain members of the tribe who camped in the western portion of the island and who had refrained from visiting the station during the summer of 1902. Mathiassen, however, because of the convincing testimony of his Aivilik informants, had no doubts that the sudden, widespread mortality was caused by ship-borne, *Active* disease (Ross, 1975). In addition, many Inuit died at Repulse Bay, and it is recorded in the logbook of the ship *Era* (which was stationed at Repulse Bay) that the sickness had become so widespread that the Aivilingmiut believed that “people from another tribe have cast an evil spell over them” (Era, 1900-02: 21 Aug. 1902, cited in Ross, 1975).

In order to work in the whaling industry, Captain Comer, in 1908, relocated about 70 Inuit from Repulse Bay (more than half of their population) to the vacant Southampton Island. The relocated Inuit were comprised of Aivilingmiut as well as members of other groups from Baffin Island (*Uqqumiut*) and from inland areas of the mainland, including *Netsilingmiu* who had taken up residence near the whaling stations (Ross, 1975; Balickci, 1984). The present inhabitants of Southampton Island, who all live in Coral Harbour, are descended from all of these people and are included in Birket-Smith’s (1928) designation of “Central Eskimo” (Damas, 1984).

Evolution of the Present Community

Salliq, meaning “a large, flat island in front of the mainland” (Beardsall, 1997), is the

Inuktitut name for the settlement of Coral Harbour (where fossilized coral can be found), which became established, or at least more recognized as a place to gather, in 1924 when the Hudson Bay Company (HBC) transferred its post to Southampton Island from Coats Island. Two years later, it is noted that there were about 220 Inuit living in scattered camps around Southampton Island; some lived at Duke of York Bay, others lived at Snafu (a landing beach halfway between the airport and Coral Harbour), and some lived close to the Kirchoffer River. Most came periodically to the trading post until about 1950 when housing started to become available in the settlement. In 1924, St. Mark's Anglican Church was founded, and this was followed two years later by the establishment of St. Joseph's Catholic Church, and in 1974 by the Glad Tidings Church. It appears that the Hudson Bay Company was involved in bringing eastern Inuit to Southampton Island for the Anglican Church, and that Inuit who originated west of the mainland followed the faith of the Catholic Church (Faford, 1984; Atausiunasuarniq, 1982).

The first government teacher and nurse arrived in Coral Harbour in 1950 where one of the first government-built schools in the Arctic had just been built (Phillips, 1967); the first nursing station in Coral Harbour was built in 1963. In order to be eligible to receive family allowances, children had to attend school; sometimes this meant that children stayed in town during the week and went home to their camp at weekends. The last family to leave the camp at Snafu (so named because a ship of small tonnage floundered on the rocks on the landing beach) was the Bruce family in 1969. Because of over hunting, the caribou disappeared from the island, and in the late 1940s and early 1950s there was a serious food shortage on Southampton Island (Atausiunasuarniq, 1982).

The airstrip, which was opened by the American Forces around 1942, is located 12 miles outside of town, and since 1989 when the Ministry of Transport (MOT) withdrew, it has been totally operated by local personnel. MOT used to be the only gathering place, mostly for the Qallunaat population, where alcohol was allowed, as a bylaw had been passed in the 1970s prohibiting alcohol to be brought or consumed within the boundary of the community. After World War II, 40,000 empty oil barrels were left strewn around the tundra between the airport and the community and, besides being an eyesore, these barrels could have leached their contents into the ground. In 1992, these barrels, except for about 1,000 which were salvaged for use as garbage bins, were shredded and shipped out on the annual sea lift. In addition, the old MOT offices, living quarters and warehouses were torn down and the garbage was buried. It was at this time, during the clean-up, that some old generators containing PCBs were discovered. These too, were shipped out,

Around Southampton Island--named by Sir Thomas Button in honour of the Earl of Southampton--are place names which commemorate some important historical characters. For example, Ell Bay, which is half-way up the west coast of the island, is named after John L (Audlatnaq or Oudlynnock) who was the only natural son of Nivisinaaq, also known as Alairak, and nicknamed "Shoofly"⁷ by the whalers (Faford, 1984). It is said that John L (named after John L. Sullivan) became chief of the new Sallirmiut people; his daughter,

⁷Shoofly's father was called Aruluk, and her mother was Tarralik. The name Shoofly is thought to come from an old song popular in Civil War time--"Shew Fly, don't bother me," written in 1869. Alternatively, the name could have arisen from the fact that she was always shooing away flies! Shoofly was one of the wives of Tuggak (known as "Ben"--not John L's father) who was aware of the close liaison between Shoofly and Captain Comer (known as Angakkuq). After Ben died and the whalers left shoofly then lived with Angutimarik ("Scotch Tom") who was the step-father of Pameolik--another family name which still lives on in Coral Harbour (Eber, 1989).

Bernadette Ookpik, now lives in Rankin Inlet (Eber, 1989). Descendants of the Ell family still reside in Coral Harbour. There is also Harry Gibbons Bird Sanctuary (Ikkatuiaq), Munn Bay (Akkulirmiut), and Angutimarik is a place in the mountains named after Shoofly's last husband, Angutimarik ("Scotch Tom").

Population When I worked as a community health nurse in Coral Harbour in 1983, the population was 415, of whom 92% were Inuit. The recorded population of Coral Harbour in 1991 was 578 and by 1996 it was projected to have increased to 663 (Keewatin, 1995). When I conducted my research for this project in 1995, the actual Inuit population was 672 and the non-Inuit population was 37. About 99% of the Coral Harbour population speaks Inuktitut in comparison to the average of 90% in all Keewatin communities. Fifty-four percent of Coral Harbour's population is under the age of 20 and 9% is over the age of 50 (Keewatin, 1995).

Material culture Public buildings in the community include two general stores, the Northern (ex HBC), and the Co-op. Both stores recently built new premises--though the Northern is somewhat larger and carries a greater variety of foods and, in addition, has a small annex which stays open until 10pm. The Co-op, however, sells some local foods such as Arctic char and, as well, it buys and sells local handicrafts, mostly carvings made from soapstone and whale bone, and jewelry made from walrus ivory and caribou antler. Occasionally, handsewn handicrafts are sold here but they are more likely to be found at the small store attached to Leonie's Place, a comfortable, Inuit-owned and-run hotel in the centre

of the settlement. The Katdgevik Co-op was formed in 1970 and, besides running the store, it also operates the Esungark Motel in the town. The post office has a renewable contract with the Co-op and full service is available on a part-time basis. The Co-op has formed its own board and members are elected from within the community. The two stores are noticeably in competition for selling their wares--not an unhealthy approach. While I was in the community, the Co-op freezer unexpectedly broke so the manager advertised on the television (the Co-op operates the cable franchise) that all frozen food would be sold at half price for the next three hours. People were pleased to get such a bargain. For a few days the Northern store gave out bingo tickets with its receipts and the following Saturday a bingo game was played in the store ("full house"). The winner won a minute of free shopping.

A large new nursing station was built in 1986, and currently there are three full-time southern-trained nurses working there, one of whom has been the Nurse in Charge for almost ten years. A Community Health Representative (Inuit) works out of the Health Centre and acts as a liaison between community members and health providers. The old nursing station has been expanded and converted into the Hamlet offices for the Mayor and other local government officials. A new office-fire hall complex was completed in 1979, and part of this building is devoted to Sapputit, a drug and alcohol counseling service. The present school, Atausiunasuarniq, built in 1980, means "working towards one" and all grades from kindergarten to grade 12 are taught; cultural inclusion is an important component of the children's education and relevant courses (Inuktitut, traditional sewing techniques, Inuit storytelling) are delivered by local elders. The education committee was formed in 1981 and it is active in overseeing school activities as well as recruiting staff. An increasing number of

teachers, particularly for the lower grades, are Inuit who have been fully trained. In addition, there are Inuit classroom assistants and aides who help with students (e.g. the disabled) who need extra attention in the classroom. In Coral Harbour there is also a campus of the Nunavut Arctic College which is devoted to adult education. Besides upgrading, many other courses such as computer skills, early childhood development, and carpentry are taught here. In 1996, a three year teacher training programme commenced for 19 students, 17 of whom are from Coral Harbour (Northern Teacher Education Programme--NTEP).

The number of new housing units increases each year in Coral Harbour and most of these are now privately owned. The Housing Association is responsible for the allocation of public housing as well as for newly constructed (rented) homes and for renovations. There is also a new building for the Department of Social Services where the Government Liaison Officer (GLO), among other duties, issues birth and death certificates, adoption papers and social insurance numbers. In 1995 there was no social worker permanently living and working in the settlement (one visited from Rankin Inlet on a rotating basis), but in 1996 a full-time social worker was hired. The Hunters and Trappers Association was established around 1974; it is now known as the HTO (Hunters and Trappers Organization). Coral Harbour used to have the highest quota for capturing polar bears in the Arctic--it was 64 tags per year until very recently. In 1995, 30 male and 14 female polar bears were killed. Of these, 36 tags were given to community people and 7 sports tags were allotted--these are usually for Qallunaat who pay Inuit guides to take them on a polar bear hunt, specifically to capture a bear and take home the skin. In 1995, I was informed by the Renewable Resource Officer, that there was also one defence kill. In April of 1997 the total number of polar bears captured was 34.

Government Coral Harbour attained Hamlet status in 1972 and was the first community in the Keewatin Region to do so. In this municipal level of government, a Mayor and Council members are locally elected. They are responsible for administering the operating budget through which all community business is conducted, including hiring personnel to work in the administrative offices, develop contracts or hire personnel to maintain the roads, collect the garbage and empty the sewage tanks. By-laws are passed by the Council (sometimes, as with the alcohol ban, after a community referendum), and these may also include children's curfews and dog control. There are still about a dozen dog-teams in the community but a Coral Harbour by-law requires that loose dogs be shot (Shannon, 1997). The Hamlet Council, in addition to the Mayor, includes eight elected members who serve two year terms. Each year, at the end of their term, four are replaced (or re-elected). There is usually an equal distribution of men and women elected to council in Coral Harbour--a sort of natural gender equity process.

Subsistence economy In 1983 when I was living in Coral Harbour, I noted that only 38 Inuit were employed on a full-time basis and three part-time. In 1988 when I conducted research in the community, I interviewed all 76 Inuit that summer who were working on a permanent or temporary basis in full-time employment. Most of the permanent jobs were held by men (Egan, 1988). Currently, including seasonal fluctuations, about 15-20% of people are wage earners or entrepreneurs. In 1995, it was refreshing to find that the hunting and butchering skills of Inuit could, besides equipping them with abilities for filling their family larder, also provide them with the opportunity for paid work. Because there is an over

abundance of caribou on Southampton Island, since 1995 a southern-based company has negotiated a business venture with the local Hunters and Trappers Organization. Each spring, hunters from Coral Harbour are hired to harvest a number of caribou per week. A camp is constructed about 30 miles from the settlement and other Inuit (women and men) are hired to work in various stages of the processing of the caribou carcasses (skinning, de-fatting, etc) as well as in the kitchens, cooking for all the resident workers. In 1995, all of the caribou meat was sent to Rankin Inlet for further processing, but when I returned to Coral Harbour in April 1997, the meat was processed in Coral Harbour and sent directly to Toronto. Besides hunting for the business venture, hunters can elect to keep an animal for his family's needs. In addition, some parts of the caribou (for example ribs, legs, and heads) are not wanted by the southern company, so workers take these parts for themselves.

The hotels and stores provide full-time and part-time jobs for local people, but they are not as well-paying as many of the government jobs. Other places of employment in the community include Northern Canada Power Commission (NCPC); the community radio station; agents for Calm Air and First Air; the Hamlet and all its many services, the health centre; the school; Arctic College; Wildlife Service; Government of NWT, which includes social services and public works; the Housing Association and the Housing Corporation; the airport weather observers; and the RCMP. There are some private businesses in town: Leoni's Place Hotel, the Co-op hotel, a taxi and cargo delivery service, a plumber, and oil/gasoline supplier. A printing business was in operation in 1995 (Casper's Shack), but two years later it was replaced by a games arcade. During my 1997 visit, a tannery was opened; here, hides and skins can be processed locally, which will obviate the need for sending them south.

Interpreter positions are sometimes offered on a contract basis and are usually taken by women.

Social Organization Kinship ties appear to be as strong as in former times, but some elders believe that today young people do not take their advice as much as they did in their own youth. Because there are many more houses available in the community now, a large number of nuclear families and single people have their own separate accommodations. Extended family units, however, are still quite common. One innovative method of enabling kin from outside the settlement to visit their family is by means of a "penny sale." The way it works is: people donate items (clothing, gift-ware) and participants buy tickets in 50 cent denominations--up to the limit they are prepared to spend, and then the donated items are auctioned and bought by people with the appropriate number of tickets. Sometimes, one to two thousand dollars may be raised in a single penny sale. Celebrations now follow the Christian structure of feast days (Christmas, Easter) but traditional Inuit feasts, for example, a boy's first seal, are still commemorated. Community events are usually well attended, for example Hamlet Days (in August), dances, and various festivities during the Christmas period. The Anglican Ladies Society and the Sapputit Sewing Circle are just two of the smaller organizations which involve women only. Other groups include the Youth Music Group which sings in the Anglican Church and for some other community events. Recently, they have also been invited to other communities to participate in hymn singing. When I was in the settlement in April, 1997, the Youth Music Group sang in the community hall during a welcome ceremony for three Inuit men who had traveled by snowmobile from Salluit in

Nunavik (except for the last leg of their journey because of open water around Southampton Island). These men had volunteered to undertake this journey in order to bring awareness about suicide prevention in the North. The reception in the community hall was enormous--most community members participated in this event. Bingo, which is held in the community hall, is a popular social activity, particularly in the winter months. Nevada tickets are also sold during the two bingo events of the week. Not just an ordinary bingo, but a culturally appropriate bingo game is played. For instance, besides the usual one line, two lines or full house, an inukshuk, thus:

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is also a winning line.

The Recreation Committee was formed in 1970, and now the community has a facility which houses an arena and a community hall. A full-time recreation officer, with the help of volunteers, coordinates various programmes which, in the summer, also includes a temporary swimming pool. Much of the recreation, though, is carried out through visiting. In many of the houses I entered there were friends, neighbours, and relatives visiting. Some came just to chat, others played games such as "yahtzee," Chinese checkers, or computer games. A very popular way of visiting, especially in the winter, is through the CB radio. It is fast and efficient--but very public. It was turned on in many of the homes I visited--just in case someone was sending a message to the occupant. Television, of course, is very popular (every household has one), and programming is now available from many areas of Canada and the United States. The radio, especially CBC in Inuktitut, remains one of the most effective

means of disseminating newsworthy information.

Learning about the methods through which people in Coral Harbour communicate with one another and with outsiders was an important aspect in this research project. Finding out how Inuit in this community learned about contaminants such as PCBs and mercury--and the (un)importance of them in their everyday lives was essential to my understanding of Inuit women's perceptions of pollution. This information would not have been so accessible if I had interviewed Inuit women in Winnipeg or Toronto; it is the Northern context which not only influences their perceptions, but shapes them. Historical background of people and places, including traditional, colonial, and modern, all have a bearing on the socio-cultural environment of a community which evolves over time.

CHAPTER FOUR

Contaminant Discourse in the North:

The Voice of Science

In this chapter I will present examples of the discourse of pollution that I have found in the scientific literature, primarily in academic journals. The voice of the academy is represented in this thesis by articles which report on research studies investigating contaminants--mostly organochlorines and heavy metals--in the Arctic. In order to prepare for my fieldwork, I audited a graduate course on environmental health and then used the articles referred to in this chapter to familiarize myself with biochemical contaminants, in general, and with problems of pollution in the Arctic, in particular. This discourse can be compared to perceptions of pollution that were expressed to me during my in-depth conversations with women in Coral Harbour, which are presented in Chapters Six and Seven, and to those examples of contaminant discourse I selected from the popular press--usually Northern newspapers, which form the basis of Chapter Five.

As in the discourses of the Inuit women and of the popular press, the academic discourse is authoritative in its own cultural context. Only by critically analyzing each discourse can a framework for mutual understanding be reached which will facilitate an on-going dialogue between all participants in the research process. Objectivity is considered by some (positivist) researchers to be a more worthy scientific trait than subjectivity; an objective account is deemed to be free from distortion and bias and to accurately represent what people know and believe (Spradley & McCurdy, 1981). These

same authors also point out, however, that selective observation always occurs in humans and that selective interpretation permeates each stage of the data collection. Both types of selection are unavoidably influenced by the researcher's life experiences and cultural background.

Talk of environmental issues (including pollution) is topical, and the environment is usually considered a natural phenomenon or a material reality "just out there." However, unless we explore some of its facets, we will be unaware of the debates surrounding facts and feelings, of politics and perceptions of the environment, and of the impacts of various types of pollution on people's lives.

After a brief discussion of contaminants as a global problem, I will present some examples of the scientific literature on contaminants which include articles on mining, heavy metals, nuclear power and organochlorines. I discuss some of the implications of human body burdens of contaminants and issues related to the dissemination of the results of research. At the end of this chapter I will summarize the discourse of the academy and its effects on Inuit women.

Toxic Wastes and Health: A Global Perspective

Unquestionably, health and environment are closely interrelated. But exactly how they are related is complex. There has been an increase in the "evidence" demonstrating the declining quality of the environment as contributing to both the severity and the complexity of numerous human health problems. But the evidence to date is inconsistent and often contradictory, and should be considered with care. The World Health

Organization has estimated that globally (but more specifically in the developing world) there may be 500,000 pesticide-related illnesses and 20,000 deaths each year (Foster and 1994). However, there is still insufficient evidence to assess fully the true impact of pesticides on human health. In particular, the chronic effects (especially relevant to the Inuit) are far less clear. Some case control studies suggest an excess of lung cancer in exposed occupational groups, and other studies have demonstrated that the incidence of malignant diseases such as soft-tissue sarcoma, leukemia and lymphoma is increased in those exposed to organochlorines (OCs), particularly DDT,¹ chlordane, and lindane (Wilkinson, 1990).

What is evident is that there is an increasingly wide spatial distribution of environmental health problems; local issues become regional concerns and, in their turn, regional problems such as pesticide contamination and ozone depletion² have become global threats. It could be said that the Arctic is an early warning system for the planet, and, as exemplified by Sergio Marchi, Canadian Minister of the Environment (1996), “there is a link from the rice fields to the ice fields” (quoted in Smith, 1997). The rice fields to which Marchi is referring are those in Louisiana which were sprayed with

¹DDT is a trademark for 1,1,1-trichloro-2,2-di-(4-chlorophenyl) ethane (dichlorodiphenyltrichlorethane), an insecticide first synthesized in 1874 but not used until 1939. It became the most widely used insecticide and in the 1950s, world-wide production reached 100,000 tonnes. By 1965 stringent restrictions or total bans on its use had been introduced in Europe and North America (Jones et al., 1990).

² The ozone is a protective component of the atmosphere formed by the recombination of oxygen in the presence of ultraviolet light--triatomic oxygen (O₃). The layer in the upper atmosphere (stratosphere) that is slightly enriched in ozone acts as a filter to prevent damaging ultraviolet and other solar radiation from reaching the earth's surface in high concentrations. Chlorofluocarbon gases (greenhouse gases) are implicated in the ozone layer depletion (Jones et al., 1990).

pesticides that were then carried by wind and rain to the food chains of the Arctic. This is an example of "global distillation"--the process by which pesticides are volatilized from temperate and tropical zones and redeposited in colder regions (Bidleman et al., 1989).

In the United States alone, 35,000 chemicals are recognized as being either actually or potentially dangerous, and in various areas of the globe hazardous wastes have been indiscriminately disposed of, resulting in 32,000 to 50,000 uncontrolled waste disposal sites (Foster and Foster 1994). One example is a Russian plutonium plant in the southern Urals which, from 1948 to 1955, pumped its radioactive waste directly into a nearby river; then, in 1967, strong winds dispersed clouds of highly radioactive dust from a lake that had been used to store some of this waste. It is estimated that more than 450,000 people have been affected by radiation from this source alone. In addition, the former Soviet Union abandoned reactor vessels in the Northwest Pacific at two sites and at 16 locations near the Arctic island of Novaya Zemlya (Foster and Foster 1994). The enormity of the environmental contamination legacy of the Soviet military has only recently become public knowledge. Dozens of secret cities were established by Stalin in order to develop the atomic bomb, and even before Chernobyl, many accidents occurred. As well, safety was a low priority, and nuclear power plants were built without containment vessels. It has recently been disclosed that about half of the accumulated nuclear wastes were discharged directly into the earth at three sites, and increasing rates of cancer, especially leukemia, stillborns, and birth defects are associated with populations living near these nuclear impacted regions (ZumBrunnen, 1997).

Adverse effects of PCBs on human health have been documented in several groups

of occupationally exposed workers and in accidentally exposed populations. For example, in two incidents in Japan and Taiwan, PCB-containing industrial fluids accidentally leaked into rice oil which was then sold to consumers (Safe, 1994). In addition to physical symptoms, which include skin thickening, ocular problems, and numbness in extremities, offspring of the Chinese (Taiwan) mothers were smaller than usual, exhibited modest learning deficits, and displayed some of the same toxic symptoms as their mothers. Many types of environmental pollution can be measured and the risks of their subsequent effects³ estimated, but at present it is the insidious consequences of chronic exposure to contaminants at low doses, as well as the ramifications of perceptions of pollution, that are of greater importance to Inuit in the Canadian Arctic.

The Scientific Discourse on Contaminants in the Arctic

Some generally accepted basic facts (that is, accepted by the scientific community and to some extent, the general public in the West) about contaminants will be presented here. This is essential for establishing a starting point in a discussion of difference in discourses. If it were not for the publication of contaminant research by the scientific community, there would be no discourse debate.

The dimension of academic discourse one usually sees in the scientific literature is that which is aimed at informing other scientists of the latest research findings. These reports are the most up-to-date and are relevant to the dissemination of important findings

³ I take the definition of “risk” as “the potential for realization of unwanted, negative consequences of an event” and “risk aversion” is action taken to control risk (Rowe, 1977, p. 24).

to the scientific community. Other scientific reports are aimed at a more general audience. For example, information regarding contaminants for the Inuit of Nunavik is readily available in a three volume report, *Santé Québec. A health profile of the Inuit* (Jetté, 1994). The reported research was conducted by a multidisciplinary team of scientists who present their findings in a style that is comprehensive and comprehensible for all health care professionals as well as for teachers and administrators in the region. One chapter in volume one is devoted to environmental health (Dewailly et al., 1994b).

The scientific literature is usually confined to reports on levels, pathways of transport, bioaccumulation, and sources of heavy metals, hydrocarbons, organochlorine pesticides, polychlorodibenzo-p-dioxins and polychlorodibenzofurans (PCDDs/PCCFs), and polychlorinated biphenyls (PCBs) in the Arctic marine environment (Muir et al., 1992). As well as indicating a concern for the possible consequences to humans, such studies are necessary for an understanding of the behaviour of pollutants in cold climates and for comparison in various geographic locations. These complex reports may have little meaning to readers unschooled in the distinct environmental vocabulary; however, one may scan the copious reported findings and complicated tables and learn something that is of interest in a particular location. For example, it is reported by Muir et al., (1992) that in a study conducted by Norstrom et al., (1988) comparisons were made of levels of organochlorines (OCs) in polar bear fat samples collected in 1969 from Southampton Island with results from polar bear samples collected in 1983/1984 in the same location. During the intervening period of 15 years, total PCB levels had increased, whereas total DDT levels had declined. It is unlikely that Inuit from Coral Harbour are aware of these

results.

Mineral Exploration

Although still relatively small in the North, the number of mines is steadily increasing and a metals-mining boom is expected to take place during the next decade; unfortunately, Northern Canada's long tradition of mining activity includes a poor record of environmental protection (Lemly, 1994).

It is well documented that until the 1970s, lakes and streams in the North were used for the disposal of mine tailings and untreated tailings pond effluent (Wagermann et al., 1978; Moore, 1980; Waite et al., 1988). When mines were depleted, they were often abandoned and left to leach for years into surface waters. Although environmental regulations were legislated to reduce contamination from mines, compliance has been poor (Whiteway, 1990). As commented by Lemly (1994), the public is sceptical about the mining industry's promise to rectify its contamination problems, and convincing the public will be a slow process. Mines have often been promoted as stimulants to local Northern economies but in some regions local indigenous people now are insisting that their traditional lifestyle should not be disrupted at any cost.

Of the mineral developments currently under production in the Canadian Arctic, the Polaris mine on Little Cornwallis Island and the Nanisivik mine on Baffin Island (which opened in 1981 and 1975 respectively) are the most productive--and they both discharge tailings into small lakes that overflow into the ocean. Concentrations of lead, zinc, cadmium and arsenic in ocean sediments near the Nanisivik mine are higher than pre-

development levels but the ecological significance remains unknown (Government, 1991). Exposure of iron pyrite and other sulphidic minerals to atmospheric oxygen in the presence of moisture leads to the continual dissolving of mine wastes (tailings) and a potential long-term source of metals being released to the environment (Government, 1991).

Lemly (1994) reports that because of an increase in the sophistication of mining technology, mineral deposits that were once thought to be inaccessible are now being extracted. Expansion of mining activities is cause for concern for its negative impacts on the environment--particularly on the fate of native fish in the Arctic. Some of the contaminants associated with mine wastes (mercury, selenium, lead, and tin) are known to bioaccumulate in aquatic organisms and persist in the food chain. Toxicity studies indicate that Arctic fish⁴ are generally more sensitive to metal, trace elements, and ore processing chemicals than are fish in warmer waters. Contaminants which are consumed by adult fish are passed on to offspring in the eggs where teratogenesis and death may occur during early development. With the anticipated increase in mining activities, it is essential that environmentally sound operations are introduced in the North.

The potential effects of mining on Inuit health can have repercussions on socio-sanitary indicators and on morbidity patterns (Grondin and Bruneau, 1994). Possible direct and indirect health effects include: toxic releases at the work site; high accident rates; and

⁴Large scale metal extractions can adversely affect fisheries because of high concentrations of copper, zinc, cadmium, lead, and arsenic. Metal contaminants cannot be dissociated into other elemental components as can organic contaminants--they will change form, but they will not degrade through time. In general, areas of active and historic mineral extraction are associated with elevated mortality rates (Moore & Luoma, 1990).

psychosocial stress and adaptation problems due to a variety of disruptions including long periods of absence from home, physical fatigue, and nutritional imbalances due to lack of access to country foods. In the neighbouring communities there is also reduced access to country food, accompanied by land use pattern changes because of environmental impacts, and toxic releases into the environment through airborne gases. Grondin and Bruneau (1994) point out that health professionals should be included in all phases of environmental evaluations, not only to ensure that adequate monitoring programmes will be established, but for the promotion of public health in a cross-disciplinary perspective.

Heavy Metals

Over the last 20 years the accuracy and reliability of estimating metal levels has improved; hence, the mean trace metal concentrations reported for seawater have decreased relative to earlier results. However, most heavy metals have increased in the Arctic in modern times (Muir et al., 1992). For example, the liver of marine mammals contains high concentrations of heavy metal, mainly mercury and cadmium, although the main source of uptake for cadmium comes from smoking cigarettes (Dewailly et al., 1994a). Hydrocarbon mining activities are often the culprits for the high levels of heavy metals in the Arctic. In the more than 300 oil and gas exploratory wells that have been drilled, waste drilling fluids (containing metal salts, surfactants and petroleum hydrocarbons) have been disposed into sumps adjoining the oil rigs.

It is evident that more than any other metal, lead has been extensively measured in the Arctic and is anthropogenically elevated in the Northern hemisphere. Lead

concentrations are consistently higher in surface water than in deeper layers, and it has been shown that lead concentrations in the Greenland ice sheet are now 300 times greater than in prehistoric times (Barrie and Hoff, 1985). Classical sources of lead exposure (automobile exhaust fumes, lead paint) are not common in the Arctic but its presence is detected in mine wastes. The 'Black Angel' lead-zinc mine which opened in 1973 on the southwest coast of Greenland discharged mine tailings into a nearby fjord. Consequently, lead concentrations in Strathcona Sound on Northern Baffin Island are now elevated (Barrie and Hoff, 1985).

Mercury (inorganic) is a naturally occurring metal in some soils but it is also used in chlor-alkali industrial plants to produce chlorine bleach. When effluent from such processes is deposited in rivers, a process of biomethylation begins whereby various organic bodies, including bacteria, fungi, and fish, produce a reaction in the metal converting it to organic mercury which is considerably more toxic (Casarett & Doull, 1975; Vecsey, 1997). Methylmercury (organic) moves up the food chain to humans who absorb 95-100% of it by ingestion, and it is excreted very slowly. It is relatively resistant to environmental degradation and is capable of passing through biological barriers such as those between the blood/brain and the blood/placenta (Barrie et al., 1992). The greatest damage caused by methylmercury exposure is to the brain, causing increases in the prevalence of retardation in motor skills and speech. In addition, adverse effects of *in utero* methylmercury exposure have been mainly associated with neurotoxicity (Hansen et al., 1990).

Methylmercury, which enters aquatic food chains with the uptake by plankton, is bioaccumulated to a high degree and attains its highest concentrations in edible tissues in long-lived predatory fish living in both ocean and fresh waters. The bioaccumulation factor (the partitioning of compounds between an aqueous phase and tissues of organisms) to edible fish tissue exceeds 10 million for certain species of fish (Clarkson, 1992). Consumption of marine mammals by Inuit in Arctic communities is a major route of mercury contamination. Seals, for instance (which eat fish), have been found to carry dense body burdens of mercury; contamination is then passed on to their predators--polar bears and humans. (Eaton, Secord, & Hewitt 1980; Arctic, 1990; Clarkson, 1992). It is estimated that 70% of the total mercury present in meat from marine mammals is inorganic mercury; however, in contrast to methylmercury, inorganic mercury is not absorbed easily (Hansen, Tarp & Bohm, 1990). Although only 1% of the sediment's burden of inorganic mercury is converted into methylmercury each year, the biological half-life of methylmercury in fish is very long--causing the process of contamination of marine life to be continuous, persistent and irreparable (Shkilnyk, 1985; Fitzgerald & Clarkson, 1991).

Other factors affect methylmercury levels in fish, such as acidification⁵ of bodies of freshwater by acid rain--causing higher levels of the heavy metal. It is thought that decreased pH may stimulate methylmercury production at the sediment-water interface and it may also decrease the loss of volatile mercury from lake water and increase mercury

⁵Acidification is caused by the precipitation (rain, snow, fog) of dilute solutions of strong mineral acids (pH < 4.5) being released from the atmosphere. Industries dependent on fossil fuels are the major producers of sulphur dioxide pollution and vehicle exhausts provide the main source of nitrogen oxides (Jones et al., 1990).

binding to particulates in water (Piver, 1991). The impounding of rivers and lakes to produce hydroelectric power (as in the James Bay power project) also raises methylmercury levels in fish, though the mechanism is not well understood. One suggestion is that the raising and lowering of water levels in response to electric power demands causes increased erosion of the banks of impounded bodies of water and the deposition of more vegetation into the water (Gorrie, 1990; Clarkson, 1992). In addition to the relatively constant natural background levels of mercury, there appears to be an increasing anthropogenic load, indeed, the combustion of coal may be the dominant source of mercury contamination to the air (Lockhart, 1995).

High levels of mercury have been found in freshwater predator fish in Northern Canadian waters which are far from the range of industrial mercury spills. Many of the fish tested in small Northern lakes were found to have markedly higher mercury levels than fish of the same species taken from the Great Lakes--where they are closer to the sources⁶ of pollution (Eaton, 1979).

Among the polar Inuit of Greenland, unacceptably high levels of methylmercury were revealed in the majority of pregnant women tested; in the maternal blood, 80% of the

⁶Information documenting the source of mercury contamination of fish in northern waters is problematic. It has been suggested that it occurs as a result of atmospheric vapour liberation from natural outgassing or from industrial sources. However, levels of mercury found in the fish have not been similar across the northern regions--even though they have similar topography and rainfall. It has been demonstrated that mercury levels in snow strata close to the soil in mineralized areas could be as much as 40-50 times the level in the snow closer to the snow surface. The snow blanket then becomes a sort of distillation trap for outgassing mercury vapour, in which the mercury is condensed before being returned to the surface water in the spring. From this hypothesis it follows that the longer the period of snow cover or the less soil overlying the mineralized rock, the more mercury would be trapped. Variation in mercury levels could be accounted for by different altitudes and in areas where there is minimal outflow or low precipitation (Eaton, 1979).

total mercury was found to be methylated compared with 98% in cord blood. In contrast to those in southern districts, Inuit in Northern Greenland consume large amounts of top carnivore whale species, such as narwhal and beluga, and those mothers eating mostly local marine food were found to have the highest blood mercury concentrations. Until 1990 (the study period was 1982-1988), no neuropsychological investigations had been performed among the exposed Greenlandic children. However, the levels reported are compatible with those found in other studies which demonstrate neurotoxic symptoms (Hansen et al., 1990).

Clinical signs (such as abnormalities of the nervous system) of suspected mercury poisoning have not been observed in Canadian Inuit--even in those individuals with elevated hair and blood mercury levels⁷ (Eaton et al., 1980). After ranges had been determined, a survey of Inuit in Arctic coastal communities showed many results above the normal range (i.e. >20ng/g). In fact, in some communities in Nunavik and on Baffin Island, as well as in Coral Harbour, 80% or more of the results exceeded 20ng/g. Most of these levels fell in the "increasing risk" range but no clear evidence of biological injury to humans was established in these communities (Lockhart, 1995). The problem of clinical evidence, however, is being addressed. The Arctic Monitoring and Assessment Program (AMAP), is proposing an action plan that would analyze links between contaminants and

⁷Body burdens of mercury can be quantified by analyzing mercury values in human scalp hair. There is a constant ratio between the amount of mercury in the hair and in the blood as mercury is incorporated into the bloodstream as the hair is growing. The scalp hair sample can reveal both past and present blood concentrations of mercury. Health Canada (1978, 1984) has established three ranges of mercury levels in human blood which are linked with statements of risk (cited in Lockhart, 1995): under 20 ng/g (normal range); 20-100 ng/g (increasing risk); over 100 ng/g (at risk).

health (George, 1998).

Nuclear Power.

As a result of fallout from atmospheric testing of nuclear weapons that took place between the 1950s and 1970s (as well as the 1986 accident at Chernobyl), radioactive⁸ contamination is still present in measurable amounts in the slow-growing lichens in the Canadian Arctic on which caribou feed (Hanson, 1982). Lichens are able to collect airborne particulates efficiently and retain them for decades. Radionuclides accumulate primarily in the muscle of caribou and, although the fallout (in the form of strontium⁹⁰ and cesium¹³⁷) now represents a proportionally small contribution to population exposure, Inuit from the affected regions carry body burdens of radioactivity higher than the North American average. Of note, only 25% of the radiocesium found in Canadian caribou originated from the Chernobyl disaster and levels never reached levels as high as those found in Scandinavian reindeer (Arctic, 1990; Tracey and Kramer, 1992).

As a result of the Chernobyl nuclear accident, there was radioactive fallout over Sweden, and the reindeer herded by the Saami in Lapland were found to have high levels of cesium^{134, 137}. Although damage to human health with low-dose radiation could not be demonstrated, it was decided that lack of such evidence should not rule out 'no risk of

⁸ Naturally occurring radioactive minerals are widely distributed throughout the earth's crust. The major sources of radioactivity are: uranium²³⁸, thorium²³², radium²²⁶ and their daughter products, along with potassium⁴⁰ and cosmic ray produced radioisotopes of carbon and hydrogen (Brill, Parker & Johnston, 1972). Cesium is not among the naturally occurring radioactive nuclides distributed throughout the earth's crust; in fact, cesium¹³⁷ and iodine¹³¹ are produced only by atomic explosions--and nuclear accidents like the one in 1986 in Chernobyl.

harm.’ In addition to high levels of Cs¹³⁷, which has a half-life of 30 years, iodine¹³¹, with a half-life of only eight days, became a cause for concern. Because I¹³¹ is secreted in milk, the release of cows to pasture across Sweden was delayed in order for the I¹³¹ risk to abate. Embodied in a ruling that was to continue for at least a year, a limit was set for the marketability of all foodstuffs; hundreds of thousands of kilograms of reindeer meat were disqualified from sale on the market because they exceeded the limit of 300 becquerel/kg⁹ of I¹³¹ in food. This contrasts with Sweden's later guideline which increased the permissible cesium load in reindeer meat to 1500 bq/kg. Of note, Canada proposed guidelines that would allow Cs¹³⁷ contaminated meat and other foodstuffs with loads up to 3500 bq/kg (Taylor et al., 1988).

Interestingly, reindeer meat samples that were examined before the Chernobyl disaster were also found to contain higher levels of cesium than were allowed on the market after the limits were imposed! It was later determined that only 25% of the total Cs¹³⁷ present could be attributed to the accident; the majority resulted from the residual of radioactive fallout from atmospheric nuclear weapons testing in the 1950s and 60s (Beach, 1990). Since it is now evident that most of the Cs¹³⁷ detected was not as a result of the Chernobyl disaster, it has been suggested that the Swedish government was responsible for the probably unnecessary destruction of many tons of reindeer meat (not unlike the “mad cow disease” situation in Britain in 1996).¹⁰

⁹Bequerel (Bq) is a measure of the ionising activity of a sample of radioactivity: 1 Bq is one nuclear transformation per second.

¹⁰ “Mad cow disease” is the colloquial term for Bovine Spongiform Encephalopathy (BSE). In March, 1996, in Great Britain, it was announced that scientists had discovered a new variant of

Although Arctic regions received only 25-50% of the radioactive deposition measured in southern Canada, these contaminants were not eliminated from Northern ecosystems as efficiently and substantially as those in the south (Government, 1991). One study investigated radiocesium body burdens in two Canadian Arctic communities--one Dene and one Inuit (Tracey and Kramer, 1992). The latter is located in Baker Lake, in the Keewatin region of Nunavut. Elevated radiocesium levels had been documented in the 1967 survey there, and, in 1989, measurements for body content of Cs¹³⁷ were carried out in five-minute sessions with the aid of a portable body counter on 266 Inuit. Body burdens were found to be low in young children, and after the age of 10, body burdens of males were twice those of females. However, the mean body burdens for adults had decreased over the 20 year period from 39.3 kBq to 1.36 kBq and, although the mean cumulative dose (at 10.90 mSv) was twice as high as those levels determined for Old Crow, Fort McPherson and Aklavik, the researchers confidently reassured the Inuit in Baker Lake that caribou meat was still a "safe and nutritious diet choice" (Tracey and Kramer, 1992, p. 82).

Organochlorines (OCs)

Organic compounds include pesticides (e.g. lindane, chlordane, endrin, dieldrin, toxaphene, DDT), industrial compounds, and byproducts of various industrial processes,

Creutzfeld-Jacob disease (CJD or nvCJD) in ten people (who subsequently died) and this disease was linked with consumption of beef cattle infected with BSE. Immediately, the British beef market collapsed; hundreds of thousands of cattle were destroyed at a cost to the European Union of \$14 billion in subsidies to the beef industry (Powell & Leiss, 1997).

for example, hexachlorobenzene (HCB) and polychlorinated biphenyls (PCBs). The widespread distribution of OCs in Northern ecosystems (they have been found in Arctic snow, waters and organisms) points strongly to eolian (wind) transport from lower altitudes (Bidleman et al., 1989). The most frequently detected compounds in snow samples, usually more than 75% of the total OCs, are the hexachlorocyclohexanes (HCH), specifically the pesticide, lindane (Gregor & Gummer, 1989). It is thought that HCH levels are higher in Northern waters--which are far removed from their sources--possibly because lower water temperatures reduce transfer to the atmosphere. Surveys of fish, mammals and seabirds across the NWT have shown that polychlorinated camphenes (PCCs), PCBs, DDT and chlordane-related compounds are the most abundant OCs.

In general, most studies report that the largest concentrations of OCs are found in the fatty tissues of the beluga, walrus and narwhal, and to a lesser degree in seals (Dewailly et al., 1994a). Concentrations of DDT, PCBs, toxaphene, and chlordane in sea mammal blubber are usually between 1 and 5 $\mu\text{g/g}$ (lipid base), and in polar bear fat, PCB concentrations range from 3 to 8 $\mu\text{g/g}$ (Dewailly et al., 1993). Mean concentrations of most PCBs and OC pesticides in ringed seal and polar bear populations in the Canadian Arctic are fairly similar--indicating a uniform distribution of contamination--with the exception of the Hudson Bay, where the highest concentrations have been found (Muir et al., 1992). Residues of dieldrin, total DDT and total chlordane were found to increase in a path from the high Arctic to Hudson Bay (Norstrom et al., 1988). Differences include ringed seals and polar bears in the east/central Arctic which have higher levels of PCDD/PCDFs than those in more southerly locations (Bidleman et al., 1989; Muir et al.,

1992). Among the pesticides in the Belcher Islands, the highest concentrations of DDE (a transformation product of DDT) and PCBs were found in ringed seal and beluga muktaaq, though DDE was also found in species (such as char) in the lower trophic levels (Cameron & Weiss, 1993).

Organochlorines accumulate in fatty tissue (of which Arctic animals have ample) and bone marrow (reserves). The degree to which a contaminant attaches to a particle depends both upon the physiochemical properties of the contaminant and on the type of particle involved. PCBs, for example, are easily attached to organic-rich particulate matter (Harris et al., 1990), and sea mammals in general have higher PCB levels than any other Arctic food (Kuhnlein and Kinloch, 1988). PCBs are persistent toxic pollutants in water, and through their absorption by fish, higher trophic feeding levels (including humans) are affected (Rowland & Cooper, 1983; Wagermann & Muir, 1984). Biological recycling (including carcasses, moults and fecal pellets) also transfers incorporated contaminants to benthic populations--prolonging the exposure of organisms to contaminants. OCs concentrate within individual species--particularly those (like seals and polar bears) which undergo seasonal cycles of lipid formation and storage (Muir et al., 1992).

One technical report summarizes a considerable body of knowledge regarding the environmental cycling of OCs in the Canadian Arctic, and then describes the study undertaken (Bright et al., 1995). Samples of pooled tissue from bottom-dwelling marine animals (clams, mussels) were collected, and a multivariate statistical method was used to assess the similarities or differences in various environmental samples based on their PCB

congener compositions. After presenting many detailed tables and figures of all of their findings, the authors of this study conclude that their evidence proves localized elevation of various organochlorines in abiotic and biotic compartments of an Arctic coastal environment, based on riverine input of contaminants introduced through aerial transport from distant sources as well as from local shore-based inputs (at a DEW line site). Differences detected in the PCB congener compositions and concentrations allowed the discrimination between local and distant PCB sources. Findings from this study raise the possibility that uptake of OCs from sediments by bottom-dwelling animals might be a major pathway for the transfer of river-borne and air-borne OCs to higher predators.

Across the Canadian Arctic, residues of PCCs and other OCs have been determined in air, snow, seawater, zooplankton, and benthic amphipods (Bidleman et al., 1989; Gregor, 1994), as well as in lakes (Diamond, 1994). Sources and sinks of OCs have been quantified along with determinations of the relative importance of atmospheric versus oceanic input of contaminants to Arctic Ocean biota by seasonal measurements (Hargrave, 1994). Effects of contaminant accumulation on marine mammals and fish are documented in studies conducted throughout Arctic Canada (Kingsley, 1994; Muir and Ford, 1994), but polar bears are paid special attention as contaminant trends in polar bears reflect human exposure to OCs (Norstrom, 1994).

A 74 page report written by Barrie et al. (1992) is an example of a very thorough comprehensive study. In the report, the researchers describe sources of chemicals considered in various studies conducted in the Arctic, as well as their historical uses. Metals and acids are likewise described, and readily comprehensible explanations are

provided for the ecosystem, including the marine environment and atmospheric circulation. Contaminant pathways are discussed within a framework of interactions which occur between and within the atmosphere, land, and oceans. Dozens of studies are reported and summarized. We are informed that the Northern atmosphere is 10 to 20 times more polluted in winter than in summer--mainly as a result of the stronger transport of air from mid-latitudes into the North during the winter months. This was concluded after six years of observations of sulphate particle concentrations at locations in the Canadian Arctic, and reported by Barrie in 1986.

Human Body Burdens of Contaminants

A study which examines Inuit exposure to OCs through the aquatic food chain (Dewailly et al., 1993) subsequently looks at the transfer of body burdens of Inuit mothers to their breast-fed infants (Ayotte, Carrier & Dewailly, 1996). In the 105 breast milk samples collected in 1989-90 in Nunavik, the mean PCB (Aroclor 1260) concentration of 2.9 mg/kg was found to be five times greater than that found in breast milk samples of women living in the southern part of Québec. Mean concentrations of chlorinated pesticides were three to five times greater, and mean levels of PCDDs, PCDFs and non-ortho coplanar PCBs in Inuit breast milk were two-fold greater than those measured in samples from the reference population. The toxicokinetic model used in this study, which predicts dietary exposure to dioxin-like compounds at different ages following weaning, suggests that levels found in Nunavik Inuit may be high enough to induce adverse effects on female and male reproductive systems. In addition, PCB congeners, other than the non-

ortho coplanars which are major constituents of contaminants found in breast milk, may antagonize the effects of dioxin-like compounds.

There are other studies which involve humans, for example, one in which 31% of blood and hair samples reveal elevated exposure to methylmercury in Native and Northern people in 356 communities (Wheatley, Barbeau, Clarkson, & Laphom, 1979); however, it was cautiously concluded that “no mercury related pathology could be conclusively demonstrated” (p. 421). Clinical implications could also not be demonstrated in two studies conducted in Northern Québec (McKeown-Eyssen et al., 1990). In the first study, the researchers found mild, isolated neurologic abnormalities in children whose mothers had been exposed to methylmercury, so it was recommended that medical surveillance continue (McKeown-Eyssen, 1983). It evidently did continue (as their 1990 publication shows) with inconclusive results. Only an association between exposure and neurological abnormality was determined.

In another study (Cameron and Weiss, 1993) where associations of levels of contaminants are sought, the researchers estimate the intake of organochlorines of Inuit in Sanikiluaq (NWT) by measuring levels of contaminants found in various country foods. They then link these levels with previous estimates from harvest data and food consumption levels (however, some assumptions were necessarily made, for example, one “meal” is assigned as 500 g). In addition, because diet data were collected for whole families (not individuals), because intakes of all foods were averaged over 365 days (although only seasonally available), and because harvest information only discloses the total number of animals captured without taking into account how much of it is used for

dog food, the estimates of consumption of contaminants are not precisely reliable. Findings of contaminant concentrations are consistent with other studies, but it is very difficult to determine the cumulative body burdens for individual Inuit over a long period of time. The article concludes that “further research is required to establish consumption guidelines more applicable to Northern diets” and advises a “continued in-depth study to fully evaluate dietary intake of OCs and the effects of these contaminants on health and development” (Cameron and Weiss, 1993, p. 47).

Other studies (for example those conducted in Nunavik) have demonstrated that Inuit have significantly high levels of PCBs and dioxin-like compounds, and body burdens which are close to those at which adverse health effects are seen in laboratory animals. However, participants and readers are assured that the nutritional and cultural benefits of Inuit food are still considered to far outweigh potential health risks (Ayotte, Dewailly, Ryan, Bruneau & Lebel, 1997). Even when the highest reported levels of OCs are found in Inuit, researchers advise that people need to make informed and satisfying decisions for themselves on how to meet food and cultural needs (Kuhnlein, 1995).

Communication of Research

The first study described in the previous section (Ayotte, Carrier & Dewailly, 1996) is a good example of an informative report as it explains the meaning and significance of the high levels of contaminants found in Inuit women’s breast milk. The authors explain that the calculated levels do not take into account the rapid growth of the breast-feeding infant; hence, the increase in body burden would be limited due to the

expanding volume distribution. In addition, the reference doses are established for chronic exposure--but breast-feeding (as the exclusive food source) usually only continues for a few months. These researchers are careful to point out that because of the well-known benefits of breast-feeding, curtailment of this practice is not recommended at this time. In addition, modelling techniques indicate that breast feeding strongly influences body burden during childhood, but not after the age of 20 years.

In Jetté (1994), previous research regarding Arctic contaminants is succinctly summarized, and results of the Nunavik health study are explained well: biological exposure of Inuit to heavy metal and organochlorines are evaluated, and the risk factors relating to health and diet are defined. Most importantly, the issue of individual attitudes to PCBs is addressed. Recommendations from the results of the study are that,

“considering the low potential risk and substantial benefits of the traditional diet, nothing for the time being would justify recommending to Inuit adults in Nunavik that they limit the consumption of marine products. Recommendations made solely in light of the possible risks could indeed, as we have already observed, lead to undesirable changes in traditional eating habits with a long term negative impact on public health. However, it is as yet unclear whether these changes in eating habits truly come about owing to concern over PCB contamination or whether the data rather reflect a certain malaise and public reaction to the state of the environment”
(Dewailly et al., 1994b, p. 104).

Readers are assured that monitoring will continue in Nunavik, and it will be compared with results from similar contaminant monitoring programmes across the Arctic. This comprehensive document elucidates how perceptions of contaminants can affect Inuit lifestyle. Research results are presented in a manner that is easily understood and, hence, the information contained herein would increase the knowledge base of all readers.

One of the problems in measuring contaminant levels in humans is in the interpretation of the results--and this is problematic in the scientific literature as well as in the popular press. Even when levels of contaminants are shown to be higher than the acceptable range, effects on the human body are difficult to predict. Inconclusive results in the scientific literature do not indicate that the researcher has failed or that she made an error. And deeming a report to be "scientific" does not mean that it is infallible--as many people seem to believe. As long as the findings are reportedly accurately, negative results are just as valid as positive ones. Readers should, in fact, be relieved that no clinical implications have been found in a study looking for relationships between human health and contaminants. But, as explained by Backett et al. (1984), most people are more concerned with the threat of illness than with health. Health is taken as the default (we are not vulnerable to it), and the notion of risk has become incorporated into our thinking about the prevention of disease.

The accumulation of contaminant information may be difficult for a lay person to comprehend, but the bottom line is clear: it is impossible at this time to predict clearly adverse health effects on human populations similar to those that have been demonstrated on laboratory animals.

Discussion

Articles referred to in this chapter which apprise readers of research studies pertaining to contaminants in the Arctic are written by experts in their fields. Because claims to scientific knowledge need to be validated, this expert knowledge may be seen as

a form of “universal communication”--an “agreed-upon-reality” whereby shared scientific knowledge is legitimized as well as communicated (Johnson and Covello, 1987). Most of the studies examine and objectively measure contaminants in animals or sediment--they are descriptive in a quantitative way. The complexity of some studies--especially purely scientific reports, and particularly those with no obvious relationship to health--render them accessible to only a select number of people.

In their published studies, what scientists are talking about is the potential adverse risk to the health of humans who become contaminated by organochlorines and heavy metals. Essentially, publication of these studies constitutes a form of “risk communication”--a term which came to be in common usage only in the 1980s. Risk communication was initially described as “the pure, rational knowledge content inherent in the assessment of risks made by scientific and engineering ‘experts’” (Leiss, 1994, p. 132). Leiss (1994) explains that some experts contend that it is because the general public has little access to scientific explanations that they are not only less well informed, but they also do not understand the real risks of contaminants. Hence (claim some scientists), the public is less able to make informed judgements--people tend to overestimate some risks and are unwilling to tolerate even low levels of other risks (Kasper, 1980; Fischhoff et al., 1982). The Inuit women with whom I spoke, however, also intimated that their ideas of pollution and of risk are not understood by “outsiders.”

One of the problems associated with risk communication is labelled the problem of the source (Johnson and Covello, 1987). Who communicates the risks (either verbally or in a written format) influences the degree of understanding achieved by the listeners. For

example, disagreements among experts tend to hinder audience understandings.

Disagreements are more apt to surface when experts have an interest in promoting a particular interpretation or when others have an interest in using expert opinions for their own purposes. For example, the high level of mercury found in local fish might be downplayed in the interests of a hydroelectric company which wants to dam yet another river. In the academy, however, researchers usually are disinterested (i.e. they do not have a vested interest) in the results of their studies. Because readers of scientific journals are usually scientists themselves, they understand the terminology used in the quantitative findings. The general public, however, and particularly people who are affected by contaminants in their food, may believe that all scientific experts--whether they are academics or employees of mineral extraction companies--are cut from the same cloth; it is difficult for people to differentiate between the various kinds of experts.

Apparently, journalists (non-experts) have complained that often experts do not tell the whole story; they are thought to conceal material facts and deliberately obfuscate in order to confuse the public and retain power (Crowley and Mitchell, 1994). However, I find that rather than concealing facts, academics usually are eager to broadcast their findings. The interested public is usually anxious for the conclusion of a research study that relates to their lifestyle, and they want to know the final answer to their concerns.

These kinds of mutual misunderstanding of the discourse of the "other" contributes to an increase in the resistance to really wanting to learn what other parties are saying. As explained by Elias and O'Neil (1995), the merits of a Foucaultian conceptual approach to scientific discourse are that it focuses on power and truth. A discourse is

established within a cultural (e.g. scientific) context and although influenced by the similarity of things, order is not necessarily established. Although it may have a unified appearance, scientific discourse can be fragmented--and this discontinuity may emerge into a new discourse and form of knowledge. (Fragmentation may be a result of differing expert opinions.) Effects of the scientific discourse can either illuminate or conceal the "reality" of what is being said by its method of presentation. Scientific discourse can be seen as a form of contaminant bio-power--a discursive formation whose totalizing effects may be curtailed by an Inuit discourse on contaminants which is a counter-knowledge (O'Neil, Elias & Yassi, 1997).

Power operates through systems of knowledge, and by defining what is normal and expected, scientific discourse may be seen to control members of a society. This is a type of surveillance and discourse that ensures that regulations conform with the dominant values of prevailing scientific understandings. Elias and O'Neil (1995) further explain that in discourse boundary disputes, what is at stake is the power to control institutional mechanisms and knowledge. Assumptions made in the scientific literature seem to elevate particular scientific perceptions to the level of objective knowledge. It is only through an engagement of the various discursive formations that a mutual understanding will be accomplished (O'Neil, Elias & Yassi, 1997).

CHAPTER FIVE

Contaminant Discourse in the Popular Media

Much has been written about the Arctic as being pristine and unpolluted (for example, Merritt, 1989, Twitchell, 1991), so it was something of a shock, as well as a revelation to the general public (but not to the scientists) to learn from the media that the celebrated virgin snow of the Arctic was blemished. For over 30 years scientists have been finding and reporting an increasing variety of toxic contaminants in the North, but now the popular press, too, is exposing the "not so pristine Arctic" (Twitchell, 1991). We have been informed from all sides that an accumulation of toxic substances in Arctic ecosystems (terrestrial, aquatic, and marine) represents a potential threat to the whole North because small changes in the global environment often have exaggerated effects in the Arctic (Merritt, 1989).

Messages offered through the news media may be thought of as being more accessible to a diverse range of people, but more importantly, what the newspaper selects for emphasis also helps shape the public's perceptions of issues being reported. For example, the item headlined "Toxic shocker in the not-so-pristine north" (Pearce, 1996) reveals Spitzbergen's¹ "dirty" secret in a respectable British newspaper, *The Guardian*. However, there is some dispute regarding the translation of scientific information that is relayed through different vehicles of popular media (see Singer, 1990). In fact, this researcher has determined:

1. At 1,000 km inside the Arctic Circle, Spitzbergen is Europe's most northerly outpost.

“An analysis of news stories that draw on published research shows that, in the process of making science lively and acceptable, most media reports introduce some errors of omission, emphasis, or fact” (p. 102).

Usually, incorrect statements are not the main flaw--omissions and changes in emphasis are more problematic. Nevertheless, Singer (1990) also reveals that when reporting about hazards, 40% of statements made by journalists differ substantially from statements in the original research. Science journalism in the print media too often is transmitted as a series of dramatic events with little discussion of the basic scientific question (Nelkin, 1987). In addition, intense media attention can be generated by a single research study; the popular press can draw attention to an event or study by sensationalizing an issue--particularly if it appears to be uncovering information not meant for public consumption. To illustrate, I will present one study that was reported both in the scientific literature and in the popular media. It is an important one because it made headlines in Canadian national newspapers (especially *The Globe and Mail*.) Results of the study were published in scientific journals and were also presented at the Circumpolar Health Conference in 1987 where both scientists and Aboriginal peoples were in attendance (though the latter were underrepresented). This study continues to be cited by many researchers (e.g. Dewailly et al., 1994a), as it is pivotal in Arctic contaminant research.

It is important to note that neither *The Globe and Mail* nor other national newspapers are sold in the North; the only time I can imagine that an Inuk living in a small community would have the opportunity to read a copy would be if someone brought it up from the South. The *Nunatsiq News*, which is published in Iqaluit, is one of the most accessible print media for Inuit, and in many communities the *Nunatsiq News* is offered

free of charge at the Co-op stores (from 1995 I subscribed to this newspaper for delivery in Winnipeg). The *Kivalliq News* in the Keewatin and the *Nunatsiq News* both publish Northern news exclusively. In addition, people in the Arctic usually receive news from the CBC radio which transmits from Iqaluit in Inuktitut and Qallunaaqtitut. Today, there are more television channels available--thus offering another vehicle for news broadcasts about national and global issues. Since both radio and television use the national newspapers as their sources of information (and are seldom the originator), they relay their own versions and interpretation of the news items. Most homes in the Arctic have a television and a radio, and many have a CB radio (many fewer are connected by telephone--it is very costly). While I was conducting my research in Coral Harbour, I took note of what means of communication were in operation when I entered. Thirty homes had the television on, 23 had the CB radio on, and 18 were listening to the radio. In six homes all three means of communication were being operated simultaneously, and in 15 homes, two of the three were turned on.

The aforementioned study was conducted in Broughton Island (NWT) because hunting and fishing harvest data suggested that Inuit in that community consumed high amounts of traditional foods. In 1985, analyses were carried out on blood samples from 207 Inuit for PCB and mercury levels, on four samples of Inuit women's breast milk for PCB content, and on various types of traditional foods for PCB content. Results showed that nearly 19% of the study population consumed more than the Canadian conditional Acceptable Daily Intake (ADI) of PCBs of 1 µg/kg of body weight. Blood PCB levels exceeded the unpublished "tolerable levels" established by Health Canada in 60% of the

children studied, in 39% of women of child-bearing age, in 30% of women over the age of 45 years, and in 6% of adult males (Kinloch & Kuhnlein, 1988; Kuhnlein & Kinloch, 1988).

The major foods consumed and tested were seal and narwhal, though PCB levels were also tested in samples of walrus, char, and caribou. It is well known that fatty tissues of animals accumulate PCBs, and this was particularly evident in the samples of blubber and maktaaq. Sixty-eight percent of the total community intake of PCBs was said to have derived from narwhal alone, and 94% from narwhal and seal together. PCB levels in narwhal and seal blubber were found to be 10µg/g and 0.5µg/g respectively.

PCB levels in breast milk were within the range found in southern Canadian samples--only one of the four Inuit women had a PCB level above the "tolerable" level of 50 ppb. However, she, as well as five other lactating women, were found to have PCB blood levels below the detection limit of 2 ppb. In this study (n=203), blood organic mercury levels exceeded the "at risk" level of 100 ppb in only three individuals--all adult males (Kinloch & Kuhnlein, 1988; Kuhnlein & Kinloch, 1988).

Before the results of this study were released to the people of Broughton Island, rumours or, "contaminants gossip" (see Usher et al., 1995) began to circulate that very high levels of PCBs had been found in the Inuit living there. Then, in *The Globe and Mail*, December 18, 1988, there appeared to be a warning (from a journalist) for the Inuit to brace themselves for "huge diet and cultural change" (Powell & Leiss, 1997). This contradicts the advice of the researchers who, in their reported studies, concluded it to be "unwise to propose dietary modification in response to these findings" (Kinloch &

Kuhnlein, 1988, p. 161). The researchers emphasize that because their traditional foods also contain omega-3 fatty acids and retinol (essential to health), any future recommendations for dietary change would have to be made with great care (Kinloch & Kuhnlein, 1988; Kuhnlein & Kinloch, 1988). However, they do point out that, “the Arctic food chain is contaminated with PCBs, and the dietary habits of many Inuit place them at risk of high intake.” Furthermore, because narwhal blubber makes a large contribution to the total PCB intake, they caution, “highly selective dietary modification could have a dramatic effect upon PCB intake should it be deemed prudent to attempt such an intervention” (Kinloch & Kuhnlein, 1988, p. 161). According to Powell and Leiss (1997), the newspaper’s interpretation alarmed Inuit in Broughton Island sufficiently to assume that PCBs were responsible for many of their health problems, including cancers, suicides, and premature births.

This study, and how the Inuit of Broughton Island were said to have learned about its results, was still being reported seven years later in the *Canadian Medical Association Journal* by a freelance medical writer, Wormworth (1995). Although this particular article is published in a medical journal, the writer is evidently not a scientist (there is no bibliography) so it is difficult to assign the article to a specific literature. Because there are no references cited, it is impossible to verify what is reported. The article is easy to read and the information appears anecdotal, but because it is published in a medical journal, it is unlikely that non-medical personal would read it.

This article reports that, “It wasn’t handled very well” said Dr. Russel Shearer, an environmental physical scientist with the Department of Indian Affairs and Northern

Development (DIAND), commenting on the Broughton Island incident (Wormworth, 1995). Reports in the newspapers heightened fears that the food that health officials had urged them to continue eating was full of toxins. Moreover, reports Wormworth (1995), Inuit in Broughton Island were labelled the “PCB people” and were said to be avoided by Inuit from other communities who feared that the problem was contagious.

Arguments can be made regarding individual or collective constructs of risk and how these are influenced. Usually (and particularly in Western cultures), those who are at the most risk (for adverse effects from anything) are deviants, aliens, and the poor who make convenient objects for stigmatizing speculations (Rosenberg, 1988). In individualistic Western culture stigmata are symbols of contamination; in fact, declares Douglas (1990), it is the condition of the stigmatized to be contaminating. Examples of the stigmatized include sufferers of the Great Plague (the poor) and the (often homosexual) victims of AIDS. Individuals suffering from mental health problems and those afflicted with cancer continue to be targets of discrimination. In the case of environmental contaminants, all who consume traditional Arctic foods are at equal risk, though in Canada, Inuit consume almost 100 percent of the Arctic animals hunted. Wormworth’s (1995) reported avoidance of Broughton Island (PCB) people by other Inuit appears to be assigning the westernized concept of stigmata to the situation--without any Inuit voices to confirm this presumption.

Wormworth (1995) comments on a study conducted by Dewailly (no citation) where mercury was found to be a “major contaminant of the food chain” (p. 1238). The levels found were deemed too low to endanger adults, but she states that “the neurotoxic

effects...could be of concern for fetal development” (p. 1238). Other heavy metals and organochlorines, as well as social implications of country food, communication problems and solutions, are all mentioned in this short article which ends with an ominous note regarding the future: “The Inuit, whose austere lifestyle has accrued few of the benefits of industry, must live with the toxic spectre of the ‘progress’ enjoyed elsewhere on the globe” (p. 1240).

Dissemination of the results of the Broughton Island study could be described as a failure of communication--with the cost being borne primarily by the Inuit. However, I met an Inuit woman in Rankin Inlet in 1995 who was living in Broughton Island at the time of the original study; she told me that people in the community were given the scientific results in a timely manner--and she did not understand why the newspapers made such a commotion as she had not been aware that Inuit in the community were worried. Whether or not Inuit in Broughton Island actually perceive themselves as being stigmatized, or whether other Inuit treat them as being contagious, they will be remembered by readers of *The Globe and Mail* as carrying the stigma of PCBs.

Perhaps it is the legacy of advice provided by scientists merging with conflicting reports in the newspapers that has now led many Inuit to treat opinions of experts and other “outsiders” with various degrees of scepticism, suspicion, and mistrust (Powell & Leiss, 1997).

Discourse of Pollution in the Popular Press

Some scientific reports are quite lengthy and many contain complicated

terminology, hence, newspaper journalists inevitably omit some results they deem less important, or they overgeneralize the findings (Singer, 1990). Journalists are under constraints of time and of the necessary resources for accessing adequate background material for their news items. Scientific research, on the other hand, evolves more slowly and the final result may be “in process.” When scientists were asked to rate newspaper stories that talked about environmental risk, they gave high ratings to stories that emphasized the accuracy of risk information, promoted trust in institutions, and were not alarming (Salomone et al., 1990).

When it came to the turn of how journalists evaluate news coverage of environmental risk, journalists were said to consider accuracy to be the least important characteristic in a newspaper story; they placed more emphasis on risk information and on those stories that are generally alarming in terms of information, imagery, and tone (Salomone, 1990).

But the public is not passively receiving a transfusion of information--as in the metaphor of a hypodermic needle being injected into the bloodstream of a trusting public (Gamson, 1987). We tend to judge the credibility of a news item based upon the reality of the message, and not upon the reputation of the source (Powell & Leiss, 1997). In fact, many Inuit women told me that they used their own judgement about the risk of contaminants in the Arctic food chain and did not rely on the opinions of scientists or journalists.

The notion of “media framing” succeeds in making issues salient--thereby influencing issues we choose to discuss, and to some extent, what we feel are the

important points in a particular controversy. In addition, dramatic devices are sometimes utilized in order to highlight a story, for example, imagery often replaces content in the popular press, and little discussion of the actual science is presented (Powell & Leiss, 1997). However, media reporting of the risks of contaminants will continue--it sells well.

Organochlorines and Heavy Metals In this section I will discuss articles published in the *Nunatsiaq News* and in some Canadian national newspapers as well as relevant items in literature available to Inuit--usually in the form of (often published) reports of research conducted in their communities.

The Globe and Mail regularly keeps its readers informed about "How the Arctic's being poisoned" (Matias, 1995), and lamentations such as "Poisons for a pristine land" (Nikiforuk, 1996), and "Canada on environmental hot seat" (Fine, 1997) are attention grabbers, but when Arctic contamination is seen as less sensational, items are relegated to a single column on an inside page, for example, "Chemicals find way to Arctic, study says" (Laghi, 1997). The content of this latter article is somewhat informative; it reports on (uncited) research studies where scientists "warned of possible effects on memory and learning abilities because of exposure in the womb to contaminants that have built up in the mother's body over time" (p. 7), and it ends with an optimistic note: "Although scientists are still unsure about how quickly pollutants can be eliminated, some research indicates that eradication can take place relatively quickly." Unfortunately, the research referred to has no reference. It would be more informative for readers to have been told the mechanisms by which eradication of pollutants could take place in a relatively short

period of time.

“Poison in the land” was the editorial headline in *Nunatsiaq News* on May 19, 1995, in reference to the admission by federal officials that PCBs were indeed present in the soil around Iqaluit. In 1995--the year I collected my field data in Coral Harbour--*Nunatsiaq News* ran several items regarding contaminants in Nunavut. Most of these articles were concerned with the clean-up process of PCBs and asbestos materials around Iqaluit (Coral Harbour had conducted its own clean-up in 1994--shredding thousands of gasoline barrels and other materials abandoned during the Second World War.) One headline warned, “Fire near PCB shacks sparks fears” (Phillips, 1995), and the opening paragraph reads:

“The gigantic toxic powder keg that looms over the town of Iqaluit was set on fire last Saturday, but fire officials say the flames didn’t ignite the poisonous cloud that they might have” (p. 4).

We are then informed that the “poisonous cloud” did not result because the buildings that had been identified as containing PCBs did not actually catch fire. In spite of this, the next sub-heading states “Pollutants released,” and though not attributed to anyone in particular, the heading is followed by a paragraph in quotes:

“There’s no guarantee that there wasn’t some pollutants, that was a concern, that’s why the firefighters were wearing breathing apparatus, because in all those old buildings, there’s still some fibreglass insulation, the old lead paints on the walls and that type of stuff.”

Until the whole story is read, one could easily believe that PCBs were involved in the fire at Upper Base in Iqaluit. A headline containing the word PCBs is sure to be eye-catching but, when the text does not resonate with the headline, it is often difficult for a reader to

fully understand what is being communicated in a newspaper article.

Recently, PCBs have not had as high a profile in the news media as in the past (the new Nunavut government has taken precedence), but any information about hazardous materials continues to be newsworthy. For example, lead-contaminated food is usually attributed to deposits from tailings in the mining industry, but in the spring of 1999, I awoke to the morning news on the radio (in Rankin Inlet) announcing that potentially dangerous levels of lead had been found in the umbilical cords of 400 Inuit babies in Nunavik. These high levels were attributed to the lead pellets found in shotgun shells. This story was printed in *Nunatsiaq News* the following week and a more detailed article was featured in the *Globe and Mail* a week later. It appears that about 7% of the blood samples in this study showed lead concentrations above Canadian guidelines. Radioisotopes in the blood samples closely matched those in four popular brands of shotgun shells (Bueckert, 1999). This recent discovery indicates yet another source of contaminants that has the potential to interfere with Inuit food resources. Although researchers had been investigating the effects of lead poisoning on waterfowl for some time, it is only recently that they have considered a possible impact on human health of lead shot. Until lead shot is easily replaced, it is unlikely that Inuit will refrain from using it for goose hunting--especially when adverse effects are said to be "potential."

Mining Reports of Northern mining issues are usually restricted to Northern newspapers. For example, news items such as complaints of unsafe practices at Nanisivik mine on Baffin Island (Bourgeois & Wilkin, 1997), and reports of Inuit opposition to year-

round shipping in order to carry away nickel from Voisey's Bay in Labrador (Green, 1998), are given fair representation in Northern newspapers. Greater attention focused on Canada's first diamond mine which is under construction in the Western Arctic, 300 km northeast of Yellowknife; however, there is some dispute whether the mining exploration is interrupting the calving grounds of the Bathurst caribou herd (Selleck, 1996).

The flagship edition of the *Canadian Miner* carries the front page headline: "Nunavut set to boom." There is no date on this edition, but I picked it up from the lobby of the Siniktaavik Hotel in Rankin Inlet in April, 1997. Exploration for gold, which was allowed to begin in March, 1996 because of a grandfathered claim,² was initiated in an area 80 kms north of Baker Lake. Other communities in the Kivalliq region which are involved in mineral exploration include Rankin Inlet, Whale Cove, Arviat, Repulse Bay, and Chesterfield Inlet. So far, 61 drillholes have been made in the region for iron-formation-hosted gold and Kivalliq's gold resources have since quadrupled (*Canadian Miner*, 1997, p. 30). This newspaper announces that Inuit in Nunavut are "very proactive, basically telling us that Nunavut is open for business" (p. 32). But the Inuit in Nunavut are very particular about what kind of mining they will endorse. In March, 1999, the *Nunatsiaq News* reports:

"Uranium mining giant pulls out of Nunavut", and goes on to explain,

"Uranium mining giant Cameco Corporation has cancelled its mineral exploration program in Nunavut this summer, citing lack of commitment by Inuit leaders to embrace the nuclear industry."

²A grandfather clause in the 1993 Inuit Land Claim Agreement allows companies to continue holding mineral rights on any claims that existed prior to the Agreement.

It appears that a “negative uranium philosophy” was adopted when, according to the company’s exploration manager, “misinformation [was] spread by the global antinuclear movement, and is expressed by such organizations as the Inuit Circumpolar Conference, which has declared a ‘nuclear-free zone’”. Besides blaming the Inuit and their organizations for not allowing them to mine the resources of Inuit-owned-subsurface land--not to mention the addition of very few jobs for Inuit--the manager then retorted:

“Apart from the resource industry I’m not quite sure where Nunavut is going to get any taxes from, other than federal government handouts.”

He can be sure that such comments would not endear him to any future negotiations with Nunavut Tungavik Incorporated (NTI). It is a low blow to remind Inuit that jobs in Nunavut are badly needed. The following week, the editorial in the *Nunatsiaq News* explains to readers the special sensitivities of uranium mining--that it is a radioactive substance that needs cautious handling. In this item Jim Bell (1999) also applauds NTI for looking after the interests of Nunavut beneficiaries in preference to not making life easy for the mining companies. This is the kind of responsible newspaper reporting that is accessible to many Inuit--though the CBC radio news in Inuktitut is probably the most widely accessed news source for the majority.

It is interesting that, for the most part (with the exception of Grondin and Bruneau, 1994, presented in Chapter Four), the products of mining activities are reported in the scientific literature, but human aspects of these activities or controversies regarding mining is communicated in the popular press. In order to convey information about Inuit responses to mining projects, I will present some reports that I found in Northern

newspapers as well as information gleaned from a very readable book written by a social scientist (Purich, 1992).³

In regard to mining, it is evident that the voices of opposition by local Northern residents are being heard. For example, when a uranium mining project was again proposed for construction in Baker Lake, Nunavut, 90% of the people in that community voted at a public hearing in April, 1993 to oppose the project, and a decision regarding the venture was delayed until a full Environmental Impact Assessment (EIA) could be conducted (Hicks, 1995). The Kiggavik project was finally shelved in favour of expanding uranium exploration in Saskatchewan. (However, the mining company continued to try to attract Inuit to the idea of uranium mining until March, 1999 when it finally gave up.)

Previously, in 1979, the Inuit of Baker Lake had asked for a court order to deny any further mining permits in an area of 78,000 km² around their community. They claimed this uranium-rich land to be theirs and asked that companies prospecting there be ordered to stop work. During the many weeks of hearings, it was said that helicopters and activities of the prospecting camps were scaring away the caribou. In part, because some elders testified that they could identify their traditional hunting grounds, Judge Mahoney declared that Inuit title existed in the lands surrounding Baker Lake. However, he refused to stop the activities of the prospectors--arguing that although the caribou herd had decreased in number, mining exploration was not a significant contributing factor. In any case, he asserted, federal and territorial mining legislation could abrogate Aboriginal title.

³All schools in the Keewatin have a library; in addition, many adults now take courses at the local campus of Arctic College where many books on Northern-related issues are available.

Although this case did serve to recognize Inuit Aboriginal rights, it also limited these rights by affirming the preeminence of government authority (Purich, 1992).

Evidently, this Inuit protest to mining development resulted from their “environmental perception”⁴ of contamination of local caribou herds as well as disturbance⁵ of caribou calving grounds (Transcript, 1993). Local newspapers and books are important as disseminators of environmental information, and when accurately reported, they can do much to inform the public and enable the public to play a role in decision-making affecting exposure to contaminants.

Remedying the Ills of the DEW line The DEW line is familiar to readers North and South. The “Remedying the ills” headline in *The Globe and Mail* in July 1997-- although it is informative about the history of DEW lines--does not tell Northerners what they need to know. Clearly, newspapers are market-driven and must pander to their readership. In May that year, *Nunatsiaq News* readers were told “Cleanup at radar sites on hold again this summer” (Wilkin, 1997a), and a year later they were informed that NTI

⁴ Environmental perception is the way in which individuals regard their environment and is formed and conditioned by the subjective interpretation of sensory experiences of that external environment. Individuals' environmental perceptions within the same locality are likely to vary considerably because for each individual this "perceived environment" is their own reality which conditions attitudes towards life, and elicits a behavioral response in governing the way decisions are made. There is generally a strong relationship between perceived environmental images and actual behaviour. Decision-making often reflects how individuals, rooted in their geographical, historical and cultural milieu, view their environment and react to information about it (Jones et al., 1990).

⁵ Disturbance can be caused by human or natural occurrences and refers to any change in an ecosystem as a result of environmental variation. Some ecosystems appear unable to withstand any significant element of disturbance but northern coniferous forests require periodic disturbance by fire in order to stimulate regeneration (Jones et al., 1990).

had signed a 10 year deal to complete the clean-up at 15 former DEW line sites (Wilkin, 1998a). The cost of methods (and thus the delay) discussed for the disposal of contaminated material (including PCBs) was contentious because \$242 million had initially been budgeted for the clean-up, but the cost for complete removal of contaminated material from all 15 sites in Nunavut would cost \$600 million. A total clean-up had been requested by NTI because of “concern that some of the contaminated materials will be left on the site...we want to make sure there’s no hazardous material leaching from landfill sites” (Bourgeois, 1997a). Potential health effects from these hazardous materials are not specified; this probably makes more of a statement than unsubstantiated predictions.

Hints of ill health can provoke fear. In March, 1999, Wilkin (1999) states in the *Nunatsiaq News* that PCBs are cancer-causing substances, but makes no reference to research studies in his report that could clarify situations when PCBs could cause cancer. In this article, describing the clean-up at a former U.S. military base on Resolution Island, he reveals that all the work crews have been able to do in the last four years is to collect barrels of liquid PCBs and store them in a temporary containment facility on the island; hence, the problem has not yet gone away.

As might be expected, *The Globe and Mail* provides the wider reading public with its own interpretation of the DEW line issue, introduced by the headline at the beginning of this section (“Remedying the ills”). In general, this is an informative article in that it tells us that there were 42 radar stations in Canada and another 21 in Alaska and Greenland. Although half of the Canadian sites were abandoned by 1963, DIAND began assessing the extent of the damage in 1961. Thirty-five years later, of 863 waste sites in

the NWT, 270 have already been cleaned up and the remainder are marked for clean-up in the near future. In spite of the progress made, however, one paragraph in this article states:

“Studies show the food chains of wildlife have been affected and pose a threat to the health of the local Inuit, who take up to 70% of their food from the land and sea” (Moon, 1997, p. A8).

Partial and inadequate accounts serve little purpose but to alarm and heighten the dramatic impact of a scientific report. Towards the end of the item, potential tourists are warned:

“In reality, today the North is strewn with hazardous and non-hazardous waste. The waste poses potential dangers to people, wildlife, and the environment. It also shocks and repels tourists who have visions of visiting a beautiful, pristine northern landscape” (p. A8).

Since tourism is one of the few business endeavours that has been increasingly successful in the North, it is a pity that *The Globe and Mail* not only does not endorse the Canadian tourist industry, but plays a part in turning away potential tourists for the Arctic.

Arctic Warming Global warming in the Arctic is another eye-catching topic.

Reading about dinosaurs roaming the lush forests millions of years ago on what is now Bylot Island (near Pond Inlet), is fascinating reading (George, 1996a). The consensus, in the newspapers, however, seems to be that the “Eastern Arctic [is] not getting warmer” (Wilkin, 1997b); in fact, “El Niño and Nunavut: colder weather” (Wilkin, 1998b). It appears that at the end of the last ice age (10,000 years ago), temperatures in the eastern Arctic were at their warmest--a yearly average of about 10 to 15 degrees celsius--and then the world cooled down by one or two degrees and reached their lowest 150 years ago

when the climate started to warm again. The warming ended about 1960 when the temperature lowered slightly; it has changed very little since then. It is reported in the *Nunatsiaq News* that Dr. Roy Koerner, a geologist with the Canadian Geological Survey has determined,

“the connection between manmade [sic] pollution and warmer temperatures may be more complicated than previously thought...it could be just another natural fluctuation” (Wilkin, 1997b, p. 21).

In other words, no one really knows for sure.

Television

While I was gathering my field data in Coral Harbour during November, 1995, there was a television programme on CBC North featuring contaminants in the North. Long-range contaminants, radioactive materials, organochlorines including pesticides and industrial wastes were all discussed in relatively comprehensible terms. Viewers were invited to phone in to the television studio and ask questions. Apart from a few children who phoned, there was little interest evident on the part of adult viewers--or perhaps many of their questions were answered in the presentation. One man did ask how hunters can determine if an animal is contaminated, but the respondent said that it was a difficult question to answer as contaminants cannot be seen--unlike the effects of brucellosis. Since it is impossible to show PCBs in action (or even dormant), there were no visual effects in this programme which would enhance comprehension of the contaminant problem. In the communication literature, a high rate of information loss is reported without the aid of visuals; in television shows alone, it has been found that 77% of viewers misreport verbal

themes (Graber, 1990). In the following days I asked several people in Coral Harbour if they had seen the television programme about contaminants, but nobody had seen it.

Inuit Voices in the Media

When health effects due to contaminants are mentioned on the television or in newspaper articles, fear may be instilled in viewers and readers, so it is refreshing to read some sensible reporting in this regard in the *Nunatsiaq News*, for example, Bell (1995) and Komak (1997). While Mr John Komak, an Inuk from the Inuit Tapirisat of Canada (ITC), confirms that some traditional foods do contain pollutants, he also makes it clear that,

“researchers believe that no one in the Canadian Arctic has become sick as a direct result...[and]...levels in Arctic wildlife are still too low to cause immediate harm to people who eat country foods; and country foods are still much healthier and cheaper than store-bought foods” (p. 8).

(This statement has echoes of other Inuit voices I heard, and which I delineate in Chapters Six and Seven). Komak admits to the potential of contaminants to cause health problems-- he is apparently well informed, and explains:

“PCBs and pesticides have seriously affected the health of people in other countries who were exposed to very large amounts of them in a short time; amounts much larger than what northerners get from eating country foods over a lifetime” (p. 8).

The potential of serious health effects from long-term exposure to contaminants is not downplayed in this article, rather, it is a balanced commentary that places the cards on the table in a manner that is honest and comprehensible. In the earlier report, Bell quotes Rosemarie Kuptana, then president of ITC stating, “many other things, such as smoking and drinking, are much more hazardous than eating beluga or seal blubber” (Bell, 1995, p.

5). Kuptana also adds that pregnant women and nursing mothers should still think very carefully about what they eat. It is when such a figure as Rosemarie Kuptana--one who is familiar to the Northern reading public--makes a statement in the media that rational images of risk reach the public; news reports like this one are important means of communication for Inuit in isolated communities.

Summary

Science in the popular press, states Singer (1990), "is livelier and easier to read than science in the scholarly journals" (p. 115), and scientific findings appear to be uncontested. However, when contradictory scientific findings are later presented, confidence in the press (as well as in science) may be undermined. Even though most of the existing information we have about risk is partial and contingent, disputes over risk polarize interested groups: scientists, administrators, policy makers, and consumers (Inuit)--all of whom have their own set of assumptions and ideological frameworks.

The media, in their discourses and through their selection and construction of risk, do help to shape public attitudes--and thus, eventually, to shape the policy agenda (Nelkin, 1985). However, newspapers may change allegiances, so it is difficult to accuse them of being biased. In fact, by presenting contradictory views, further discussion is stimulated.

Evaluating risk always requires judgments in the face of uncertainty--this includes the uncertainty created by scientific disagreement as well as that resulting from the questionable veracity of information reported in the press. As in all reported news items, "people filter information in an effort to achieve a consistency of knowledge with beliefs

and actions” (Brown, 1987). Ultimately, the issue is not risk, but the perception of risk by the individuals exposed to the risk; this can be influenced by information communicated by various mechanisms. How something is explained can be just as important as what is said.

Singer (1990), in her study of accuracy in the media in relation to hazards, found that newspaper stories were more accurate than those reported on the television. However, only 4% of all of the news stories she investigated about hazards referred to published research--but 76% of these contained no statements substantially different from the (scientific) source; another 17.4% simply referred to “research”--and these were usually about illness. Television stories, however, were only accurate in 50% of their reports of hazards. It seems that, when published research was cited, it was more likely to be accurate. In total, 40% of the news stories investigated contained statements that were substantially different from the original research report. In the newspaper, assumptions, statistical calculations and extrapolations are not usually reported, and these limitations in the data are not relayed to the reading public.

Because science which is reported on the television takes its basic structure from print news, most commentators treat the text as the primary carrier of information--visuals, when available, serve to enhance the story and involve the viewer emotionally. In contrast, words often represent complex information and must be processed sequentially. In addition, people usually find visual stimuli more interesting and they have more confidence in their ability to comprehend visual information as they can extract meanings from visuals without storing them for later retrieval (Graber, 1990).

The Inuit can simply look around and be aware of the bounties of their land; they

know how to take care of their natural resources--both human and environmental in the face of contradictory reports from outsiders. The main mechanism for passing on traditional ecological knowledge has been oral. Now, they also utilize the vehicle of the newspaper to teach the Qallunaat, as well as their own children, how to take care of our environment. I will conclude with a letter to the editor of *Nunatsiaq News* and published in December, 1995, by Raymond Ningeocheak, entitled "Taking care of our environment":

I want to give from my own thoughts as a citizen of Nunavut concerning our environment. We must start teaching our children and grandchildren to manage our land, sea and wildlife. We have to make sure that the wildlife, sea mammals and fish will survive and be abundant for years to come. We should be careful not leave fish nets to rot in the lakes and rivers.

We don't know how long we will be around to finish what we need to teach our young people, for that reason we need to start teaching them. Looking at the rate of our population growing we have to begin conserving our wildlife. Today we are relying on store bought food, and with scarce jobs it is harder for people with no income.

We would like to see our next generation be self-sufficient and be able to survive on their own. Therefore, we must take care and keep our land clean without contaminants. Start with ourselves in leaving our hunting grounds clean.

We would like our next generation to hunt in the traditional hunting areas that we hunted. Keep the shores clean and outpost camps where we spent our summer, fall and winters. That way, we can leave them to our children and grandchildren to enjoy. When you come to an outpost camp and find it filled with garbage, it is not a good sight to see.

Let us work together and respect one another. The garbage and debris will not go away by themselves. All it takes is to bring containers to put them in and carry it back to your community to be dumped.

It is your land, respect it and it will respect you back.

CHAPTER SIX

Inuit Women's Perceptions of Pollution

In this chapter I present the voices of Inuit women, and I will relate some of their perceptions of pollution as expressed to me. I talked with 47 women in-depth in their homes in Coral Harbour during November and December, 1995, and I verified my findings with them in April, 1997. From the 53 questions in the interview guide (Appendix I) and from characteristics I associated with each individual, I recorded 68 variables for each woman. Then I collated the responses into a number of themes. Those which I discuss in this chapter are: food; health, contaminants, and, perceptions of pollution.

Food

Food habits and preferences are important ingredients in any culture, and in societies where hunting is the central tradition, the concept of food encompasses its procurement and distribution as well as its consumption (Foulks & Katz, 1977; Foster & Anderson, 1978; and Pelto & Jerome, 1978). Dietary decisions made from among a limited number of possibilities (as in the relatively narrow range of Inuit food) do not directly concern nutrition (though nutrition is a consideration) but are made from cultural knowledge. The cognitive aspects of food therefore, can be analysed as cultural ideological systems by their non-nutritional meanings (Jerome, Kandal & Pelto, 1980). It becomes evident by their responses that food, health, and identity are intertwined in the world view of the Inuit.

Because food—including choices, preferences and benefits—is pivotal in an exploration of perceptions of pollution in the Arctic, I directed several questions (numbers 1 to 5, 8, and 21) to this topic. Influenced by my past experience of living in Coral Harbour, I expected to find (and this was confirmed) that Inuit food was very important to their diet and well-being, but I also wanted to know if Inuit in that community were still consuming the same proportion of Inuit food as when I last conducted research there in 1990 (Egan, 1990). At that time I found that at least 50% of all food consumed was Inuit food, and I learned that those who consume a traditional diet of land foods regard themselves as healthier than those who eat mainly store-bought foods.

The first question I asked of each woman was to name her single most favourite food in either the Inuit or Qallunaaq category. Of the 47 women, only three named a Qallunaaq food item as their favourite food. Two of the three were teenagers who chose spaghetti and tomato soup as their favourites; the third, a more mature woman who named lobster as her favourite food, had lived for a number of years on the Maritime coast. She explained that when she first moved south she was looking for a type of food that could replace the Arctic foods she was missing. Lobster reminded her of *mataaq* (beluga whale skin) and she soon developed a liking for this delicacy. The most common choice of favourite food was caribou (n=12), but all of the Inuit foods available in Coral Harbour were mentioned by at least one woman (see Table 2). These are: caribou, char, seal, *igunaaq* (aged meat), *namuk* polar bear, *kanguk* (goose), *maktaa*, ptarmigan, and walrus. Caribou is plentiful in Coral Harbour, and Inuit women are creative in its preparation, for example: *“Of all the Inuit foods I like caribou meat best because you can*

Table Two
Favourite Foods
Age Category

FOOD	A		B		C		C+
	n	%	n	%	n	%	n
caribou	6	42.86	7	50.00	2	16.66	0
char	2	14.28	1	7.14	1	8.33	0
seal	1	7.14	1	7.14	4	33.33	3
igunaaq	1	7.14	1	7.14	2	16.33	1
nanuk	0		0		0		0
kanguk	0		1	7.14	0		1
maktaa	0		1	7.14	1	8.33	0
ptarmigan	1	7.14	0		2	16.66	0
walrus	0		1	7.14	0		0
any meat	1	7.14	0		0		0
Qallunaaq	2	14.28	1	7.14	0		0
Total	14		14		12		6
no response	1		0		1		0

Age Categories:

A = 18 to 29 years

B = 30 to 44 years

C = 45 to 59 years

C+ =60+ years

mix it with any kind of food when you cook it—even with Qallunaaq food.” Other women agreed, saying that the cross-cultural food mix is especially good when making caribou soup and stew.

Benefits Of Inuit and Qallunaaq Foods

When asked to tell me about the benefits they perceived from both Inuit and Qallunaaq foods (question #2), their responses were fairly homogenous. Almost everyone said that Inuit foods made them feel warm, full, and healthy. Even the teenagers who had chosen Qallunaaq foods as their favourite mentioned these attributes. In addition, Inuit foods were said to be tasty, free, available (*“it’s just there—easy to get”*), fresh, and nutritious because they are full of blood and protein, and give strength and energy. I was told, *“they keep the body stronger than fast foods”* and *“my body is more used to it because most of the food I eat is native food,”* and *“when you eat Inuit food you feel full for the whole day and you don’t want to keep on eating as you do with Qallunaaq food.”*

Traditional Inuit foods are described in the scientific literature as being nutrient dense as they have the capacity of furnishing all the nutritional elements essential for good health (Draper, 1977; Mackey, 1988). The Inuit diet is rich in protein, very low in carbohydrates, moderately high in fats, and also rich in minerals, vitamins B, E, and K, and most fat soluble vitamins (A and C), which are mainly derived from fresh raw or frozen meat—states which preserve the vitamin. The indigenous diet is also very rich in iron content: seal, for example, contains 7.5 times more iron than beef (Mackey, 1988).

The most common response to the question of the benefits of Qallunaaq foods was

that they are good *“for a change of taste,”* and [there is a] *“good variety—like vegetables and fruit.”* Several mentioned that they are convenient—fast and easy to prepare, and that kids like to eat them, although one person told me that Qallunaaq food gives heartburn. They are also easy to obtain (if one has the money) because you do not have to go out and hunt for them (a benefit particularly in poor weather) or wait until the hunter comes home with the meat.

I asked all of the women to estimate the percentage of Inuit food consumed in each of their households (#3); the average was 59%. Several women from the two older age groups lamented the fact that some of their grandchildren (especially young teens) do not want to eat only Inuit food, so, as grandparents, they now tend to offer them a range of Qallunaaq foods when they come to visit. Several women in the youngest age group (aged 18 to 28), who reported that more than 80% of the food consumed in their homes was Inuit food, were living with older parents who did not like or could not afford to buy Qallunaaq food. Usually, extended family members supplied them with land food. Caribou was reported as the favourite food across all age groups. The fact that it is the most easily available probably contributes to its popularity.

When asked their opinions about the best food for growing children (#4), the consensus was a resounding, *“Inuit food, of course.”* One woman specified, *“Inuit meat, especially seal meat because they have a lot of blood. When I started giving two of the kids more native food, I realized they were healthier.”* A 60 year old, embracing both cultures, answered, *“seal meat and milk.”* All women also said that milk is a “good food” (#5), but most mentioned that it was only the children who drank it, as adults suffer from

gas pains after drinking even one glassful. There was usually laughter exchanged at the mention of gas expulsion (*niliralak*--farting). One woman told me that she thought that the best foods for growing children were *"native foods like seal meat because if you give them too much Qallunaaq foods when they're young, they won't eat Inuit foods when they're older"* (aged 59).

Animal blood is an important element in Inuit food. Blood really does provide warmth and substance to a meal--and it is also a sign of its freshness. As Freeman (1997) points out, this is the antithesis to Western ideas of eating bloodless animal flesh--and then only flesh taken from herbivorous animals (not-with-standing the mixed fodder fed to cows in England which subsequently died of B.S.E.). Inuit sea mammals, furthermore, are carnivorous, and this would exclude them from the biblical (and vegetarian) Garden of Eden. However, rather than representing a defiling (profane) substance, blood constitutes the very essence of Inuit food.

Food Warnings I asked the participants if they had heard of any warnings about any kind of food--Inuit or Qallunaaq (#8). More than half of the women (n = 25) had heard of some kind of warning associated with food. Comments included references to:

Coffee:

~*"makes you stay awake and is not good for your heart"* (aged 37);

~*"I've heard that you shouldn't drink coffee when you're pregnant. But I forget why"* (aged 27);

~*"I heard things on T.V. like don't drink too much coffee, and I try to watch for fats"* (aged 22);

~“*too much coffee isn't good for you*” (aged 28);

~“*I've heard that you shouldn't drink too much coffee*” (aged 19);

~“*only caffeine¹ on T.V.; they said it affects their growth*” (aged 37)

E. Coli:

~“*a few years ago. It was in the ground beef; it put me off from eating it a little bit*” (aged 35);

~“*I heard about E. Coli on the radio and somebody came here when the E. Coli was going on. I thought it was from caribou meat*” (aged 60);

~“*hamburger disease*” (aged 24);

~“*a little bit, on the radio—maybe two years ago, from Arviat. I don't know what kind of disease*” (aged 30);

~“*when I heard about the E. Coli in ground beef I wouldn't let my kids eat it for a long time—even though you can mix it with lots of things. Then I tried to cook it well but now it doesn't bother me any more. We were not told not to eat it on the radio but people were scared to*” (aged 56);

~“*I heard about the E. Coli in Arviat but us people don't tend to eat raw Qallunaaq food so I think maybe these people tried to eat it when it was frozen*” (aged 62);

~“*I heard about hamburger disease in Arviat. I stopped buying hamburger for a long time but we're back to buying it again. I cook it well*” (aged 28);

~“*just additives. I read about them. I heard about E. Coli in Arviat and Rankin*” (aged 44);

~“*I'm just careful with ground beef since the E. Coli thing. I never stopped using ground beef because I was always good at burning food [overcooking]*” (aged 34);

~“*I just heard about the hamburger disease from T.V.*” (aged 45).

¹Caffeine in soda pop was not mentioned by anyone.

PCBs/Contaminants:

~“only about PCBs in seal fat”(aged 70);

~“yes, I've heard on the radio that there might be PCB in sea mammals. It's in the liver” (aged 60);

~“in one of the meetings in Rankin with the Health Board we were told that they had done a survey in Rankin on fish—on lake trout, and they said that they had found a lot of that [contaminants] in the bigger fish. They found less in Arctic char because they travel to the sea. It's just the big fish that stay in the lake” (aged 43);

It is interesting that the word contaminants was often used to describe bacteria as well as heavy metals--in the same vein as their metaphorical use of 'pollution'.

Food Care:

~“I can tell when food is spoiled” (aged 59);

~“being an Inuk we can tell. During summer, especially if meat is inside the house when it's too hot outside, we're not going to eat it because it'll get contaminated. If it's aged too much we won't eat it because we know it's contaminated” (aged 43);

~“just aged meat [igunaaq]. I heard on the radio not to leave it in a plastic bag because it might get too old. The best way to age meat is to leave it out in a cool area--not warm because it might get contaminated. It takes less than a week” (aged 45);

~“I've heard on TV that you should cook food well so that you don't get a disease” (aged 18);

~“I freeze caribou meat on the plastic trays that come with Qallunaaq meat but I wash them first. You can tell if meats have been thawed out so I don't let my family eat that” (aged 62);

~“with Qallunaaq foods we have to watch out for them all the time because we're not so used to them and we don't really know what kind of things they have. Like for instance, ground beef is something you have to be aware of. I've always tried to cook it well” (aged 43).

Miscellaneous Food Warnings:

~“*I've heard that you shouldn't eat too much salt, but it doesn't make any difference to me*” (aged 29);

~“*I've heard about some on the radio, but I don't know which*” (aged 26);

~“*just alcohol. If you take too much alcohol you don't tend to think what you have to do, even inside the house. You're just thinking you're an alcoholic and you don't tend to do anything, and that can ruin your life*” (aged 63);

~“*nobody has ever told me. I can't read the expiry date and sometimes my family's had diarrhoea from some canned foods*” (aged 61);

It is interesting that almost one third of the women (n = 14) mentioned E. Coli²--without any prompting--in their responses. Even though the outbreak occurred four years previously--and in another community (Arviat), many felt that it still served as a warning to treat Qallunaaq foods with more skepticism than Inuit foods. I did not detect any evidence of Arviat people being shunned because of E. Coli. The women I spoke with related the information in a matter-of-fact manner; the outbreak occurred in another community but it could just as easily happen in theirs. All are equally at risk.

In contrast, only three women talked about contaminants such as PCBs and mercury in Arctic food, though there was some suspicion regarding the presence of chemicals in store-bought food. This was revealed by responses expressed regarding their confidence in food products in general (#21); only three women said that they definitely did not have confidence in the food they ate and they focused particularly on Qallunaaq

²Of the 521 cases of E. Coli (Escherichia coli 0157:H7) that occurred in the Keewatin region in 1991, 319 were residents of Arviat. The most likely source of infection in the index cases is thought to be ingestion of undercooked contaminated minced beef (Orr et al., 1994).

foods:

~“I worry about Qallunaaq foods because they're wrapped, and Inuit foods are fresh. Even if they are dried out, they are still fresh inside”;

~“I think that some Qallunaaq foods are not safe because from what I've heard. I really like steaks but they put so many chemicals in them--injecting them. That's why Qallunaaq are so big.”

But another admitted, *“I know there's chemicals in Qallunaaq food but I don't worry about it.”* Several other women emphasized that extra care should be taken when buying and eating Qallunaaq foods, for example:

~“if I buy store-bought foods, I usually look them over pretty good. The cans might be dented or have a hole in them”;

~“I check Qallunaaq food to see if it's old or rotten in the store freezer”;

~“if they were frozen and thawed out, or even if the Northern thawed them out people tend to take some--that can be dangerous if they're frozen again.”

Some women admitted, *“I'm more confident with Inuit foods--but we're still not so used to Qallunaaq foods”* and *“I still eat hamburger--even after the E. Coli scare.”* Two other women said that they never worry when they eat any type of food; however, they also advised that care be taken in certain circumstances when obtaining Inuit foods:

~“if Inuit food is caught further inland I don't worry about it, but if it's caught near the community I'd have second thoughts before eating it because there's too much garbage. Then I'd be eating garbage. It would be like polluted--the fish has been eating junk food”;

~“for Inuit food it depends where it's from--not good near town or garbage.”

These two comments reveal the necessity for Inuit to know where their Native foods come from. Because they can see garbage in the water close to the community, they do not want

their food sources to be contaminated by it. In general, Inuit have more confidence in Inuit food because they witness each stage of the food process, from the capturing, butchering, and storing, to the distribution, cooking (if any), and eating. They know where and when the animal was hunted and by whom; they trust the wisdom of proficient hunters to take proper care of the meat. The practice of subsistence hunting³ is more than a means of (corporal) survival; it is central to Inuit identity. No separation is made between those killing the animal, those cutting it up, and those eating it (Freeman, 1997).

Health

Four questions (numbers 6, 10, 17 and 39) were directly related to health, though the topic was often mentioned in other contexts. I asked women which foods they thought might contribute to poor health (#6) and most of them (n = 35) said “*junk food*”--even those who admitted that they liked to eat it. Items identified in the junk food category were pop, chips, and candies. Other food contributors to poor health were macaroni, canned food, coffee, and convenience foods like hamburgers, but five women also thought that there were no foods that could contribute to poor health.

Health of Inuit Past and Present

When asked (in question number 10), 46 of the 47 women said that they considered their families to be healthy. The only one who said that neither she nor her

³Subsistence hunting is the “complex of activities associated with procuring, processing, distributing, and consuming locally obtained foods, and includes the social relations and beliefs required to support these activities” (Freeman, 1997, p. 8).

family was healthy was the 18 year old whose favourite food was spaghetti. However, she also told me that she believed that Inuit foods have more nutritional value than Qallunaaq foods because her mother had told her that.

From their responses to question number 9 (their greatest health fear), it is evident that the majority of people I interviewed feared cancer the most, and this was mentioned by 33 women; lung cancer was specified the most frequently. Other feared ailments include AIDS, TB, “drugs,” “abuse,” epilepsy, famine, diabetes, and heart and lung problems. One woman said she did not want to think about any kind of illness, and another said she worries that there might not be enough food. She told me that:

“in Rankin or Iqaluit they always sell their food—they don’t just give it away, and sometimes it worries me that it will happen here. Out here we share our food. If I want to go and get some caribou meat or seal meat, I’ll ask for it and they’ll give it to me free. I ask relatives but sometimes people go on the air saying that they have lots of meat and if somebody wants it they can go and get it.”

I had heard others in Coral Harbour talk about Inuit in larger settlements not giving away food in the traditional manner. Evidently, they are concerned that this cultural change could occur in their community if Inuit foods became less accessible.

I asked the women if they thought that, in general, Inuit are healthier now than they were in the past (#17); 75% (n=35) said that, in their opinion, Inuit are less healthy today than in the old days. Not surprisingly, the use and abuse of drugs and alcohol were often mentioned as contributing factors in the poorer health status of Inuit today. Many women referred to the observation that Inuit have less exercise now because they use vehicles instead of walking, but more importantly, people were healthier in the old days

because then they ate only Inuit food. It is well documented that, in the past, nutritional deficiencies and diet-related diseases⁴ were unknown in the Inuit population as long as they were consuming a mainly traditional diet of sea and land mammals, and fish (Thomas, 1927; Schaefer, 1959; Draper, 1977; Mackey, 1988). Their almost exclusively carnivorous diet has been replaced by imported staples with a high sugar content, leading to a high incidence of dental caries and loss of teeth (Schaefer et al., 1980; Mayhall, 1986), a problem virtually unknown earlier in the twentieth century (Pickerill, 1914).⁵

An increase in the consumption of Qallunaaq food which contains “artificial things” or additives--particularly junk food which contains sugar and makes kids “hyper” as well as not being good for the teeth--was said by several participants to contribute to the decline in health. It has been shown in the literature that changes in lifestyle, including a shift toward a dependence on purchased foods, have led to a decrease in overall health status of the Inuit (Davies and Hanson, 1965; Draper, 1976; Hoppner et al., 1978; Morehouse, 1981).

Some women commented that it would be helpful if Inuit were taught more about

⁴Heart disease was unlikely to have been a health problem for the Inuit prior to Contact as the low incidence (though it is increasing) found in Arctic populations has been shown to be due almost entirely to the high level of polyunsaturated fats of the omega-3 class (Bang, Dyerberg, & Nielsen, 1971; Dyerberg, Bang & Hjorne, 1975; and, Bang, Dyerberg & Sinclair, 1980.) The low incidence of myocardial infarction among the Inuit is thought to be due to the diminished platelet aggregation which occurs in a high omega-3 fatty acid state. However, as Inuit are now relying more on processed foods, this type of protection from atherosclerosis will undoubtedly decline.

⁵A notable exception is demonstrated in the burial population in Kekerten Island (Cumberland Sound). An examination of skeletal remains there reveals a high incidence of antemortem tooth loss--which suggests that there may have been a higher incidence of dental caries than was previously estimated. One contributing factor could be that the Inuit at this whaling station-- around the turn of the century-- had a protracted period of interaction with whalers and may have been consuming sugar for a longer period than other Inuit groups (Keenleyside, 1990).

food preparation--especially now that they are eating increasing quantities of Qallunaaq food. The 19 year old who prefers tomato soup to any other food thought that Inuit health is *"maybe better now because we're a little bit educated more now about food."* Other responses to the question of the current state of Inuit health include:

~"Inuit health is worse today. Nowadays we seem to get a cold right away--headaches" (aged 46);

~"the elders tell me people used to be more healthy in the old days" (aged 48);

Many women referred to the deterioration in Inuit health as being due, in large part, to the introduction of goods from the outside (vehicles, drugs, cigarettes, store food):

~"Inuit health is worse today. People in the old days were healthier because they didn't have cigarettes. Also, they didn't have trucks and skidoos so they had more exercise" (aged 37);

~"health is worse than before. A lot of things we have now, like smoking, booze, and drugs, they didn't have them in those days" (aged 18);

~"people are less healthy today. The transportation we have now...we have more accidents" (aged 27);

~"I think the health of Inuit is worse now than 25 or 50 years ago--that's what people tell me. Health wise, teeth wise, because now they're eating too much sweets, or smoking, or other things like drinking. People now eat less Inuit food and more store-bought food" (aged 30);

~"I think Inuit health is worse today because young people are more into junk food; they get picky on the things they want to eat" (aged 34);

~"From what I've heard, people today are more sick than years ago. It might have something to do with the weather--from pollution that's in the air--maybe there's more vehicles. I've heard about the ozone layer, and it's probably affecting the people too. There's a lot of fumes now but they didn't have them in the past" (aged 45);

Some linked health status with housing conditions:

“when we first had houses in the sixties we were so crowded, but now we are less crowded we are less sick.”

In contrast, a 61 year old maintained that Inuit are more sick these days because they now spend all day in a very warm house and then go out into the cold, hence sicknesses like the common cold are believed to have increased in number. Cancer was again mentioned by several women:

~“Inuit health is worse today because in the old days there was no cancer. People in the old days were happier than now but they did not live as long as people today” (aged 34);

~“I think they’re less healthy now. There seems to be more deaths from serious illness like cancer. I’ve lost so many family members to cancer and that was unheard of a few years ago. Lifestyle probably makes a difference--like abusing our bodies with cigarettes” (aged 44).

One 41 year old woman said that it is now harder to get the [Inuit] food, and a 39 year old who had heard about famines which had occurred in the past commented,

“they were hungry a lot back then. I think they had a hard time. We have a hard time today, too, but back then they had no choice; they had to rely on the animals. I think they were happier then.”

Others referred to the Contact history of high rates of infectious diseases; some recollections were personal ones and others were stories told to them by their parents:

“I think that they’re less sick now because there’s pills. Back then they seemed to be sick...there were no doctors then, just Qallunaat--mostly Hudson Bay men” (aged 70).

Another woman, although born in a different era than the previous 70 year old, agreed:

“maybe people today are less sick because back when I was a kid, when somebody was sick it seems like they would be sick for a long time. Today when people have a cold, the cold seems to last shorter than before--maybe because we’re in a warmer house and it’s cleaner” (aged 31).

A 62 year old woman also referred to the current perceived short duration of a “cold” because in the old days it seemed that when people had a cold they would die from it. However, she also mentioned (as did several others) that there was much tuberculosis (TB) in those days. One young woman (aged 29) told me that the fear of TB⁶ used to prevent Inuit from seeking help because they were afraid that they would have to go back to the hospital again for a long time.

A few women thought that Inuit health was the same as before, including one who informed me,

“it used to be (my parents told me) that it was when the plane or ship came that people caught a cold. It was from the people bringing it in.”

Another woman specified that,

“compared to 25 years ago, I think we are healthier now--because then most of the Inuit people had TB and they were sent out to the hospital for a long time. But we're not as healthy as Inuit 50 years ago. They didn't need any doctors then. They looked after themselves--no matter what happened” (aged 43).

It is evident in the literature that acute epidemic diseases such as smallpox, measles and influenza did not affect the Inuit prior to Contact.⁷ Some authorities postulate that Inuit populations were decimated from the effects of European-introduced diseases

⁶One woman in her forties told me of her own experience of going to hospital (Clearwater San) for TB treatment. She said, “some people were crying. We went by plane in 1954--there were lots of people from here. I was two years old and my mom was carrying me on her back. We came by dog team from our camp.”

⁷Skeletal remains suggestive of tuberculosis (acid-fast bacilli and tubercles in the lungs) have been identified in Peruvian mummies--validating the existence of this disease in preColumbian times (Steinbock, 1976; Young, 1994). It is hypothesized that preColumbian TB had a relatively mild impact among Native populations because of cross-immunizations by atypical mycobacteria, and that the severity of the disease in post-Contact times is due to a more virulent strain (Clark et al., 1987).

(Keenleyside, 1990). When smaller outbreaks of infectious diseases affected a single community or a limited region, great hardship resulted because the death of a parent was critical to the survival of the social unit (Fortune, 1989).

Illness Due To Contaminants

I asked the following question in the latter part of the interview when we had already been discussing the issue of contaminants, “do you know anyone who has become sick because of pollution/contaminants?” (#39). Twenty women said that they had not heard of anyone becoming sick because of contaminants, and of the 23 who said they had heard of some sickness attributed to contaminants, 13 women mentioned the 1991 E. Coli outbreak in Arviat (Eskimo Point):

~“only the hamburger disease in Eskimo Point”

~“just E. Coli”;

~“Arviat people”

Initially, land food was suspected of being the source of the problem, but it was eventually found to be ground meat sold in the local Northern store (hence, it was known as “hamburger disease”). One woman (aged 56) told me:

“I heard about hamburger disease but I don't know where the meat was from. The hamburger from the Co-op should be thrown out because they can be contaminated. They looked like they could be cooked--they're not red any more. I don't shop too much at the Co-op--more at the Northern now.”

I saw the hamburger meat in the Co-op store and it looked unappetizing because it was old. I informed the store manager that the appearance of the meat was off-putting and that

people had told me that they suspected it was contaminated. He assured me that the meat was fine but he did remove it from the shelves.

Several people asked me if PCBs could be seen because they can view imperfections in food as indicating that something is amiss. One woman, aged 44, told me that although contaminants are the last thing she worries about, if a seal has white specks on its liver, she will not eat the liver, but some people will eat the seal meat. However, if a winter seal is skinny, nobody will eat it. This illustrates the importance of visual evidence of contaminants in their food (see also O'Neil, Elias & Yassi, 1997). This does not mean that Inuit always reject the notion of invisible substances; they are willing accept the idea of bacteria and viruses causing sickness as they have seen the consequences of such infections as pneumonia, hamburger disease, and measles. The concept of how contaminants are viewed is delineated later in response to my questions (31 to 37) which asked specifically about Inuit women's knowledge of contaminants.

There were a few examples of sickness arising from Inuit food; one person told me that she knew someone who got food poisoning from eating *igunaaq maktaaq* (aged *makataq*), and several women mentioned trichinosis. For example, "*I've had stomach problems from eating walrus meat--maybe worms. Is that trichinosis?*" (aged 47), and, "*it was on the radio that people had trichinosis and E. Coli. We had trich here, so I know some people got sick from that*" (22 year old attending Arctic College).

One 39 year old woman wondered (out loud) why Coral Harbour men in their late sixties seemed to die unexpectedly. She questioned whether they might have had contact with contaminated animals or contaminated items (transformers) at the M.O.T. site

(Ministry of Transport). Some recently deceased men had been responsible for dumping large amounts of discarded material from the old military base--they buried mounds of material, including jeeps, she said. At the recent cleanup, transformers were found in old barrels in a nearby lake; car batteries have been found in the harbour; and dead fish have been washed up on the beach. All of these visible items are considered to be contaminants (according to one informant).

Only three women made reference to the possibility of illness arising from contaminated foods or pollution. For example, a 46 year old woman told me, "*when my daughter was young she used to get sick all the time because of the cigarette smoke,*" and "*when people get sick, you wonder if it's from the food they've been eating*" (aged 39). A 27 year old whose family consumption of Inuit food is 80% of its total, told me, "*I once heard on TV that somebody got sick from being infected with PCBs--I sort of believed that story.*" One other was skeptical that people could get ill from eating contaminated food: "*No. What I saw on T.V. of those people in Northern Québec--they didn't eat the fish. The fish weren't really contaminated--they were overcrowded or something*" (aged 43--family consumes 80% Inuit food.)

Interestingly, in response to a question asked later in the interview ("do you believe that scientists have all the answers concerning risk"), several women answered that regardless of their belief in what the scientists told them, their warnings would not prevent them from eating potentially contaminated food unless they saw for themselves that Inuit were becoming very sick or dying from eating such foods.

Contaminants

My first question that specifically mentioned contaminants was number 31 and asked, “have you heard anything about contaminants?” It was important that we use the correct Inuktitut term to describe contaminants as we wanted to be sure that we were asking everyone the same question. Even when participants understood English, I also presented the Inuktitut terminology.

Inuktitut Contaminant Terminology My interpreter and I sought advice from several people on the most appropriate terms to use which would be generally understood to have the same meaning. It was decided to use the word “*sururnaqtuq*” for contaminants, which means (literally) “something that wants your body” or makes you ill, and we also added “*ulurianaqtuq*” which indicates “pollution or dangerous hazard for people or events.” One older woman told me that the kids first started saying “*supuuqtugaq*” (hash) so that adults would not know what they were talking about. The word “*aangajaarnaqtuq*” means “something that makes you high,” and can refer to drugs or alcohol, but “*immialuk*” (literally, “no good water”-- “firewater”) is alcohol. “*Ujaraq*” means “stoned” on drugs, for example, “*una ujarasimajug*” means “he is stoned.” The Inuktitut word “*munqujuittuq*” is used to describe PCBs as it refers to something never ending--like the atomic bomb.

Knowledge and Understandings of Contaminants

In response to the general question “have you heard anything about

contaminants?” (#31), fifteen women, of whom four did not understand English, admitted that they had not heard of any contaminants (ten of these women--not surprisingly--subsequently said that they did not know who could be responsible for them, and the other five women--surprisingly--made reference to E. Coli as contaminants.) Questions 32 to 37 were asked in order to target their current knowledge of contaminants. I then asked, “have you heard about nuclear power, mercury, PCBs?” (#32), and “where did you hear this information?” (#33). The 14 women who had not heard of any of these particular contaminants were not always the individuals who answered that they had not heard of contaminants in general. Six of the women who had not heard of contaminants also had not heard of PCBs, mercury or nuclear power, but interestingly, eight women who had not heard of contaminants then admitted that they had heard of PCBs, but some of them--as well as several other women--told me that they did not know what PCBs were. Seven women who said that they had heard of contaminants had not heard of PCBs, mercury, or nuclear power--they were not recognized as pollutants/contaminants.

Some of the responses to question #31 include:

~I've heard about them in whales. They were minerals of some kind”;

~yes, in seal liver. I still eat it though”;

~I've heard about PCBs. Do the PCBs come from the animal to the person's body? I heard that PCBs are in seal fat”;

~I've heard about PCBs on the radio. They said that they could cause cancer and poor health for the baby. It was from seal meat on Northern Québec and Baffin. I heard about mercury when I was in Churchill”;

~“when I was in Iqaluit--at Upper Base they say there's PCBs there. That's why all those trucks were up there.”

The following set of apparent inconsistencies come from one informant:

Question: Have you heard anything about contaminants?

Answer: *"I worry that there may be contaminants around here. I worry about it but I don't stop eating it."*

Q: What kind of contaminants have you heard about? (#35).

A: *"Don't know"*

Q: Have you heard about nuclear power, mercury, PCBs?

A: *"PCBs, mercury, and lead. I heard about it on the radio. They did a survey in Rankin last year."*

Q: When did you first become aware of the risk of contaminants in the Arctic food chain?

A: *"I didn't know contaminants were in the Arctic food chain."*

It appears (to me) that although this woman has heard of PCBs, mercury and lead, she does not understand them as being contaminants; she is aware, however, that contaminants could be in the food she eats. Another woman, also in her forties, in answer to the question of whether or not she had heard anything about contaminants said,

"I've heard about gas spills. I worry that there might be contaminants in the animals around here. But we can usually tell the difference between a healthy animal and one that's contaminated. It could be very skinny or have something wrong with the liver."

She then answered that she had not heard of nuclear power, mercury or PCBs.

There seemed to be some obfuscation in the word contaminants--even when the participants spoke English well and when we used the Inuktitut terms. The term contaminants was often taken to indicate infection (perhaps a sequella from the E. Coli outbreak) because I often heard, in answer to the question regarding contaminants, comments such as, *"yes [I've heard of contaminants], in walrus. I don't know what it's*

called but people get diarrhoea." Trichinosis was referred to several times, and E. Coli was mentioned by thirteen women. One woman said, *"I heard on the radio that you shouldn't eat caribou liver but I'm not sure what kind of sickness they had"* (aged 57). Another said that she had heard of such contaminants as trichinosis and E. Coli in native food--so she cooks it thoroughly. She also said that she had heard about PCBs:

"I heard about them when I was working up at MOT cleaning up. That's the only time I heard about PCBs. I was worried when we were tearing down that old terminal building because they said there was asbestos and that worried me too."

An elder told me that when she first heard about PCBs, she would pray for the seal.

Another older woman who had not heard of nuclear power, mercury or PCBs told me, in regard to contaminants:

"I've heard about them on TV and radio but I tend to ignore them. My kids tell me about it. It's mostly from Northern Québec. Even with aged meat--we don't really eat what we used to eat any more because of all those things that go on from other places. I still eat aged meat. If somebody brought me meat and they were rinsed down in salt water--they tend to go down into the meat and there's a lot of worms there. I wouldn't eat that meat" (aged 62).

A 29 year old woman who has a well-paid job with lots of responsibility said:

"I heard about PCBs in Broughton. It was on TV a few years ago. I don't know if those people were told not to eat seal but it didn't affect me--I kept on eating it. I haven't heard about any contaminants around here."

Several women had heard of the well-publicized story of high levels of PCBs being found in sea mammals in Broughton Island, for example:

"Just through TV--in the seal in Broughton Island. I heard that whatever you eat is contaminated and it goes through the milk and the baby gets contaminated. I don't remember if they told people to stop eating seals. I

think it was PCBs. I think it was just in Broughton—I've never heard of any other place. I think it was in the early 1990s. I've never heard of any PCBs around here. Nobody ever talks about them around here. I don't know if it's taught in school. Probably there are contaminants around here—past the airport and I think MOT had PCBs” (aged 37).

An 18 year old and a 45 year old who said that they had not heard of nuclear power, mercury, or PCBs said, respectively, in response to the question of whether they had heard of contaminants,

“although I don't have friends who take drugs, I can understand that taking drugs is like pollution of the brain”;

“I've only heard about pollution. Back in the old days when I was growing up we used to leave native food outside to get frozen but nowadays we can't leave it out because it gets too dirty and it's not as fresh as it used to be. Even in summer it gets dusty.”

Each woman gave answers which reflected her own world view. The younger one was close to the drug abuse issue and her answer reveals her own perception of pollution. The 45 year old woman on the other hand, was more concerned with food care and the safety of food for her family. One woman was very concerned that children are now eating less Inuit food because they had heard that some Inuit foods were contaminated, and several others talked about drugs and alcohol as being types of pollution which destroyed people's lives.

Sources of Contaminant Information

Sources of dissemination of information about contamination (asked in #33) were mainly the media, but more specifically, television and radio. Twenty people mentioned the TV, 16 the radio, three Qallunaaq, two “a meeting” (not specified), and one person each

mentioned the school, the newspaper, the Community Health Representative (CHR), and MOT personnel. A 48 year old woman told me:

“Somebody once came around and talked about PCBs—I think they were talking about Nunavut and PCBs in Northern Québec. It was scary at first when we heard that PCBs were in the seal but it didn't stop me from eating them. I don't think about it now.”

One woman told me *“Qallunaat on the radio”* and another specified, *“I heard about contaminants in the food chain on the news—the radio and Nunatsiaq News.* A 34 year old explained:

There was one programme on TV that showed that seals (and other sea mammals) might be contaminated with PCBs. Baffin did a programme on that. They said it might be a risk for people and suggested that people shouldn't eat too much seal meat. I think people took notice of that for a while and then it kind of faded away.”

After I had asked questions regarding women's personal knowledge of contaminants, I then asked what they thought other people might know about them (#34). Twenty three women (that is, half of the total number) said that they did not know what others knew--they could not speak for them. Three participants thought that children might learn about contaminants in school, and several women thought that contaminants were problems for other communities (but not for Coral Harbour) and hence people in those communities might be better informed; for example, those living in Baffin (particularly Broughton Island, though one mentioned Pond Inlet) and in Nunavik:

“I heard that breast milk in Northern Québec was going to be tested. They were told not to eat seal liver...but they still eat it” (aged 60).

Researchers in Nunavik (Jetté, 1994) found that 62% of people surveyed had heard of PCB contamination (in 1992), and the majority expressed a desire to have more

information. Interestingly, 19% of Nunavik Inuit thought that store-bought products were safer to eat than hunted food as the former were thought to be less likely to contain contaminants. In fact, 14% of the participants mentioned that they had altered their lifestyle after learning about the presence of PCBs in the food chain. These statistics are interesting because my findings--although my research was conducted in just one community--are quite different. Differences might be due to the fact that Inuit in Nunavik were more aware of contaminants in the Arctic food chain earlier this decade than were Inuit in Nunavut. This is probably the result of an earlier start on contaminant research being initiated in Nunavik.

Some women in Coral Harbour told me that probably the only contaminant other people had heard about was the E. Coli in Arviat. Others expressed a general concern about contaminants, but this 39 year old woman was particularly worried:

"In some places the seals are in pretty bad shape. Sometimes we get bad seals once in a while and we wonder if it's from PCBs. We hear of PCBs out there in the ocean somewhere just waiting to burst or something like that. And that's sort of scary for us. You know the base of MOT where there used to be a lot of barrels, someone burned them up. I was so scared for a long time because there were some contaminants there and I thought we were going to start getting deformed babies or start dying from cancer or something. But luckily we haven't heard. It keeps you wondering if they're keeping quiet if there are PCBs in there--if they're hiding it from you. I heard about contaminants in Baffin. I think there may be contaminants around here. We had PCBs here. They were removed from the poles⁸ and sent out--a few years ago."

Excluding the 15 women who had not heard of contaminants at all, the average number of years since each woman had first heard about contaminants was three years, with a range

⁸PCBs were indeed found in transformer poles in Coral Harbour. The machinery was packed and sent out on the annual barge.

from one to eight years (question #36). There seemed to be no sense of urgency or real concern regarding an imminent danger on the part of most of the woman I interviewed. A 39 year old woman answered, “[I first heard]... *quite a few years ago when they started saying there were contaminants in mataaq. But people didn't stop—they keep on eating it. My son loves it so I make sure I keep some here.*”

When I asked what kinds of contaminants each woman had heard about (#35), 17 women said that they had heard about contaminants in animals (and two specified PCBs in seal) but 17 women also said that they could not name any contaminants. One of the women who said that she did not know of any contaminants added, *“I don't want them to be in seal because I want seal meat so much.”* Only two women mentioned fish as being contaminated, but seven talked about E. Coli as a contaminant and others mentioned Qallunaaq food--in particular, hamburger disease. MOT was also mentioned as a locus for contaminants, while other suggestions include, *“breast milk”*; and, *“can't remember which animals had PCBs.”*

A 43 year old woman said,

“we were told not to eat seal meat any more because they have something. When they had the hamburger thing—they said that seal had PCB. That was in this community. I can't recall who said it. We were told to test it to see if the seal had PCB.”

Unfortunately, this participant was unable to inform me how the testing for PCBs was done, or who was to perform the tests. Another woman said:

“We eat the same kind of native food as those places in Baffin where it is contaminated so when I hear about it I tend not to think about it too much. Even though I know that we are told not to eat caribou liver, my son likes to eat it when it's fresh so I cook it for him. I heard it on CBC. There was

something on seal fat, too” (aged 57).

A 49 year old’s answer to the question of which contaminants she had heard about was, “*PCBs in seals*” and then added, “*the HTO [Hunters and Trappers Organization] was worried that there’s too many caribou on this island—it’s getting overcrowded.*”⁹”

Perceptions Of Pollution

Toward the end of the interview I asked people what were their own perceptions of pollution. Several women told me that for them, smoking is pollution, and others said that pollution is “*like smog,*” “*the ozone layer,*” “*anything rotting,*” and “*gas spills.*”

One 48 year old woman told me,

[I’ve heard] just about the ozone layer. I think the world is getting warmer. I don’t know what causes pollution. In our summer, some days it gets really hot, and some days its gets really cold, so I know it’s not healthy up here. I think the ozone layer is being caused by war.”

But, another woman told me, “*not heard of pollution in this town.*”

Other responses include:

~“heard about nuclear power a long time ago. If I was told there was a small chance of contaminants, I wouldn’t eat it. It’s up to people to decide. Pollution is just down south--air pollution” (aged 28);

~“pollution is mostly sewage that’s dumped on the ground. We don’t have air pollution up here” (aged 35);

⁹Coral Harbour was participating in a caribou harvest that was organized by a firm in Toronto. Community members were hired to hunt caribou and butcher the meat for sale in the south. At that time (1995), 14 hunters were employed to kill at least one caribou each per day. When I returned to Coral Harbour (in April, 1997), the community was in control of the operation and more caribou were being captured. The first shipment of 20,000 pounds was awaiting pick up by chartered aircraft.

~“smoking is pollution--as is anything rotten--but not igunaaq. Spilled fuel pollutes--too many trucks. Qallunaat are more at risk--their food goes through machines and is touched by so many people. All talk of contaminated seals sort of faded away” (aged 34);

~“pollution is like factory smoke--a poison. Tobacco, drugs and alcohol are pollution to the body” (aged 30).

One 60 year old woman said:

~“it bothers me because my kids understand English and when I try to cook Inuit food they tell me it's contaminated and won't eat it. Pollution is like nuclear power and acid rain. We still eat--even if it's maybe contaminated. Some say that E. Coli was in Inuit foods.”

Other women mentioned that many kids do not like to eat Inuit foods any more, but this was the only person who said that her kids refuse to eat it because they say it is contaminated. Several women indicated that kids were better educated about contaminants as they learn about them in school; in addition, their understanding of English gives them the advantage of learning about them on the radio and television.

An elder said to me:

“Maybe the Qallunaat are putting things into the kids heads because some of my kids won't even eat polar bear meat because they tell me it has trichinosis¹⁰--or there's something wrong with the fish.”

Four women said that drugs and sniffing were a sort of pollution *“harming your body,”* and one told me, *“pollution is like something you're not supposed to have--like drugs.”* Perhaps its association with drugs prompted one woman to tell me, *“people here don't talk about pollution,”* but several others said that *“drugs and alcohol are pollution for the body.”*

¹⁰ There was a bilingual notice in the Health Centre explaining trichinosis. One way of preventing this sickness is to cook the meat (polar bear, walrus, seal) thoroughly.

The type of pollution of most concern to most of the women with whom I talked, both during the interviews and in other conversations, focused on the problems of drug and alcohol abuse. One woman told me, *“for the person taking drugs, it is pollution because I'm sure it's got chemicals stronger than cigarettes. It can pollute the brain—clip it right off.”* Another participant, who had heard about the ozone layer, said, *“it's so hot out here people are getting a lot of sunburns which are really bad.”* Another used the term *“Qallunaaq's pollution”* and then expanded, *“my son isn't too fond of Qallunaaq because he says they're making pollution.”* The following, unfortunately, is the undeniably definitive statement of pollution:

“Pollution is in the world; I think made by Qallunaaq” (aged 47).

The Worst Problem in the Community

When I asked women what they thought was the worst problem in the community, 45 out of 47 said “drugs.” Eleven also added “alcohol” to their answer. The two women who did not say that drugs were the worst problem in the community both gave “drugs” as their answer to question #29 (what is a dangerous behaviour). One woman said “selfishness” was the worst problem and another said “gossip.” Gossip was mentioned by four other participants, and four women also said that “hate” was a problem.

Drugs I was told that drugs and alcohol are poison, and that they are worse problems than PCBs, *“drugs is like pollution.”* Other comments include:

~ [worst problem is] “substance abuse—drugs. I can tell when people are

taking drugs. About 25% of kids take drugs here (aged 15 to 18), and about the same percentage for up to age 30. I don't know where people get the money from--but I know some people steal" (aged 26);

~"I've heard that there's lots of problems with drugs in this community but because I haven't seen it for myself, I can't really say" (aged 70);

~"Drugs. If there were no drugs in this community there would be less problems. It seems like you're getting further away from that person. Even with your own kids and somehow you know they're taking drugs, it seems like they're getting further away from you. You can't really even love each other--it seems to me--even when it's the same family. Drugs really started when the kids started leaving here to go out for high school (early 80s). But Cape Dorset got it before here" (aged 46);

A single mother in her thirties said:

"Drugs is getting bad. It's good that kids know--they are more aware of it. They're being taught in school so maybe they're saying no to drugs--even cigarettes. My little boy makes me feel guilty--really bad. I told him never to start smoking or chewing snuff."

An elder told me:

"Drugs [is worst problem]--the elders worry about this a lot. I can take alcohol but I haven't taken any drugs. I can tell the difference between the two. With alcohol you are the same the next day but when somebody's taken drugs it changes your life. I can tell because I've seen it with my own eyes. Alcohol wears off. Drugs cost more money--so they need more money. When you take drugs you tend to get mad more easily--there can be a lot of changes because when they're craving for money they tend to break and enter--and that's when they get into trouble, and when they get into trouble some even commit suicide because they're afraid of going to court or because they want the drugs so much. Because they're so into it--the people who take drugs--their lack of money--and then the court, it seems like they have no life any more."

Nineteen women had mentioned the need for a counselor in the community and, because so much concern had been expressed about drugs, I asked the women who had not suggested it if they thought that a counselor could be of some help for those with drug

or emotional problems. One 48 year old woman told me, "*Sapputit*¹¹ is trying to tell people that we are available to anyone who has any kind of problems. I've heard that some people would prefer to talk to someone who is not from here and who has no relatives here." An elder told me:

"Even when I try to talk to them [drug users] it seems that they don't want to talk about it. They seem to be just shy about it; they don't want to talk. We try and talk about it on the radio but I don't think younger people want to talk on the radio. Maybe it would be better if we discussed it among ourselves instead of going on the air because it seems like we're just gossiping."

Another women told me that she tries to talk to her relatives who are taking drugs--but "*they don't seem to listen and they won't go to see the people at Sapputit.*" A 19 year old woman told me:

"Youth are changing--maybe alcohol and drugs. Young people and elders talk about it. We need more facilities here--to teach them what else they could do instead of turning to alcohol and drugs. We could have a counselor here for people with drug or abuse problems. It wouldn't matter if that person was Imuk or Qallunaaq, as long as they had experience. It depends on the counselor--if a person could trust them if they came to this community. You have to show you're trustworthy."

Another woman, in her thirties, told me that she used to be into drugs and booze and used to feel suicidal, "*I knew what I was doing wasn't right for me and that if I didn't stop what I was doing I was going to die. Nobody talked me into changing, it had to come from me.*"

Even when I asked other questions, for example, would better communication/education about contaminants reduce people's risks, I was flatly informed by a 19 year old:

¹¹Sapputit, which is a Native Alcohol and Drug Programme (NADAP), was started in Coral Harbour in 1993.

“People here are not worried about contaminants. People here are more concerned about drugs. Since Sapputit started I think we’re getting through to some of the users (not the pushers). It’s hard for the users to quit when they have been taking it for so long. ‘Hugs are better than drugs’. People will talk more about drugs now. It’s best to learn when you’re young.”

The women were most concerned about the effect of drugs on the younger generation, for example, *“I don’t know what drugs are like because I’ve never seen them with my own eyes, but I worry about my own kids when my relatives take them—they might give them to my younger kids.”* A 57 year old told me:

“What worries me is that when these kids are older they will be burned out and won’t think for themselves or be able to do anything—jobs. It mostly effects the brain. I can tell when they’re taking drugs—they’re burned out. When the elders try and talk about something sometimes people seem to help out—they’re not on drugs. But these days they don’t help out—they don’t really think. Before when they started selling these kind of drugs they were caught right away. Having planes from two different directions¹²—that’s when it really started. So we don’t know where they’re coming from—Baffin or Keewatin. There was drinking allowed here at one time and I think that if the kids were allowed to drink maybe there wouldn’t take so much drugs. Then the people would start cutting down from drinking and there wouldn’t be much drug taking either. People who used to drink a lot have stopped now. It’s the older people who are breaking the rules at times, too, because they’re not allowed to drink alcohol. Maybe—I’m not sure. I don’t really know what the solution is. I have never tried drugs but I can tell who the young people are taking them because it makes changes in them. There’s a counselor here (Sapputit) and they are advertising themselves to say when they’re open to help people who take drugs—for two or three years. There has to be another solution but I don’t know what it is. It would help the person out more if they didn’t know the person [counselor]. I can see that for myself now. Sometimes they don’t feel comfortable talking to someone they know.”

¹²Planes from Winnipeg to Coral Harbour (Canadian Airways) via Churchill and Rankin Inlet have been operating for many years, but in the late 1980s a new route was established. It is now possible to leave Coral Harbour and reach Ottawa and Montreal in one day (via Cape Dorset and Iqaluit) by First Air.

Another woman was concerned about her children getting into drugs. In fact, she said, she tends to spoil them--like paying for their gas for the ATV (All Terrain Vehicle) so that they will not try to get money other ways (for example, selling drugs or stealing.) A 30 year old said:

“Drugs has been going on in this community since the mid 1980s but now it's worse. Everybody in the community is affected because they hear things, and the people who take it are not as close to their family or friends. Everybody is affected. Right now the problem is people bringing it in and young kids try it out. Some are 13 or 15 years old. Some have been on it a long time, but I don't know of any elders here who are taking it. People make a lot of money selling it. I think the people who buy drugs forget about other things--like food. They just go with the drugs. I think the family members suffer, especially the kids. There's more drugs here than alcohol. People don't overdose on pills any more. The drug they use most here is hash--the one you sniff.”

A woman in her late thirties told me:

“More guys are involved in drugs than women. People doing drugs affects everyone--it affects me. Sometimes people ask us for money, and we wonder, is it for drugs or are they really poor. HIV is a scary problem, but drugs is a more immediate problem.”

Another woman told me that;

[the men]...“ think that if they have drugs every day it will make them happy but when they don't have it they're abusive. So us wives--I know it's wrong--but I would feel and hope that he'll have drugs to keep him away from me. Drugs are worse than alcohol. They start believing in their own minds--things that aren't true--they make them up. They start believing it themselves--their own lies.”

I asked one woman who was particularly concerned about the drug problem and who had told me that she would like to go on the radio and try to do something to stop the drugs from coming into the community, what she thought the health authorities could do to help beat this problem. She answered:

“I think they should have more meetings. At those meetings people could start speaking out. That’s what I keep thinking. People should start having meetings just for drugs. People who are scared to speak out can start to speak out if they’re comfortable around people who are concerned. I don’t know how we can reach those people. I even wonder if we can get the police, especially in Cape Dorset, to search all the people coming here. Dorset is the real key to drugs and people keep coming back and forth. And we all know the people doing drugs—but what can we do?”

and a 23 year old said,

“... there’s always a way for the stuff to come in—by mail. The cops have a hard time trying to find out because they can’t search you unless they think you have some. Those who are hooked want it to keep coming in. Most of them are young (about 16) and some of them want to quit but they’re having a hard time trying to quit.”

A 60 year old who has tried to help said:

“They should start searching more when somebody comes here. There’s enough elders here who can talk to people who are having problems. Like in the old days—there used to be at least three people—not just women—talking to that person. They didn’t have drugs problems but they used to have other problems. I think they’re trying to do that now. I go with another person to see that person who is having drug problems but sometimes they say nothing—just be quiet. But if they keep talking to that person they tend to answer or listen.”

A 41 year old told me:

[we should] “start telling on those people who sell drugs. It’s hard because they would turn on me. If they threatened me I would charge them. We need a support group here...the women are the ones who suffer the most.”

The issue of drugs was inserted into many answers that did not ask about drugs. For example, when I asked a 40 year old woman if she minds if scientists come into the community (#52), she added, *“I told you about the drug problems because we know you. I think we are asking for help.”* For the Inuit women who needed to talk about substance

abuse during the conversation about pollution, they needed to reveal their world through discussion of real things.

The term “pollution” was used as a metaphor in my interviews for many phenomena and noumena. E.Coli (or hamburger disease) was a popular choice--as was PCBs. Although mention was also made of smoking and the ozone layer, the most common response to perceptions of pollution was “drugs and alcohol.” I had the opportunity to relate some of the community’s concerns regarding drugs to the health promotion officer of the Keewatin Regional Health Board. More attention is being paid to this problem but it will take a massive effort on the part of community members as well as the department of health and social services to rectify a problem of such enormity.

CHAPTER SEVEN

Context of Inuit Women's Perceptions of the Risks of Pollution

In order to help appreciate how the Inuit women with whom I spoke perceived risks of pollution, I asked various questions which I believed might help me to understand their concepts of risk in a more general way, because perceptions of risk are heavily influenced by socio-cultural factors. The selection of risks that are worthy of attention varies across cultures, and it is in learning about the Inuit way of life that I began to understand why Inuit food is so important to them and why it would be such a dreadful loss if it were not available. In this chapter I will discuss the remaining themes which emerged from the conversations I had with Inuit women. These themes are: perceptions of risk, trust, power and blame, and community wellness.

Perceptions of Risk

Changes in attitudes toward risk can be associated with changes in the Arctic itself. Almost every aspect of traditional Inuit life has altered in some respect, and nearly every change has brought new risks. Technical change can manifest in material benefits and these can lead to unquestioned faith in technological progress. However, new health threats, or even modifications to old ones (for example, snowmobile injuries replacing dog bites) do not eliminate the threat of our living in a risky environment. There is, as advocated by Nelkin (1987), an interpretive flexibility intrinsic to risk perception. Because risk is, in part, a social construction, then evaluating perceptions of risk is a social process. As Nelkin (1989) and

Douglas (1994) explain, in exploring risk as a social concept, we must look at the social dynamics of risk communication. In order to learn the diversity in perceptions of risk, I asked Inuit women to describe to me their ideas about luck, fate, trust and blame, as well as how they viewed government intervention and their own participation in community life.

Luck and Fate

My first question in relation to ideas of risk or chance, asked simply, “do you believe in good and bad luck?” (#22). Fourteen of the 47 women said “no,” they did not believe in either good or bad luck; 24 women said that they definitely did believe in both, and five were equivocal. One woman from the latter group (somewhat pessimistically), told me “*maybe; some people have luck but I don't,*” (implying that “luck” is a positive attribute), and another, more optimistic, said “*I believe in good luck but not bad luck.*” Comments regarding chance were made in reference to their fortune at bingo, “*I was lucky last night; I won twice.*” I attended a bingo game during my stay in the community and found that it continues to be an opportunity for socializing¹--particularly for women, who form the majority of the participants, though some older men also attend. Nevada tickets were sold during the intervals between bingo games, but the bingo game was the central game of chance as, unlike the ticket situation where everyone in the room could (and usually does) lose by its very essence, the game of bingo decrees that there are always winners among the people present

¹While I was spending a few days in Rankin Inlet I saw a notice at the Co-op store stating that babies would not be allowed into the hall while bingo was being played. I thought that this might prevent breast-feeding women from playing bingo, but when I asked some women in Coral Harbour about this, they said it was a good opportunity to have their husbands do the babysitting.

(a few have good luck).

In the same vein as the luck question, I then asked each woman if she believed in fate-
-“what will be will be” (#24), and while the majority said yes, four said no. I was told, “*I think you can do things yourself to change what might happen,*” and, “*not really because sometimes people say something will happen and it doesn't.*” I asked this question in hypothetical anticipation of the Inuit being informed that very high levels of contaminants had been found in the Arctic food chain which would create a high risk of an unknown illness for those consuming traditional foods. I had thought that if people believed in the inevitability of fate in a general sense, then they might have a similar attitude toward fate associated with the risk of pollution. However, it was made clear to me that these situations are very different. Fate was often assumed to be the will of God, something either catastrophic or fatal (like cancer), or a warning from a mortal about something that could very likely happen (a bad storm, or a poor year for fishing), or something temporary that is not too dreadful. But, when it comes to the question of their not being able to eat Inuit food without worrying if it will harm them or their families, then the issue of fate takes on a different slant. As will be illustrated later in this chapter, most people simply would choose not to believe any warnings from scientists.

When I was interviewing one elder with her daughter present, I asked the participant what she understood about risk. An abstract concept of risk does not make sense to Inuit, so the daughter told me that I should ask something specific like, “do you think it’s a risk to eat Arctic food that might be contaminated?” To this question her mother answered, “*I don't think I would take it if I thought it could be contaminated unless I really wanted to eat,*” and

when I asked if she would eat seal if there was one chance in a hundred that it could be contaminated, she replied, *"Yes, I would eat it."* Another woman hedged, *"I would still eat seal if there was a 1% or a 50% chance that it contained contaminants. I would not eat it for sure if I knew it was really contaminated."* Some women offered general thoughts about risk,

~"when you're scared you take risks. Inuit take a lot of risks—mostly, Inuit ignore the danger of taking risks," (aged 34);

~"I take chances. It's a 50-50 chance to take a risk. Most Inuit ignore the danger of risks" (aged 37);

~"I'm a dare devil, I take risks—but I wouldn't walk across the ice if I didn't know how thick it was. It's up to people to decide for themselves to take risks" (aged 27);

~[risk means] "hazardous—the chance of danger. People around here take risks by doing things like drugs or alcohol. People ignore risks...on a few occasions I'd say I take risks" (aged 30);

~"risk is a lot of things...risk of getting some kind of disease, risk of losing somebody. It's more negative—a danger or a threat. I don't buy lottery tickets, but I play bingo. I don't take risks when there's a chance of harm" (aged 34).

And a woman in her teens told me, *"when I was pregnant the nurse said I was high risk. That's the only risk I know."*

After I had asked the women when they first became aware of contaminants in the Arctic food chain, I then asked if they thought that these risks were real (# 37). Thirty-six women told me that they definitely thought that the risks of contaminants were not real; only four thought that the risks were real, and the others were unsure. Seven of the participants who were unsure, or who thought that the risks were real, were from the two youngest

groups.

One 30 year old told me:

“Yes. There may be some here because I heard that there were contaminants near the dumps some time ago. I think it was PCB or something. I don’t think people around here are worried about contaminants in food.”

A 22 year old said, *“trich and E. Coli, but I’m not sure about PCBs.”*

Older women offered:

~“Only if the experts tell us—otherwise we can tell ourselves” (aged 56);

~“No. I need to see with my own eye,” (aged 45);

~“Only if the experts say so,” (aged 49);

~“I don’t know if the risk of contaminants is real, but there seems to be more seals around with infected livers” (aged 44);

~“We still eat them even if they might be contaminated. There’s a lot of animals so we still eat them. I’ve heard about people dying from aged meat that was stored in plastic bags—that was in Cape Dorset in the 1960s.² When I was a kid we used to eat a lot of frozen polar bear meat. Nowadays they’re saying that we shouldn’t eat it frozen” (aged 60);

~“I don’t worry about it because I can’t remember which animals are supposed to be contaminated” (aged 63).

A 46 year old woman who thought that the risk of contaminants was real said, *“Arctic animals go everywhere, so we could get contaminants around here.”*

The only issue which everyone agreed upon, with the exception of one woman, was their certainty in the existence of God. When I asked question number 50, “do you think that anything is certain?” almost all answered with the monosyllable “God.” However, one 41 year

²I was working in Iqaluit in 1969 when an outbreak of botulism occurred in Cape Dorset, and a few months later, I worked at the nursing station in that community and talked with several survivors of botulism.

old woman who had suffered many losses, told me,

"I used to pray for a better life but with my own experience, there's too many disasters I've been through--and praying didn't help. I know there's a God, but he doesn't seem to answer my prayers. I think my life is worse than before. I think verbal abuse is worse than physical. It worries me if the kids are around."

Scientific Validity

Because the local popular media had been relaying "scientific facts" regarding the presence of contaminants in the Arctic food chain, I was interested in learning the extent of the credibility that Inuit women attributed to science. Many of us understand that science does not deal with certainty, only with probabilities, therefore, how do we place any trust in science? I was told by several women that, in general, they do not like talking at length to strangers--unless it is for a specific reason, like to a physician. They have been exposed to people conducting surveys on several occasions, but often the person conducting it was from their own community. For the most part, they prefer this (unless the questions being asked are of a very personal nature) as they would rather talk to someone they know and trust. Occasionally, when they have faced an unknown scientist, they hesitate in fully answering questions posed. A 26 year old woman explains:

"I worked with the surveyors for the nutrition research--those people from Edmonton. People didn't really want to say anything because they don't know them. We explained all about it but they didn't want to know. They asked how big the food was that they ate--they didn't want to tell them".³

³ It appears that during a nutrition survey, participants were shown various sizes of plastic molds which were supposed to represent different portions of food. Many Inuit were upset and somewhat offended as the pieces of plastic looked more like turds than the meat of Arctic animals. As well, they thought that it was nobody else's business but their own how many ounces of various foods they consumed each day. This informant told me that many people just said "yes" to the first

Responses to the question (# 52), “do you mind if scientists come into your community and ask you questions about food and contaminants?” was positive and encouraging, and most women added that they much preferred to talk to someone they already know. Comments include:

~“*I don't mind scientists coming around. It's better if it's someone who's known by the hamlet or the nurses*” (aged 45);

~“*I don't mind. I prefer to talk to someone I know*” (aged 59);

~“*I'm glad scientists are coming and I much prefer someone I know*” (aged 43);

~“*I think it's good that scientists are coming here. I think it's better if it's someone the community knows because they feel more comfortable*” (aged 34);

~“*I don't mind scientists coming around. It's better when it's someone you know because if you don't know them it seems like you can't tell them the whole truth. I thought I wasn't going to be able to answer all the questions but I'm pretty happy that I could answer them all*” (aged 56);

~“*A guy comes up once in a while and asks people to get samples from whales. He's pretty good. I like to know what's going on with our food. I'm sort of glad this research is being done*” (aged 39);

~“*I don't mind people doing research as long as there's written results because our younger people have to know. I believe in you because I know you. I seem to believe people I know*” (aged 45);

~“*I don't mind scientists coming and asking questions but I feel more comfortable with someone I know--like you for instance. I will talk to a person more if I know them*” (aged 63);

~“*I'd rather talk to somebody I know. I don't even answer sometimes when a stranger comes in*” (aged 46);

~“*I don't mind if researchers come. But I trust people if I know them. I*

piece of plastic--hoping the surveyors would go away.

would have said “no” to this interview if it wasn’t you.” (aged 30).

Nobody told me that she did not want research to be conducted--this contrasts with information provided to me by the Community Health Representative (CHR) who said that for the recent study of pregnant and breast-feeding women for evaluation of PCBs in breast milk and cord blood, more than half of the women refused to participate because they did not want to know the results. None of the women I interviewed participated in that survey.

I asked women if they thought that most things could be proven scientifically (# 48), and if they thought that science has all the answers concerning risk (# 49). In my analysis, I condensed these two questions into one (variable # 52) as each woman gave a similar answer for both questions. All of the women expressed doubt in the reliability of science. Forty-one of the 47 women said “no” to both of these two questions, and the remaining six women answered “yes and no.” Comments regarding the validity of science include:

~ “If scientists told me that there were invisible contaminants in food I would only believe them if somebody got sick. If I were told that there was a 1% chance I would still eat the food. If the risk was 50% I would just cook the food for longer”⁴ (aged 44);

~ “... I would believe them but before I would stop eating it, I would want to know what the health effects were. I would take a 1% or even a 50% risk. I would cut down, but I would still eat” (aged 44);

~ “If scientists told me that there were PCBs in seal I would want more details and evidence. If they said that these contaminants were present but the long term health effects were not really known--that would just alarm me. It wouldn’t stop me from eating” (aged 43);

~ “in the past Inuit had all the knowledge--we don’t know so much today. If

⁴Several women told me that if they had doubts about any food they would cook it longer--probably a hangover from the hamburger disease scare and trichinosis.

scientists told me that the animals were contaminated, I wouldn't believe them, and I think I would still eat them" (aged 49);

~"If the scientists told me that the animals had invisible PCBs in them I would believe them because they are supposed to be the experts. But I would still eat the animals—even if there was a 1% risk. If there was a 50% risk I wouldn't eat them for a while but then if I couldn't stand it I would start eating them again. I can't really go without native food" (aged 48);

~"No. If scientists told me that Inuit food had invisible PCBs I wouldn't believe them—if they told me not to eat it any more. What if they'd always been there? If I were told that there was a 1% chance of PCBs or a 50% chance of PCBs in the food, I would take the risk because I don't know what PCBs are and what they can do to you. I want to see the evidence" (aged 29);

~"No, they're not always right. Remember when we used to have to share a caribou? Now we can have so many. The experts underestimated how many we could have. They don't even seem to ask the elders" (aged 22);

~"If scientists told me that Inuit food was contaminated I wouldn't believe them. I would still eat it because I'm so used to eating it—I've maybe eaten contaminated seal meat before, but I didn't know it" (aged 35);

~"If the scientists said there was only a little bit of PCB in the animals, maybe they would say this just not to scare the people, and then they wouldn't eat the meat. But maybe there's more PCBs there. I don't really believe the scientists" (aged 70);

~"I would believe them if they came here and did the proper tests and then tell us. It would be easier to believe them. But if they tell us that we have PCBs without coming here and they don't check, well, I wouldn't believe them" (aged 41);

Some women did not want to disbelieve the scientists, but they made the point that,

~"Inuit also know things" (aged 39);

~"I would believe the scientists if they said the food was contaminated. But Inuit know better because they have lived on the land longer and we know what it's like and of any changes" (aged 46);

~"People here know more than the scientists" (aged 36).

~“David Suzuki might [have all the answers]. Inuit sometimes know more than the experts” (aged 34);

~“People should make up their own minds. If scientists said the Inuit food was contaminated I would eat it sometimes. I would take a risk for my own food. I would take a chance with a 10% or even a 50% risk” (aged 46).

These responses are self-explanatory; the majority of Inuit women would not change their dietary behaviour even if scientists told them that their food contained contaminants. The Inuit would need to see for themselves the effects on humans of these invisible contaminants.

When the women who told me that they could not consider not eating Inuit food, I asked some of them if they would eat it if there was only a 1% chance of it having PCBs. One 39 year old told me:

“Yes, I'd still eat it. Even a 50 % chance--I would still eat it. I would have to look at the food and if it didn't look good to me then I wouldn't have any. But sometimes when other people are having it I'd feel bad not having any--so I'd eat it even when I don't want to.”

Other women, too, told me that if it were seal and it had even a 50% chance of being contaminated, they would still eat it. At the time of these interviews seals were not allowed to be hunted within a certain distance from the community so many people were “craving” them. Most participants, in their answers to questions 48 and 49, did not mention whether or not they believed the scientists sufficiently to stop them from eating Inuit foods--because I did not specifically ask that question. However, of the 22 who did broach the subject, 17 said that they would continue to eat Inuit food however high the risk of contamination was.

All but eight women thought that the water that is delivered to all homes in the community was safe to drink (# 41), and they all knew that the water is treated with Javex bleach. One 46 year old said, *“Not really [safe], but I drink it anyway because we have no*

choice...Javex [is] a chemical and it used to bother me that they used it, but not any more," and a nineteen year old said, *"My mom doesn't like it so I guess it isn't safe. I prefer ice water. It comes from the river so it won't be treated."* In the past I have observed that people prefer to use ice blocks which they have cut themselves for drinking purposes in preference to using the water delivered to the house. In Pond Inlet there was always an iceberg in the bay which provided a nearby source of good tasting water. Ice is deemed to be more natural, pure and cleaner than water from lakes close to the settlement. Several people told me that they boiled the water, for example:

"I don't think the water is safe because I saw some little red worms⁵ in the water when we lived in the other house. We took them to the Nursing Station but they told us that there are usually worms in the water. Now I don't let my kids drink water from the tap without boiling it."

Others complained: *"I don't like the drinking water—it has too much Javex. I don't like making tea from this water. It's better from ice water."* But another told me, *"Even the ice water isn't clear any more—this is being caused by the ozone layer, too. It's getting contaminated from something."* A 41 year old woman who was worried about the chance of drinking water being contaminated by sewage (echoes of the sacred and profane), said:

"Our water is near the dump.⁶ We're usually having storms from the north and it's pretty dangerous because the snow goes into the sewage. It could be contaminated from the blowing snow. I think ice water from the lakes is better."

All but one of the women knew that the community sewage went to the dump (# 42).

⁵I have never observed little red worms (nor any other colour of worms) in the water.

⁶I was taken to the water lake (which was well protected by a high fence) and sewage lagoon which are about one mile apart. The community dump is well covered by gravel to prevent garbage from being blown around.

Trust, Power and Blame

We cannot expect that when an individual is asked questions about risk that she will leave behind her own frame of reference--her cultural milieu. In order to elicit opinions regarding some features (for example, trust, fairness, justice, power and blame) surrounding risk perception, I asked several questions, 7, and 11 through 14. All of these features, along with anger, hope and fear, are constituent elements in any type of risk situation and can be studied within a cultural framework.

Food Ingredients And Labels

Question number 7 asked if research participants read the labels on food packages and tins. I asked this question because I wanted to know if people were interested in the ingredients contained in Qallunaaq foods and if they had noted the expiry date, or if they simply trusted the contents to be safe. I had often noted myself that food goods were sold in the stores when they were past their expiry dates. One woman told me, *"a lot of the food is expired. They keep it on the shelves even though it's been expired for a while. Sometimes I tell the store manager about it; it depends on how long it's been expired, and if the price is still the same"* (34 year old whose family consumes 50% Qallunaaq food). Sixteen women said that they never looked at any labels--but 10 of these women could not read English. Of the other women who said that they did read the labels, 20 looked for the expiry date only and most women gave me few details of the contents for which they were looking.

One 41 year old woman, whose husband makes all of the decisions in the family (he has a well-paying job), told me: *"I read the ingredients to check if they have fat or sugar in*

them--less fat and less sugar. But if he's not around, I'll take anything." Another woman, who specified "caffeine" in her response to my question regarding warnings about any kind of food, told me that she checks for the presence of caffeine in food products because her six year old daughter now asks her to check for it because she was told that she would stop growing if she had too much caffeine. (The mother, however, does not know how her daughter gained this information.)

Worries

Many responses to question number 20, which asked, "what causes people to worry?" included "drugs." In fact, only ten women did not mention drugs in their answer to this question. All but one of these women said that drugs were the worst problem in the community (#30). A 60 year old woman told me, *"people seem to worry about drugs the most in this community,"* and this was echoed by a 22 year old who told me that, *"people talk about the drug problems--like everybody talked about it at school when they had the prayer circle. Before the present Sapputit counselor there was nothing--nobody ever said anything."* Other women talked about various problems:

"...kids are too hyper now--sniffing--usually it's the younger kids--and break-ins. Drugs is a big problem here--a worse problem than alcohol. Teenagers are more into drugs than sniffing. There's not much drinking here, if there is, it's usually private and quiet, not causing any problems" (aged 34);

~"when they have health problems or...when teenagers are taking drugs or sniffing--I would say that one quarter of people here are anxious and have worries, and it's getting more and more. It's getting worse" (aged 30).

Several women told me that relationships were something they worried about--and also their

health. One said, *"what the people worry about most is to have a good life--not always do the bad things, do something good in your life."* The term "worry" was used in showing concern for friends or relatives who might be doing drugs, and a 27 year old told me that *"teenagers are worried about drugs, but don't talk much about them."* Of those who did not say that drugs were the cause of most worry, their responses include alcohol (n= 8), health, AIDS, relationships, kids, gossip, and everyday survival regarding which I was told, *"people talk about this--trying to keep their family fed and clothed. We have warm houses but I worry whether I can feed my family"* (44 year old single mother). A 45 year old woman said:

"I'm worried about sewage being dumped into the sea--I think that's dangerous. What if a person had AIDS and it goes to the sea and to the animals. You never know."

A 29 year old woman said that people worry about, *"change of culture. It's not the way it used to be. People are just staying home and being lazy. Drugs and alcohol is part of the problem. But it's not my business so I don't know much about it--I just stay home."* Her answers to my previous questions of "do you think you have a good life" (#18) and "are you happy" (#19) also showed her concern for the future way of life for the Inuit:

"It's hard now. It seems like we're in the middle--Qallunaaq way and Inuit way. We can't do all Qallunaaq way and we can't do all Inuit way. We're stuck in the middle. Yes [I'm happy] but thinking for the future for my kids it's worrying. I guess everything's going to go higher, anyway. Sometimes I worry if they'll be able to manage. We can't really choose the way of Inuit tradition since we hardly know some of it. Sometimes I think we should move from this warm house and move into a big shack. I like living out at camp in the spring."

One woman told me, *"I'm on the Sapputit Committee and although we want to do more, there's a limit to what you can do. If we were given more power from the government,*

that would help.” She went on to explain that some members of the committee would like to take over complete management of the rehabilitation of drug users, but they would like to be able to do it without getting involved with the court system.

Not surprisingly, drugs was also the most common answer to my question of “what kinds of things are dangerous?” (#29). Responses include:

~“it’s mostly drugs that I think is dangerous. I worry that my relatives could get involved. I also worry about alcohol” (aged 25);

~“drugs. Sniffing gas too. Back in 1985 when you were here nobody was worried about drugs then” (aged 57).

Forty-one women said that taking drugs was dangerous, three said smoking, two said violence, and four others mentioned alcohol. One woman in her mid-thirties told me that a dangerous behaviour is:

“lack of respect to elders and to parents. That kind of hints to you that the kid is getting out of control—there’s a behaviour problem building up. It’s worse now than when I was young because every kid now is too spoiled—they have to have everything. They hit their parents. We never used to do that. I’ve seen kids, as soon as the mother says ‘no’, the kid makes a big thing out of it and hits the mother. A lot of teenagers think they know their own mind and decide what to do but after a year or two it wears off and they look back and realize they shouldn’t have done that, and they go back to their parents.”

This is an example of an unexpected answer to a particular question (this occurred several times during my interviews). However, because it was a current concern for that parent, she (quite rightly) inserted it into the conversation.

Government Intervention And Responsibility

When I asked the women if they thought that the government should be responsible

for the health of Inuit (#11), only three said no, and another three said yes and no. One woman said that she alone is responsible for her own health; one said that each family is responsible; and two others mentioned that Inuit have managed without government help for thousands of years:

“it should be up to the community—we should look after each other. We really practise it. We were alright without the government before. Some social assistance people just wait for others to look after them. I guess you could say that government spoiled them. They started believing that they could no longer rely on their own hunting” (43 year old who works part-time).

One other woman pointed out that *“if something was wrong here [with the environment/water], a government agency should protect the people.”* Another mentioned that the nurses (who are part of the government) and the Northern store, should be responsible for Inuit health. A 39 year old woman told me that she likes it the way it has been for many years *“...the Health Centre calls us to have immunizations and all that. It works well.”* One 34 year woman answered that the government should be responsible for Inuit health,

“because the government approved all these foods being brought up. They should at least try and put some warning labels or something on these foods if they are going to be sold in stores.”

A 60 year old whose children and grandchildren have occasionally refused to eat Inuit food because they had heard that some Inuit food may be contaminated, told me,

“I think the government should be responsible and teach the kids what’s good for your health—like in school. I think they should teach them more about nutrition in school Some kids tend to think that because this E. Coli

stuff was going on, all native foods are no good any more.⁷

A younger woman suggested that it would be helpful to have a nutritionist come to the community and give advice about healthy foods (one had visited two months previously and was well-received--she had provided some useful recipes and had shown them new ways of using foods that were available locally).

In question number 13, I asked what people thought that government could do to help Inuit achieve better health. Although I knew it was an important issue, I was surprised to hear so many people (n = 22) state that the first priority was the need for intervention⁸ on the part of the government to reduce the price of food in the community.

One woman told me,

"I hear there's a subsidy given to the stores here, yet the price of milk and bread and everything is still so high. What's going on if that subsidy is supposed to be there. It seems like the subsidy is not there. They overrate everything too much."

Another woman added to the general distrust in the retail stores by saying, *"the store manager would have us believe the prices are high because of the freight,"* (see food costs Table 3) and someone suggested that there should be another grocery store (though, there

⁷When people first heard the news about infected meat, the E. Coli was thought to have come from caribou or another kind of Arctic food. Some people, evidently, did not hear the final word on the source of the infected meat. It was shown to have originated from hamburger meat at the local store.

⁸The "freight subsidy" for food is known as the "Northern Air Stage Program" of "food mail." Ottawa has been providing payments to Canada Post (\$15.6 million in 1997) since 1986 in order to defray the cost of sending food to Northern communities. Perishable food is delivered by air (Canada Post negotiates a set rate with airline companies) at a rate of 80cents/kg, and the cost for non-perishable foods is \$2.15/kg (Bourgeois, 1997b).

is also the Co-op).⁹ One woman suggested banning the sale of cigarettes (and she is a smoker), whereas other suggestions targeted an increase in the number of nurses and physicians, for example,

“we need more nurses, especially well educated ones; we need more doctors’ visits—once a month is not enough.”

Several women advocated more frequent physical check-ups, especially for men as they will not go to the Health Centre on their own volition. Others suggested more jobs and an increase in welfare payments, better housing, and more health teaching--especially on nutrition ¹⁰. One woman suggested that the government could give out notices like “this kind of food is not healthy for you” and a 46 year old woman suggested that the government could provide,

“maybe a counselor to help in the healing process. I’ve heard about people trying to work together here. It would be great if someone had a job here as a counselor—for healing. We need someone who could do the job—it doesn’t matter if it’s Inuit or Qallunaaq, as long as they can do the job.”

A 46 year old woman who had recently been very ill asked,

“why do they allow so many chemicals up north? There’s all kinds of chemicals—

⁹During my April, 1997 visit to Coral Harbour, the Katudgevik Co-op store had a half price sale on some food items. Their freezer had broken down so they sold the freezer contents (meat and vegetables) in a matter of hours. They had advertised the sale on the local television station (cable is owned by the Co-op).

¹⁰6. In December, 1995, the following welfare payments were in operation:
One person: \$270, \$75 of which is given in cash (+\$20 per month for clothing);
Two persons: \$540, \$150 of which is given in cash (+\$40 per month for clothing);
Three persons: \$693, \$225 of which is given in cash (+\$60 per month for clothing);
Four persons: \$930, \$300 of which is given in cash (+\$80 per month for clothing).
All welfare recipients pay \$32 per month rent, and their hydro bills are paid for them.
The non-cash portions of their payments are provided in the form of credit at one of the stores in town, or divided equally between the Northern store and the Co-operative.

some on the road. I don't know how long they've been using this calcium chloride¹¹ on the road—maybe three years. I haven't heard of other chemicals.”

Trust in government While compiling my interview guide, I had some hesitation in asking the next question. I thought that some people might be reluctant to answer; however, it was open-ended and I thought it was an important one to ask. The question is “in general, do you trust the government?” (#12). I did not want to suggest that perhaps the government should not be trusted, and I suspect that this a question not usually asked by a Qallunaaq. I received, as expected, a wide variety of responses. Twenty people told me “no” in no uncertain terms, and ten women said yes (though some with hesitation.) All of the others (except for two who said “don't know”) said “yes and no.” Many women gave detailed explanations of their answers, and a 34 year old woman who has worked for various government agencies in the past, summarized many sentiments expressed by others:

“No, I think they let a few things slip that should be looked at more seriously. I always like to get more information on what exactly government's been doing and what things have been approved. I trust the people who are elected here because I know the people in my community—I know what they're capable of doing. But these other government people who work out of town—we don't know what they're like.”

Other responses to the question of “do you trust the government” include:

~“it depends on what they're doing—even local governments do wrong things sometimes. Yellowknife could be better than local—depends on who's elected. I trust older, more established government more than a new government” (aged 70);

¹¹I was informed by someone in the Hamlet Office that calcium chloride was mixed with water and used as a spray to keep down the dust on the roads in the summer. It seems that any kind of chemical may be regarded as a contaminant by some people.

Table Three

Food Costs

	1990 London Ont	1990 Cheapest CH	1995 Northern CH	1995 Co-op CH	1995 Winnipeg
Apple juice, 1L	0.99	2.65	4.98	n/a	1.69
Orange juice, 1L	1.69	4.98	3.69	3.79	1.69
Milk, 1L	1.38	3.50	3.40	3.40	1.23
Skim milk powder, 530g	3.99	5.23	n/a	n/a	4.19
Canned milk, 385ml	0.97	1.39	1.89	1.69	1.25
Pop, 355 ml	0.49	1.10	2.10	2.10	0.45
Bread, white, 1 loaf	0.69	2.70	3.25	3.25	0.89
Rice, 900 g	0.99	3.40	3.83	5.99	1.89
Soda biscuits, 350g	1.39	2.69	3.78	3.87	1.99
Jam, 500ml	1.99	4.58	4.13 (250ml)	3.89	2.69
Cheese Spread, 500g	2.39	5.48	7.26	7.89	3.99
Chunky soup, 540ml	1.60	3.89	3.71	4.05	2.19
Corned beef, 340g	1.86	3.65	4.35	3.29	2.39
Bacon, 500g	0.99	4.15	4.83	4.77	1.99

Table Three (cont.)

Food Costs

	1995 Winnipeg	1995 Northern
Celery hearts	0.89	5.09
Head lettuce	0.99	2.83
Tomatoes/kg	6.50	7.41
Salt, 1kg	0.99	3.05
Flour, 10kg	6.29	19.97
5kg	4.39	10.83
Milk, 2%, 2 L	2.06	6.56
Homo, 4L	3.59	13.15
Eggs, 1doz, large	1.74	3.27
Lard, 454g	1.89	2.51
Coffee, 734g can	10.99	17.08
300g	3.99	6.67
Tea bags, 100	2.79	4.09
Cheerios	2.89	3.88
Pork chops/kg	6.99	13.12
Ground beef/kg	3.99	6.49
Kraft singles, 500g	4.29	7.07
Sugar	3.89	9.17
Margarine	2.95	1.59

~*"I don't trust those I don't know who are far away"* (aged 46);

~*"I don't trust the stores. I trust the people we elect locally"* (aged 39);

~*"I don't trust them all the time. I always ask questions. I heard one word definitely when they said they had the 'power' to change things where the Nunavut capital would be. If they can't decide, Ottawa has the power...why are they trying to get people's opinions when they can change the decision...they're wasting a lot of money trying to find out...they're going to get their own bellies fat"* (aged 36);

~*"no—and I work for the government, but I don't go into politics"* (aged 37);

~*"not much because they lie some of the time"* (aged 45);

and, *"not really"; "not much"; "not all the time"; "in a way, but not very much"; "no. No way."*

A 62 year old told me:

"No. Once when there was a public meeting I said to the social worker and the person from education that government put all these things like houses here and we didn't ask for them. Now they're cutting back. We could have stayed with the dog team before the government came—that's the only way we lived. Then they put skidoos here and seemed to kill our dog teams. They said we shouldn't use them any more because of all the new vehicles. Now I have no more dogs but government has never given me a skidoo. When the government people come in they tell us that Canada is in the hole but they're the ones who gave us all these things. Now that we're dependent on them it seems that they're taking things away—putting so much cost on everything. When we didn't need them they gave it to us."

Of those who said that they do trust the government, one widow told me:

"In general I believe in government because they give me housing and even welfare. I am a widow—on my own, so I depend on government for welfare."

Another woman, aged 49, told me quite candidly:

"I trust them because I want to be trusted too. Back in the old days Inuit used to hunt and look after themselves and they never thought about welfare until the government came along. Now it seems like they're saying we just want to be on welfare—but it's them who started it. I'm not happy about it. We

weren't raised in an igloo—I was raised in a building--so I wouldn't be able to go back to what they had before, I know that."

From my interpretation of the answers given to me, it is apparent that government representatives who are, first of all, elected, and those who live locally (like members of the Hamlet Council) are the most trusted. Those who are elected but live out of town are less trusted because they are likely to be influenced by people who do not have an interest in the needs of Inuit in Coral Harbour. It seems that the farther away from Coral Harbour these elected personnel live, the less one can trust them. For example, government representatives in Rankin Inlet are somewhat more accessible than those in Yellowknife or Ottawa. These two cities are felt to be removed from the interests of Inuit in general. Some people expressed optimism in the new Nunavut government but others were somewhat distrustful that things would change in substance very much.

Power and Autonomy The issue of power (of self, of the Inuit, or of the concept of power in general) was addressed by asking the question, "do you think that you have any power to help things change in this community" (#14). Twelve women thought that they did not have any power, seven said they would try to take power (control), and the remainder said that they believed they did have power to make changes. Several women said that if there was something going on that they did not like, they would try to get it changed. One 34 year old explained:

"Yes, I think so. Some of us are quite outspoken. I guess it's the people who have been working for a while who are pretty outspoken because they know mostly what's going on with the government or whatever department is coming out with that. Education helps a lot--to understand what they're

doing.”

Some women thought that it was difficult to get things changed at the Hamlet level or with the Hunters and Trappers Organization (HTO) once a decision had been made. However, if they felt strongly about something they were willing to challenge a decision. Others said they would not speak out, even if it affected them personally, but another said she would go on the radio and suggest to others that they get together to overturn a decision. As well as the local radio station, the CB radio is a convenient, accessible medium for people to air their views. One woman told me:

“...people are really upset about not being able to hunt seals for two months.¹² Many people were talking on the radio about this. HTO decided to put a boundary where people can hunt seals—too many laws now—I guess they have the power. Everybody is supposed to agree but many people didn’t go to the meeting when the vote was held and now they are complaining that it isn’t fair that the restriction is in place. It seems that men make all the decisions about hunting but I think women should have equal say” (aged 27),

and one articulate 22 year old answered:

“I wouldn’t say power, but I have a voice. If I thought something wasn’t right I would have to say something.”

and another in her twenties told me, *“I’m shy but I think young people are listened to.”*

A 57 year old woman said:

“I think I have the power to talk to someone on a one-to-one. If someone wanted to come and see me I would try to talk to them. If something is going wrong in the community--sometimes Inuit don’t like to come forward.”

¹²While I was in the community in the winter of 1995 there was a moratorium on the hunting of seals near the community for two months. The Hunters and Trappers Organization (H.T.O.), had advised that seals could only be caught further away, closer to Native Point, in order to allow the seals more time to eat and become plump and healthy; Inuit were not to take many when they were in a temporary short supply. Some people told me that they had some seal stored in their freezers as they could not go without sea mammals for two months.

A 62 year old woman was confident that she had the power to help things change in the community because her father had taught her to be strong. The enduring strength and cohesion of the community which manifests in tough times is expressed by a single mother in her thirties:

"I think this community's a strong one. They all chip in when something goes wrong. If something isn't right I will say so."

Responsibility. After we had been talking about contaminants during the course of the interview, I asked each woman "who do you think is responsible for contaminants" (#38). Except for ten women who said that they did not know who was responsible because they had not heard about contaminants, almost everyone else attributed the responsibility (blame) to outsiders, "*places likes Chernobyl,*" for example. Other suggestions include the army (both the United States and Canadian--with particular reference to the base in Coral Harbour during the Second World War--"*the armies from the 1940s*"); and, "*old army bases with old batteries.*" The term "Qallunaat" was frequently named as the source of the problem, and in particular, the Russians or "outsiders"--meaning anyone not living in the North. One blamed "*the government, mostly the government. They should do more research.*" A 44 year old woman explained:

"Everybody. Everybody should be responsible. You see people throwing garbage in the sea water and that always turns me off--plastic containers and everything goes in the water."

Fairness and Justice

In order to assess how fairness was perceived, I asked the participants if they thought

that people were usually punished for wrong-doing (#28). Half of them thought that, in general, justice was not served and many of these women linked this question to the drug problem in the community--particularly to the drug traffickers. For example, "*no [justice is not usually served]; more drugs are here when RCMP are not here. People are afraid to speak out. I would tell the cops, but wouldn't be involved.*" Another woman told me, "*although we know that drugs are not healthy for anyone--if we report anyone to the RCMP we would have to be at the court. We'd like to settle it without talking to the police.*" Others added:

~ "[people] *often get away with things*" (aged 28);

~ "*the court system is not always fair*" (aged 40);

~ "*...they are punished--if they're caught*" (aged 30);

~ "*they tend to get away with things because they talk about getting away without being punished*" (aged 62);

~ "[they] *used to be [punished], but not any more. People used to at least get scolded.*" (aged 44).

Some women wanted to expand on this topic (of crime and punishment) and talk about the behaviour of Inuit youth and how it has changed since their own childhood days:

~ "*mostly they get away--especially these days. I can't believe what kids are doing now. We never used to touch anything that wasn't ours--or break them. Maybe we don't punish them enough*" (aged 36);

~ "*I don't believe parents are punishing their kids too much--they just let them get away with things they don't get punished for*" (aged 35);

~ "*our old way helped. Like now when somebody goes to court and gets apprehended, it doesn't do much good--not a whole lot. In the old days when they did something wrong, they would discipline themselves in their own way and it would help. This new system, I believe, leads to a lot of suicides when*

they're waiting, or when court is delayed and they're getting anxious. You'd think the justice system would know this by now" (aged 34).

Others were a little more philosophical: *"They're usually punished by their relatives and other people. Maybe that's the way it's supposed to be" (aged 46).* Others predicted, *"it catches up with them after awhile" (aged 34),* and *"mostly people find out from their own mistakes, I guess" (aged 45).* An elder told me:

"In the old days parents used to teach young kids right from wrong and the consequences. But now they start too late. I tried to tell the kids at school about the consequences but they ignore me. They get into trouble with the courts. We should tell them when they're young—do it in time. It's frustrating to try and tell them now. We should talk individually to kids—don't give up. Too many things are not punished—they get away with a lot. Too many things are left up to Qallunaat—in the old days we looked after our own people. Some people say "he'll be better when he grows up" but we should start now. Our way of life changed so much after we came into the settlement."

I attended court when the party of six members arrived from Rankin Inlet. It was well attended by community members, and the local RCMP corporal, and two special RCMP officers were there. All cases were related to drugs or alcohol—either trafficking drugs or disturbance or break-ins after excessive alcohol intake. Of the four accused (all male), all were found guilty and two of them received jail sentences. One other case was held over until the next session in four months time. The whole court session lasted a little over two hours and the community hall never seemed so solemn. It is understandable that Inuit would rather find ways of punishing transgressors in their community as all power and authority is taken from them when strangers come into town and use their power to remove their sons and put them in jail. It was also intimated to me that people often do not report wrong-doings to the police because one of their own family members could be the next one accused.

Community Wellness

I was eager to learn the strength of cohesion in the community and of the women's involvement in it. In question number 15 I asked if they usually attend community meetings. Twenty women said that they usually attend, nine said occasionally, and 18 said that they seldom or never attend. Only two women out of 15 in the youngest age group said that they usually attend community meetings and five others in this group said that they occasionally attend. Some said that if they feel it is important, then they attend, but others said that they were usually too tired after work. All of the women in the oldest group (except one who seldom leaves the house because of a disabled dependent) said that they always attend community meetings. The elders feel that it is their responsibility to keep abreast of what is going on and also that they welcome an opportunity to ask questions. One elder told me:

"Women's job has changed. Young people don't do as much as before. I do the same things as my mother did--and she didn't go to school, either."

In the past I had always noticed that visiting was a popular social interlude so I noted who had visitors in the house when I entered; in only 14 of the 47 households were no visitors present. However, one 38 year old woman told me:

"Inuit have changed. They visit less now--even with relatives--too much TV. Inuit are more like Qallunaat now--more busy now. Older people are always babysitting their grandchildren. There's no going back. I would feel less Inuit if I couldn't eat Inuit food--not real Inuit, but we will always have the language."

Although things have changed for the Inuit, the great majority of the women with whom I spoke said that they have a good life now, though an 18 year old told me that she was not really happy.

The last question in my interview guide (#53) asks if the participants thought it was better to ask women, rather than men, questions about food and contaminants. Everyone said that it was better to ask women because *“women take care of the food--they examine it. Women are concerned about the health of their family”* (aged 34). Another 34 year old told me:

...women have an easier time talking; the men don't talk very much. Inuit men never talk to Inuit women about hunting though women are just as concerned about food. It was only recently that they started getting their hunting licences. They didn't think we should be out hunting. They thought we were taking the polar bear tags away.”

Some older women told me, *“some men don't seem to care; women handle food more--men just kill,”* and *“people have said that it's the ladies who try to solve things--problems,”* and *“ladies always do more than men—even in church. We talk more and do more action too. We are the only ones who tell our kids what's right from wrong. Men just sit in the house and watch TV.”* And a 46 year old said:

“Women talk more, even in meetings but it seems to be mostly the women who do the talking. Men think but they don't talk. Maybe men talk to men but they don't talk to their wives or other women,”

and a widowed elder said:

“Ladies tend to talk more. That's a question that I've been wanting to hear for so long because in a church group or public meeting or if something has to be fixed, men are just quiet. It's the ladies who are doing it all the time here. They say a man is supposed to be head of the house but they don't do anything. It's the wife who's doing it all the time--they don't want to help out.”

Although I was fairly familiar with the kin structure in the community, I asked women if there were any families in Coral Harbour to which they were not related (#16). On average,

everyone was related to about half of the families there, though nine women said they were related to fewer than 50% and several said that they related to most of the people there; one 37 year old explained *“even if it's not blood, there's a connection to almost everybody.”* This woman told me that the people from Northern Québec are called the Okumiut (“like a shield”), Baffin people are Kriqatalingmiut, and the Inuit from the Keewatin mainland are called Agomiut (“from the wind”). A 40 year old woman thought that the identification of origins was a divisive element in the community. She remarked, that although she was born in Coral Harbour and grew up there, she feels that she is still identified as coming from elsewhere and made to feel like she does not really belong. An older woman was also concerned about problems in relationships *“family problems, people fighting each other—like those from Northern Québec, Baffin and Keewatin. It really goes on in this town. It's been like this since the 1970s.”*

One woman, however, felt particularly blessed because she had been adopted (and thus had two families), and was married twice, and hereby became related to two more sets of families. She said she was related in some way to everybody in the community. Another woman who said that she was related to all but three families quietly told me, *“I don't want the kids to hear this because they think we're all one. I don't want to change things. If they think they're not my friends, they'll try to do something.”*

The answers I obtained from my question, “how are decisions made in this family?” (#44) were not entirely unexpected. Although only five women said that the wife (that is, themselves, or their mother) made most of the decisions, an additional seven women did not have husbands, and thus they made their own decisions. Nine women told me that their

husbands made the decisions, but 16 said that a consensus was usually reached (either by the couple or the family). However, it was also made clear to me that women make all the decisions about food because they prepare it. From my observations, I have learned that members of Inuit society respect one another's opinions, and this consensus situation also exists in the family circle as well as in the government.

In answer to my question "do you find that rumours and gossip are generally true?" (#43), nine women told me definitely "no," and all of the other participants said "yes and no." Several elaborated; for example, a 34 year old woman told me, "*this town is famous for it. If it's kind of outrageous, I just ignore it. But if it really bugs me--involving a relative or something, I find out about it.*" It was generally thought that there was too much gossip around, and some women declared that they only believed in some gossip as sometimes there may be a little bit of truth in it, whereas others said that it was all lies. Mary Douglas (1994) asserts "the control of rumour is central to risk perception" (p. 18) because although rumours can contain threads of truth, they can snowball, get out of control, and become totally suspect.

One 63 year old said, "*Mostly I don't listen or think about it ; some of it is not always true,*" and a 35 year old told me,

"If gossip is concerning myself or my kids or somebody who I'm close with-- I'd try and find out somehow. But if it wasn't true, I'd surely jump in and say it wasn't true."

For the most part, women said that they usually just listen and then decide for themselves if it's true. (However, several women also told me that women gossip more than men!) It seems that if the rumours that are being bandied about concern family members, then participants

try to find the source and any truth associated with the gossip. But, if the rumours are about other people--either in Coral Harbour or in other communities--or about issues that do not concern them personally, then the women usually ignore them.

In order to learn how people regard the importance of communication and the best strategies for its implementation, I asked questions 45, 46, and 47. I asked each woman, "do you think that better communication/education about contaminants would reduce people's concerns about risks" (# 45), and only three said "yes." Most of the women told me that they never hear about risk and that people are not worried about contaminants-- "*nobody talks about them,*" and, "*on the radio it's only people from other places talking about contaminants.*" However, several said that they would like to be given more information (which also answered question # 46). For example, "*people here are not worried [about contaminants] but we should be told more*" (aged 44), and "*people around here never seem to worry about contaminants. If they knew it [the food] was contaminated, maybe they would worry,*" (aged 46). A 36 year old woman told me,

"people here aren't too bothered about contaminants. We hear about oil spills in other places. We don't think that an oil spill somewhere else would affect us."

Although she did not believe that more education about contaminants would actually help reduce any risk-taking behaviour, a 34 year old woman told me that, "*It would help them understand better.*" Another 34 year old said,

"environmental cleanup and MOT brought contaminants to people's minds. Maybe PCBs are a health hazard. There are white things in caribou meat, encapsulated and squishy."

This same woman, earlier in the interview, said that she had never heard of any kinds of

contaminants (could not name any) and that nobody in the community is worried about contaminants; she also told me that if there were a 1% chance that Inuit food had PCBs, she would not eat the food.

In direct answer to my question (# 46), “would you like more information about contaminants--which ones?” everyone said that they would like more information, many said that they want to learn about all contaminants, and several specified PCBs. The most common response to “who do you think would be the best person to give this information to people in this community?” (# 47) was someone they “know and trust.” Several women said that the nurses should tell the people, and as many suggested the Community Health Representative (C.H.R.). Others responses include (one each), the Hamlet Council, the Mayor, a scientist, a doctor, and the Hunters and Trappers’ Organization (HTO). The latter was suggested because “*they could inform people through the local radio because more people listen to the radio than go to meetings. Then people could call in and ask questions.*” This answer was also a confirmation of one of their most preferred ways of communicating information (radio phone-in shows), and of having questions answered in the most efficient manner.

Although I was fully aware that probably all of the Inuit of this community would say they were Christians (later in the interview, 46 of the 47 women expressed their certainty in the existence of God), I also wanted to know how they reconciled native spirituality and Christianity. Questions 25, 26, and 27 asked, “do you believe in traditional Inuit myths and stories?”; “do you believe in native Inuit spirituality?” and, “do you believe in taboos?”. Many women told me that they believed in *angakoks* (shamans)--some even named their deceased relatives. A few did not know what *angakoks* really were supposed to have done, but they

believed in their existence. I was told:

~“Christianity has replaced *angakoks* but the churches are in competition. Too many churches in a little town,” (aged 37);

~“But I don’t want any more *angakoks*,” (aged 70);

~“I have heard about it so I believe it, but I was never really part of it,” (aged 25);

~I believe in *angakoks* because my mother used to tell us. My parents talked about the *Tuniit*,¹³ so I believe. My father used to tell a story about a lady who caught a walrus—I think the *Tuniit* were really strong people. She carried this walrus” (aged 43).

An older woman told me that she believed in *angakoks* because she had seen them:

“Some *angakoks* used to heal the sick, or if hunters were out for so long and people were worried about them, so with their spirit they used to go check on the people. They were not like gods but like prophets; if somebody made a mistake or did something wrong—that *angakok* would know. Psychiatrists are *angakoks*—they can tell what’s wrong even if you’re not saying anything. They can heal people too. Some people who have seen those kind of doctors because they were letting those things out—like from depression—that’s when they started feeling better. That’s why I think psychiatrists are *angakoks*.”

One young woman (aged 24) said that she believed in *angakoks* and believed that they were powerful. She thought that there were still some around today—but they are in other communities such as Rankin Inlet, Arviat, or Repulse Bay. Many women acknowledged the past existence of *angakoks* (“they were real and they had real power”) and of the *Tuniit*, but one woman said, “maybe they used to pray to the certain thing and maybe it was God giving

¹³ In their legends, the *Tuniit* are described as peaceful giants, having great strength and excellent hunting skills. The last of the Sallirmiut of Southampton Island have been identified as *Tuniit* (Eber, 1989; Rousselière, 1955a), and are said to have resided at Tununirmiut (Native Point) where great boulders can be seen that they are said to have thrown in order to deter invading tribes. Unlike some myths and taboos which were evidently conveyed to the Inuit by Qallunaat (probably whalers), the tradition of the *Tuniit* was created from the Inuit community itself.

them this so they thought they'd become angakoks, but they weren't." Although a few were a little skeptical about some of the myths (one calling some of them fairytales); several had heard of the great size and strength of the Tuniit, and a 41 year old told me:

"I've heard of Tuniit. I think they were the lucky ones--no debts, no drugs,-- just being free. I don't mind going back. I know it's impossible, but to me life would be complete if I could live out there with no one bothering me--with no drugs and no alcohol. Inuit people long ago--I find them lucky. I find them much happier at that time. They used to starve, too, though."

Several women said that they believed in the Tuniit because they had seen their huts. Other responses include:

~"Some are tales and some are true. I'm not sure if I believe in Tuniit. But what my mom used to tell me was that they [Tuniit] were different from us people. Like, our heads were more narrow and the Tuniit were more round. Of what our parents tell us, we tend to believe them. I never used to believe them but after my mom told me, I believed. The scientists tell us that humans come from monkeys, but I don't believe that. Maybe I believe that the Tuniit were just ordinary people. We have different beliefs," (aged 60);

~"I believe there used to be Tuniit because there's some huts down at Native Point and they're different from the sod houses that my parents used to make. There used to be a lot of bones down there and some skeletons that weren't even buried" (aged 62).

One 48 year old told me:

"I believe in the Tuniit. I saw their skeletons and they had bigger bones, and we were told they were Tuniit. So I believe, even if I didn't see the Tuniit people. I believe in angakoks because it even says in the Bible, too. The Bible talks about angakoks. It says that they had the powers but they didn't have Christian faith."

Most of the taboos told to me depicted pregnancy. Several women told me that if a pregnant woman stands in a doorway, her baby will get stuck in the birth passage, and the woman will have a long labour. Also, a pregnant woman should get up out of bed as soon as

she wakes up in order to avoid a long labour (though two women told me that it was the husband who should get out of bed straight away so that his wife will not have a long labour), and one woman said that she was told that if she did not do much housework, her labour would be long. One teenager who had recently given birth told me:

“When I was pregnant my mother told me not to wear clothes with holes because if it was going to be a boy, it would turn out to be a girl. When you're pregnant you should not sleep too long, not chew gum, and not stand in the doorway because this would make the labour longer. If you chew gum the baby will be covered with too much white stuff and the afterbirth will be stuck to your stomach.”

One woman who also told me the story about not chewing gum, admitted that two of her babies were covered with white material because she had chewed gum too much--no doubt the result of disregarding “old wives’ tales.” Another, who had had a baby 15 years before, said,

“I was told that you're not supposed to sew with a long thread or your husband isn't supposed to have long ropes tied to the qamutiq and dogs or the snowmobile because the baby would have a long cord and it would tie around the baby's head. When you wake up you have to go out of the igloo right away so that when you're in labour your baby won't stay in one position; it will go out right away.”

A 28 year old woman said:

“I was told not to crochet when I was pregnant or the cord would be around the baby's neck. But I did it and it came out true. The cord was around the baby's neck twice--on two of my babies and I crocheted during pregnancy. The first one--I didn't know how to crochet and he was OK.”

A 43 year old mother of several children, who, after telling me about some of these taboos, said that she does not really believe in them but, since she was told them by her mother, she also tells them to her daughters. Another woman, who had recounted some of the

aforementioned taboos said:

“These days it’s different now. You have to lie in bed when you’re in labour—different from back then—so it takes longer. With the nurse nowadays there are so many rules you have to go through in the hospital when you’re in labour” (aged 43).

In a different vein, another participant told me, *“never steal anything or your nails will fall off,”* however, when she found out that some of her friends had been stealing, she had watched for this to happen, and when it did not, her faith in taboos was shattered. An interesting observation was made by another woman who queried whether Inuit have *“taken some Qallunaaq taboos because once I broke a mirror and I really did have seven years bad luck.”* Another taboo—one which seems to have biblical influences—is that you are not supposed to sew on Sundays, otherwise you will try to go to heaven through the eye of a needle. After speaking with many people in Coral Harbour, it is evident that, in general, Inuit have little trouble with the co-existence of Inuit spirituality and Christianity. As with other aspects of their lives, flexibility and common sense persevere.

If Inuit Food Disappeared...

One of the most important questions I asked during my conversations with Inuit women in Coral Harbour was, “How would you feel if you couldn’t eat Inuit food any more?” All 47 women expressed in various ways how tragic that situation would be, from *“I would feel bad”* to *“I would die.”* Most said that they would be hungry all the time and they would be cold and weak, and many elaborated on their feelings:

~“I would feel bad. My husband would miss hunting and my son would miss eating caribou” (aged 28);

~“I would not feel good. My health would get worse—my body would start craving for Inuit food. Just like now—my body is craving for seal because we can’t eat it for two months. My body needs seal blood. My body seems to get sick when we can’t eat native food frequently” (aged 48);

~“I would miss the taste—we’re so used to it, I guess. If the animals disappeared Inuit people would starve. People would be bored because they are used to hunting. I can’t say if there would be more drugs or not” (aged 19);

~“I would feel that part of our tradition had been taken away from us. It would be a big loss. Even now when we can’t take any seal for two months, it has taken part of our tradition away” (aged 43);

~“I would feel terrible. I don’t think I would last too long—I’m too used to eating it. There would probably be hundreds of crazy Inuit running around looking for cached food. The hunters would get bored. We crave for certain Inuit foods—worse than wanting a cigarette. It might not bother the little kids too much if they’re not used to eating Inuit food too much. But some families eat Inuit food a lot and they would miss it the most” (aged 34);

~“I would feel very sad. I have to have Inuit food every second day or else I seem to be craving for something. Even if I eat Qallunaaq food I feel I don’t want anything if I can’t have Inuit food. When in the south, I find something similar—like pork ends, or spareribs that have fat on them” (aged 44);

“I would go crazy—not crazy, but I know we would be craving it because we’ve been eating it for so long” (aged 35);

~“I would go stark raving mad. I couldn’t live without it. When we were down south I was really craving for it—it was really bad. People brought us Inuit food. It would be really bad for the elders—Qallunaaq food is so expensive” (aged 34);

~“We would suffer more; we would lose more money. We’d be full for a few hours then get hungry. We’d have to depend on the Northern and wonder if we’d be getting safe food—things like chicken and pork have chemicals. My little boy would crave for Inuit food” (aged 41);

~“Our bodies are so used to Inuit food. In hospital I was throwing up Qallunaaq food but when I got frozen caribou and char I felt better and stronger” (aged 43);

~“It would affect us a lot because we’re so used to it. We would probably be looking for it—just leave the house and look for it. If we don’t eat our native food for a couple of days, it seems like we haven’t eaten for a long time” (aged 49);

~“Maybe I wouldn’t be normal any more. I’d look for food to eat that would stop my craving for Inuit food” (aged 45);

~“I would feel terrible. If I haven’t had Inuit food for some time I feel like I haven’t really eaten. I have to have some Inuit food once in a while. Sometimes I really crave for it if I haven’t had it for a long time. My family could manage without Inuit food, but I can’t” (aged 39);

~“I wouldn’t have any more strength. I would be hungry all the time. It would be very boring—very bad if I couldn’t eat Inuit food any more” (aged 63);

~“If scientists said native food was contaminated I wouldn’t believe them. If my husband couldn’t hunt Inuit food any more maybe he would go crazy. He loves hunting and to eat native food, so if he couldn’t that would really pull him down” (aged 45);

~“We would starve because we cannot afford to eat Qallunaaq foods. My family would not be happy because my younger kids are used to Inuit foods and like them a lot” (aged 60);

~“Maybe I would have to buy some Qallunaaq food and eat it raw. We wouldn’t have any choice but to eat Qallunaaq food. Once we got used to it maybe we wouldn’t be so hungry all the time. For those who are really strong it wouldn’t affect them” (aged 37);

~“I would starve; I would crave for it. If I were told that Inuit food was contaminated I would be devastated—but I would still eat it” (aged 36);

~“I couldn’t survive. I wouldn’t believe the scientists; I would still eat our food” (aged 47);

~“I would die right away. I think everybody would die” (aged 59);

~“I would be mad and sad. If I was starving I would take the chance and eat something that could be 1% contaminated” (aged 45);

~“I would die—I would feel I would die. I can’t go without it. Sometimes I

throw up when eating Qallunaaq food. If we couldn't eat Inuit food any more we'd become Qallunaaq. My husband wouldn't have his job and we wouldn't eat half the time because store-bought food is so expensive...we'd be a lot sicker because we wouldn't have much iron or anything in our bodies. There would be more social problems and we'd have to sell things to get something from the store to eat. If Qallunaaq told me I couldn't eat Inuit food because it's contaminated I wouldn't believe them" (aged 30);

~"I would be sick all the time. Once when I was down in Winnipeg and hadn't had native food for a long time, somebody gave me some caribou and my stomach felt better right away" (aged 25);

~"Our health would be worse because there's not enough blood in Qallunaaq food. When you go south for a few weeks and eat Qallunaaq food you feel weak" (aged 37);

~"I would die right away—I wouldn't be able to stop even if it might be contaminated. If all the animals disappeared I wouldn't be able to make it in my life" (aged 60).

Themes of sadness, suffering and loss recurred throughout their answers, but mainly, women were concerned about the likelihood of sickness from which they would not recover. The fear of starvation was echoed by some women who had only heard of it from their parents. A woman in her sixties offered an interesting answer to the question of loss of Inuit food:

"In my generation we were told that one of these days all the native food would be gone. I don't know what would happen to us if we couldn't eat it any more. I don't know what I would do. My parents used to tell me that the land itself isn't going to be like it used to be; it's going to get contaminated in later years--that's when the animals won't have any more food to eat. They would be gone. I was told this over 50 years ago."

Summary

The context of Inuit women's perceptions of the risks of pollution encompasses their socio-cultural and natural environments. Perceptions of risk are not merely cognitive in the sense of recognizing "real" risk or understanding probability outcomes; they are the results

of personal experiences and collective knowledge. As proposed by Covello and Johnson (1987), what societies choose to call risky is largely determined by social and cultural factors. Decisions are made about which risks are important and which risks can be safely ignored; societies selectively choose risks worthy of attention and concern. In addition to expressing grave concern about drug abuse in the community, the only time Inuit women became really upset was when faced with the hypothetical threat of losing their traditional foods. This would be catastrophic; pollution such as the depletion of the ozone layer pales in comparison. Although their perceptions of risk are subjective and individual (not collective), they are framed within the Inuit cultural context--hence it is not surprising that many responses were homogeneous. It is evident from the women with whom I spoke, that although the existence of contaminants such as PCBs in the Arctic food chain is not a situation that pleases them, they have the more immediate problems of drugs and alcohol to worry about.

According to Douglas and Wildavsky (1982), Americans are afraid of "nothing much...except the food they eat, the water they drink, the air they breathe, the land they live on, and the energy they use" (p. 10). Inuit are aware of the possibilities of negative outcomes in all of the aforementioned areas; however, they do not panic about events over which they have no control--like contaminants in the Arctic food chain. Although they feel that they have little control over drugs and alcohol being brought into their community, they also believe that these are reversible problems and some governmental assistance should be offered to help in ridding the community of these pollutants. I was told that the government should take more responsibility in protecting the Arctic environment--though many found it difficult to trust in government departments which controlled from a distance.

Problems of drug and alcohol abuse interfere with the maintenance of social solidarity. Besides examining salient health and environmental issues from the scientific perspective, it is important for researchers to discover what social norms and institutions in a particular cultural milieu are being eroded by various types of pollution; this would include the integration of (perhaps buried) psychological factors with social and cultural factors and would highlight the value of different disciplinary perspectives on risk perception. In this study women are recognized as knowers; their lives have been made visible; their voices have been heeded. In the next chapter Inuit women's voices will be reiterated and salient themes will be compared with those in the popular press and scientific discourse.

CHAPTER EIGHT

Discussion and Summary

"We'd become Qallunaat!" I was told in response to my question, "how would you feel if you were not able to eat Inuit foods any more?" For many Inuit, a loss of identity would inevitably result from lack of access to their traditional foods; if they had to eat Qallunaaq foods they would become Qallunaat. As expressed in the adage, "you are what you eat," there is a recognition that the body is fundamental to a person's sense of identity. Egede (1995) talks about the importance of "our foods [which] do more than nourish our bodies. They feed our souls. When I eat Inuit foods, I know who I am" (p. 45, cited in O'Neil, Elias and Yassi, 1997).

When I first considered this research project, I thought of talking to Inuit women in Coral Harbour about possible alternatives to consuming Inuit foods if these foods were deemed (by scientists) to be too contaminated for consumption. What foods would they eat, what activities would replace hunting and meat preparation? Although I knew that Inuit food was very important to them, as I had often been a guest in their homes, I did not expect such an overwhelming outcry against the very possibility that their traditional foods could be unfit for consumption. Without exception, every one of the 47 women with whom I conducted in-depth interviews said that she could not bear the thought of doing without land foods; in fact, most thought that they would not survive. I was told:

~ I would starve to death;

~ I wouldn't have any more strength. I would be hungry all the time;

~ I would miss the taste;

~ I'd be pissed off.

I learned during my pilot project in Povungnituk that the possibility of contaminants, such as PCBs, rendering Inuit foods unsafe to eat seemed to them remote. I was told that contaminants were not their primary concern, but that drug and alcohol abuse and family violence were more in need of attention than searching for and worrying about invisible contaminants. These aforementioned problems were ones they were facing daily, and they did not really want to consider hypothetical (not to mention unpalatable) consequences of pollution caused by Qallunaat thousands of miles away. I then decided to ask women in Coral Harbour the more inclusive question of what were their perceptions of pollution so that all sociocultural aspects could be incorporated.

Women in Coral Harbour told me that,

~ "pollution is mostly sewage that's dumped on the ground;"

~ "pollution is like factory smoke--a poison;"

~ "pollution is like something you're not supposed to have--like drugs;"

~ "taking drugs is like pollution of the brain."

Such metaphors are basic to all language (Hillgartner, 1985) and they represent the conceptual system through which we view our world. The word "pollution" was also interchanged with terms like PCBs, trichinosis, E.Coli, and the ozone layer. Drugs, however, was mentioned the most often as being the most potent pollutant in their community.

Perceptions of risk in the past have usually addressed how the Qallunaat perceive risk in relation to environmental, social, and health concerns (O'Neil & Kaufert, 1990). In this

study I wanted to capture perceptions of risk from the Inuit point of view and, in part to control for influences of gender, I narrowed the sampling frame by focusing on Inuit women only. The feminist approach I chose to use explores ways by which gender enters into environmental issues and the ways in which environmental issues are shaped by gender-specific constructs, and emphasizes women's consciousness. This is characterized by Reimer (1996) as being specifically appropriate to the Inuit cultural context as it refers to "women's recognition and acceptance of the culturally defined gender role they are expected to fulfil" (p. 79). In recognizing Inuit women's lived experience, their women's consciousness becomes salient; this is demonstrated by placing women's own definitions of their problems or concerns at the centre of the enquiry and by their ongoing commitment to act as caretakers in the home and community (Reimer, 1996), as well as by their coping with possible disruptions.

Perceptions of Pollution and its Risks

Risk is always *perceived* by somebody; it is never simply present. Risks in Western cultures are usually taken as quantitative measures of hazard consequences, and expressed as probabilities. Mary Douglas (1990) suggests that a "culture needs a common forensic vocabulary with which to hold persons accountable" (p.1), and risk is a word that could fit into that lexicon. To execute its full use, a word must be understood by members in a particular cultural context. Today, it seems that "risk" is generally accepted as having only negative outcomes. Studies have been conducted that suggest that some risks are more difficult to accept than others, including those that are involuntary, uncertain, unfamiliar, and

potentially catastrophic (Fischhoff et al. 1981). For example, smoking is a voluntary activity that is well known to have adverse health effects, but smokers in the current study told me that they accepted this risk because they are unable to stop, or that they do not want to quit because they enjoy smoking. It is interesting that women gave a similar explanation for their need to continue eating Inuit foods; in fact, one participant told me that her craving for Inuit foods was *“worse than wanting a cigarette.”*

Differences in Discourses

A contaminants discourse has emerged in response to events such as the Exxon Valdez oil spill and the mercury contaminated waterways around Grassy Narrows Reserve. In this thesis, my intent was to highlight Inuit women’s voiced concerns about pollution and compare their voices with those of the popular media and the scientific community. There are many reasons for the public and experts to disagree about perceptions of pollution, some of which include misunderstanding, misinformation, and miscommunication. To be effective, communication uses multiple media--television, radio, various forms of print (popular press and academic), plus community or group meetings.

It is well documented that the public’s perceptions of risks often differ from those of the "experts" (Fischhoff et al., 1982; Nelkin, 1987). Inuit in Northern communities have only the word of outside experts that there is a problem with contamination of Inuit food resources. They must rely on communication about the risks “from people whose language and culture they do not fully understand and whose judgements and advice are based on information and principles to which they have incomplete, if any, access” (Usher, 1992, p.

46). Scientists are limited to certain ways of looking at problems, and the public may view the same problems from different perspectives. When the public and scientists disagree about the acceptability of a risk, there is a good possibility that they are addressing different problems (Fischhoff et al., 1981). For example, if a researcher found that Arctic foods were contaminated and that they could become unfit for consumption, she might suggest that more money be spent on further investigations. Inuit women, however, told me that if the Government is spending money on research, they would prefer it to be spent on more immediate problems--like substance abuse.

The media, too, play significant roles in the discourse on risk; news reports are often the only means that enable the public to become aware of risks of contaminants in the food chain. Mills (1991) reports that the more attention that is given to a particular risk in the media, the more the public perceives the risk as a serious threat. This was particularly apparent in the Broughton Island study when *The Globe and Mail* informed the rest of the country that Inuit in Broughton Island were consuming PCB-laden foods. Such media framing highlights issues which can have negative effects on the people concerned. However, when Inuit use the media to talk about contaminants, readers are more likely to understand (and believe) because the facts are relayed in a straightforward manner:

“researchers believe that no one in the Canadian Arctic has become sick as a direct result...levels in Arctic wildlife are still too low to cause immediate harm to people who eat country food” (Komak, 1997, p.8).

I was repeatedly told by the women I interviewed that they prefer talking with researchers whom they know and trust, and that the most appropriate people to communicate contaminant information to the Inuit are those with whom they are familiar.

Concerns over risks of pollution are amplified when it is apparent that there is disagreement among scientists, and between scientists and the media, when the pollutant is not easily identifiable, and, when the benefit of an action (such as consuming potentially contaminated Inuit foods) is not seen as greater than the risk (of contamination). Inuit women reminded me, *“Remember when we used to have to share a caribou?...the experts underestimated how many we could have...now we have so many.”* They also read in the local newspapers or hear on the radio that quotas for hunting certain mammal species have been changed yet again--because scientists have recalculated their previous estimates. Such audacious decisions regarding their food sources are unwelcome intrusions in their lifestyle. Dismissing scientific validity could be seen as a form of resistance to oppression; however, I see Inuit discourse as embodying a broad discussion about social change.

One of their greatest problems, Inuit women told me, was that they have difficulty in believing in invisible contaminants. Several women were able to identify visible pollution sources (DEW line sites, transformers and gasoline barrels close to the Coral Harbour airport). Other visual abnormalities in food sources (such as a skinny seal or red worms in the drinking water) were used as metaphors for contaminants.

Science is limited in answering our questions about risk; value judgements, which are influenced by the cultural context, are involved in the process of perceptions of risk (of pollution), and hence of perceptions of pollution. For example, mother's milk is surely the ultimate safe food for a babe. However, when one reads, *“Breast-feeding in a polluted world: Uncertain risks, clear benefits”* (Frank and Newman, 1993), in a scientific journal, even an informed reader feels uncomfortable. We are told that there is good evidence that subtle fetal

and infant health effects result from prenatal exposure to PCBs, but are relieved to discover that postnatal exposure through breast-feeding (if the levels of the mother are within the range normally found in North America) produce no adverse health effects. What should one do? Should a woman consider bearing children in this polluted world?

To be useful, scientific information must be understood in a cultural framework. The underlying nature of how we perceive risk information is not a problem, but a condition--a condition that we must live with. How the public and the media react to scientific information depends, to some extent, on their level of understanding of scientific concepts (Mills, 1991). However, it is not merely an understanding of scientific jargon that communicates a sense of risk, it is the learned cultural knowledge that influences how individuals in a community realize their priorities.

Nelkin (1985) suggests that a person's distance from the source of risk may well influence their perception of harm. Some Inuit told me that they thought that they were too far away from industrial sources to be contaminated by their effluents, yet others realized that pollution has far-reaching effects. We do not really accept risks--we accept options that entail some level of risk among their consequences (Fischhoff et al., 1981). All of the Inuit women with whom I spoke stated a willingness to consume their foods despite the risk.

Related Study Objectives

One of the objectives of this study was to identify nutritional and sociocultural advantages for Inuit who consume Arctic foods, and to explore some of the potential risks of consuming foods which may have been contaminated by environmental pollution. I asked

women what were the benefits of eating Inuit foods and I was told, *“they make me feel warm and full;”* *“ the blood of the animals gives us strength.”* The pursuit of the hunt involves all family members and is necessary for maintaining good relationships with extended family and other community members. If hunting activities were curtailed, I was told, their husbands would miss hunting and everybody would be bored. Food sharing constitutes a large part of their socialization; if Inuit foods were not available, their reasons for sociability would decrease substantially. When I asked women if they thought that it was a risk to eat Inuit food that might be contaminated, I was told by many of them that they would eat it--whether there was a 1% or 50% chance of it being contaminated. In fact, most women disregarded the potential risk, telling me that they thought that the risks of contaminants in their food were not real (intimating that it was not a priority in their lives at that time), and that before they would discontinue eating their traditional foods, they would want to see for themselves the evidence that Inuit foods could harm them, for example:

“There may be some here because I heard that there were contaminants near the dumps some time ago. I think it was PCB or something. I don't think people around here are worried about contaminants in food.”

The second related objective of this study was to describe the changing influence of cultural beliefs and practices related to food on health status and health care decisions undertaken by the Inuit. Women told me that many Inuit children today seem to prefer Qallunaaq foods (especially “fast foods”) and are probably influenced by advertisements on the television. It was particularly worrisome to the women when they were told by their children and grandchildren that Inuit foods contained contaminants--their command of English giving them an advantage over their unilingual elders who thus felt uninformed and somewhat

vulnerable. I was told that children learned in school about contaminants in the Arctic food chain and by listening to news items on the radio. Women were concerned that this generation of children would not become real Inuit because it is only by eating *niqituinnaq* (Inuit meat) that a person can be *Inummarik* (genuine Inuk) (Brody, 1976; O'Neil, Elias and Yassi, 1997). It seems that not only drugs--which are poisons introduced from the outside--but foreign foods, too, are contributing to the dilution of Inuit culture and to increasing the divide between the elders and the younger generation. Many women felt that there was little that they could do to prevent further encroachment on their way of life but thought that if *niqituinnaq* were to be considered contaminant-free, then their children might be inclined to want to eat more of it. The women also realized, however, that it is not only the fear of contaminants that influences the decisions youngsters make regarding food choices, it is also the appeal in television programmes in which prosperous Qallunaat are seen eating the foods that are available in the local Northern store.

In order to detect how much outsiders influenced their decision-making regarding food consumption I asked women if they thought that most things could be proven scientifically. The majority expressed doubt in the reliability of science--particularly if it were suggested that their foods should not be eaten. I was told,

~ *"I would believe them but I would still eat the food;"*

~ *"I would only believe them if somebody got sick. If I were told that there was a 1% chance I would still eat the food. If the risk was 50% I would just cook the food for longer."*

Cooking the food longer was suggested by some women as a method of destroying any potential contaminants because this advice was given to them during the E.Coli outbreak in

1991. Health authorities advised Inuit to cook hamburger meat well. Several women said that because scientists are the experts, they would believe them but they would disregard their “evidence.” Women told me *“Inuit know things, too.”*

“Native science” or traditional ecological knowledge does not take up all the cognitive space in a culture; new knowledge or ideas about the environment enter into people’s cognitive realm when exposed to outside influences (Krupnik & Vakhtin, 1997). For the Inuit, the association they feel when hunting and consuming Inuit food sources emerges from a cumulative body of cultural knowledge handed down through generations and is derived from a symbiotic relationship with the environment (O’Neil et al., 1997). The Inuit are willing to listen to new ideas and some appeared to have a rather sophisticated understanding of contaminants. It is surprising that the Inuit women in this study considered themselves and their families healthy, (as did Grondin et al., 1994), when many of them consider the environment polluted or unhealthy.

When I asked women which food was not healthy, most of them said “junk food.” In fact, in a previous study, junk food was in a category of its own (Mary Douglas would call it an anomaly); participants classified it as neither Inuit nor Qallunaaq food (Egan, 1990). Inuit women admitted to being more careful about eating Qallunaaq food, not only because they knew that it contained chemicals, but they were *“not so used to eating it.”* The majority of respondents thought that Inuit were less healthy now, in part because they were consuming less Inuit food. They were also concerned about the increase in the prevalence of cancer among the Inuit; they wondered if this too, could be related to diet change.

Inuit food is the essence of their socio-cultural system—an idea grounded in the special

relationship between Inuit and the animals they hunt, a food that was thought of as pure and untouched, and unpolluted by outsiders. Their experiences in life (social and spiritual) are unified compared with the fragmentation of Western cultures. The current concern about the environment reflects struggles over fundamental human values. Whether or not the Inuit are actually ingesting polluted foods is only one aspect of the problem. The threat of such contamination is sufficient to cause anxiety regarding possible loss--of traditional food, and of confidence in the safety of familiar foods; of fishing and hunting activities; of good health; and, of loss of control over one's destiny.

The final related objective in this research study was to explore a range of potential risk behaviours on the part of Inuit women and their families if faced with health threats in the context of environmental or social pollution. I was told,

~ *"...if the animals disappeared Inuit people would starve;"*

~ *"...there would be hundreds of crazy Inuit running around looking for cached food. The hunters would get bored;"*

~ *"...if my husband couldn't hunt Inuit food any more maybe he would go crazy;"*

~ *"Maybe I would have to buy some Qallunaaq food and eat it raw."*

Because they did not believe that total loss of Inuit foods would come to pass, they did not see the point in hypothetically trying to cope with the situation. I was told that they simply would not survive, hence no further action was possible.

For many of us, risk has become politicized in the debate about accountability and undesirable outcomes. Its link with probability calculations has weakened, and even though the magnitude of risk is usually related to the magnitude of the probable outcome of the

event, it is not necessarily the reality of the dangers that is at issue, but how they are internalized, interpreted, and politicized (Douglas, 1990).

Danger and Power

Douglas (1984) suggests that Western ideas of dirt/pollution signify disorder. The Inuit Sedna story, too, depicts disorder caused by transgressions. In the act of perceiving, we filter information by accepting or rejecting cues according to their fit in our established pattern. If anomalous cues are accepted, we may need to modify our previous assumptions; we then accommodate and accumulate new experiences. In accepting the fact that pollutants such as drugs and alcohol have invaded their community, Inuit women are now trying to reorder their environment. They see their children being lost to illicit substances (*"it seems like they're getting further away from you"*), and they would like to take away their pain. They are looking for healing and for ways to rid their community of such invasions of dirt.

Disorder (pollution) represents both danger and power. Pollution powers are different from other kinds of power because an individual may not knowingly provoke them, as they are inherent "in the structure of ideas itself and which punish a symbolic breaking of that which should be joined or joining of that which should be separate" (Douglas, 1984, p. 113). For the Inuit, even the threat of contamination of their customary food sources is sufficient to disrupt their cultural boundaries. Social relationships are expressed among the Inuit by acts of gift giving--essentially of Inuit food--and its attendant reciprocity in the community. The idea of contamination comes from the outside (scientists, government) and it is in the warnings issued by them regarding potential pollution that a possible threat is made to the

Inuit lifestyle.

Social pollution was easy for the women to identify in this study. Forty-five out of 47 women in Coral Harbour said that drugs were the worst problem in the community, "*drugs is like pollution*" and "*if there were no drugs in this community there would be less problems.*" Douglas (1966) recognizes four types of social pollution: (1) pollution which presses on external boundaries; (2) pollution which transgresses the internal lines of a system; (3) danger in the margins of lines; and (4) danger from internal contradictions.

All of these types of social pollution can be applied to the introduction and abuse of drugs and alcohol in Inuit communities. These substances press on the circumscribed boundaries of the community as well as of Inuit culture--its outside lines contain power to reward conformity (Sedna) and repulse attack. The internal lines can refer to the Inuit cultural norms and mores--when these social barriers are crossed, the perpetrator or substance is treated as a dangerous pollutant. A polluter sins twice because she both crosses the line and endangers others. Pollution is a type of danger which is most likely to occur when the lines of structure (including social) are clearly defined. In addition, any structure of ideas (or culture-bound community) is vulnerable at its margins. Margins are dangerous because, if they are distorted, their shape is altered (the community is out of shape). The last kind of social pollution is that of internal contradiction where the system seems to be at war with itself. In the Inuit context this may be seen as when some basic edicts (such as the bylaw forbidding alcohol) are denied or other ideals are defiled by others in the community. Douglas also asserts that, "when the community is attacked from outside, at least the external danger fosters solidarity within" (p. 140) and this was echoed by participants in this study who said,

"I think this community is a strong one. They all chip in when something goes wrong."

An analysis of this research study is presented in the form of this thesis; however, the analysis itself continues to evolve. Because I find that it is the most urgent, I am addressing the social realities of Inuit women's perceptions of pollution, and how these realities are informed by the discourses of the popular press and the academy.

Other Approaches

Initially, I had considered using the notion of the body as a framework in my exploration of how Inuit identity is intertwined with the traditional foods they consume. If it were necessary to substitute Qallunaaq food for Inuit food, the very essence of Inuit existence would be diluted. Several researchers have used the concept of the body (particularly women's bodies) to explain sociopolitical activities (Martin, 1987; Shilling, 1993; Grosz, 1994; Lock and Schepers-Hughes, 1996). Douglas (1978) talks about two bodies: the physical (individual) body and the social body that constrains and modifies it. It is the tension between the individual and social bodies that allows for an elaboration of meanings.

In 1978 Douglas identified four distinct social systems of natural symbols in which the human body image is used to reflect and enhance each individual's experience of society: communication; the body as the vehicle of life (which she further elaborated in 1984 by explaining that "sometimes bodily orifices seem to represent points of entry or exit to social units" (p.4); bodily rejects (wastes); and, the body as a symbol of evil. All of these bodies are implicated in Arctic pollution. Communication about pollution is more than the conveyance of pure, rational, knowledge; an understanding about pollution differs among perceivers--Inuit

are more concerned about social pollution compared to the scientists' concerns with invisible chemical contaminants. As a vehicle of life, the body is represented by vulnerable individual bodies in Coral Harbour which are being contaminated by drugs and alcohol (and, possibly, by their traditional foods). Pollutants are taken in by bodily orifices, contaminating not only the individual, but all community members by their subsequent social disruptions. Bodily rejects refers to the issue of control in a system that does not work. Inuit women feel that their "personal relations are in the sinister grip of a social system" (Douglas, 1978, p. 17). Women told me that they are losing their young people to drugs--they are caught up in a sinister, underground social system which is alien to the traditional Inuit lifestyle. The body politic (government), to many, appears impotent (or in a state of disorder) and is unable to help. The human body subsequently represents a symbol of evil--the corruption of power and organization. She "experiences society as an alien, sinister body, a machine which represses life" (Douglas, 1978, p. 168). In furnishing a natural system of symbols, Douglas is trying to explain that the more the social situation exerts pressure on its members, the more the social demand for conformity tends to be expressed by a demand for physical control. Inuit women do not feel that they have the power to exert pressure on those who use drugs; it is a new and distressing situation. They have no traditional ways to cope with the problem, and because the pollutant is a recently introduced one, they feel that a governmental body should help in alleviating the worry.

Some social scientists regard Inuit discourse on contaminants--which is a knowledge counter to scientific discourse--as a form of resistance (see O'Neil et al., 1997, who describe it in the Foucaultian sense as a form of "contaminant bio-power"). Clearly, language in almost

any context can be used as a medium of domination (Delanty, 1997), but in this study, I did not explore discourse from a post-modern perspective; I considered discourses as types of communication (essentially) resulting from changes in material conditions as perceived by Inuit women. It appears, however, that although Inuit do not seem to conceptualize in terms of hegemony and resistance, they act in a manner which is culturally appropriate and their counter-discourse has the effect of quiet resistance. In the Western scheme, scientific discourse is dominant, and thus, in our society science is hegemonic¹. In contrast, in Inuit society where there is a more complex reality, scientific discourse is not dominant--in fact, from the findings in my research study, it appears to be largely irrelevant. Discourse is always contextual, and very probably culture-bound.

The notion of resistance has become a popular format for theorizing and, as Abu-Lughod (1990b), notes, its increasing prominence has emerged from a growing disaffection with previous ways we have understood power; it allows for a greater sense of the complexity of the nature and forms of domination. Wherever there is power (and that is everywhere), there will be a form of resistance--as in contaminant discourse.

Everyone in this study told me that contaminants were not a pressing problem and that they had more urgent social issues to deal with--for which they would like some help. And, as explained by Grondin et al. (1994), the issue of contaminants only adds to their current problems by reinforcing their loss of control. Inuit have been treated for years as if they did not know "what was in their own best interests" as federal officials imposed bureaucratic

¹ The concept of hegemony is often used to explain the relative stability of capitalist societies; it is a combination of consent and coercion (Turner, 1984).

systems that sought to regulate almost every aspect of their lives--a system that generated deep and widespread resistance from aboriginal communities (Dyck, 1997). As suggested by Grondin et al. (1994), it is time to reverse the lens of the microscope. Instead of the researcher placing organisms (people) under the microscope lens and interpreting their behaviour, we shall see the Inuit "not as passive victims, but as active agents of change who are continually reinterpreting their environment and their place and status within" (p. 370) subsequent to increased efforts which integrate Inuit concerns into research protocols.

Limitations of the Study

The fact that I chose to return to Coral Harbour to conduct my research--a community with which I was already very familiar--could be seen as a study limitation. Perhaps it would have been better, too, if I had been able to conduct similar research in other Inuit communities and hence render the findings more generalizable. However, I did not have the funds to be able to travel to other communities nor to stay longer. Because I am not as well known in other Keewatin communities, it would have taken much longer to conduct in-depth interviews with women in those communities. It takes some time to establish rapport with community residents, and people need to feel that you are interested in them as individuals, and not just as research subjects.

There is a potential for exploitation in the interview situation as women are almost always enthusiastic about talking to a woman researcher (Finch, 1984). More than men, women are used to accepting intrusions through questioning--even during encounters in their own homes. As explained by Finch (1984), the interview conducted in an informal manner can

take on the character of an intimate conversation. I almost always felt that participants in this study were very comfortable during the interviews, and several were glad to have a sympathetic ear when they revealed some family tensions. I have not repeated everything that was told to me during the study interviews as some comments are not intended for anyone else's ears. Women seemed to be pleased that they could help me, and felt that what they had to say was important, and that if they wanted their message to get out, I would relay the message. I believe they understood that I took seriously their experiences and voiced perceptions, and that I would not intentionally embarrass anyone.

I understand that it could be said that perhaps I knew the community too well. It is possible that some characteristics which would have been observed by another researcher I might not have noticed as unusual or worthy of explaining. However, I will probably never know.

Recommendations for Further Research

Without a doubt more qualitative research needs to be conducted in Arctic communities--not only in reference to pollution, but in respect to all aspects of health in the North. In addition, more Inuit need to take lead roles in the designing and conducting of in-depth interviewing. Ethnography emphasizes the experiential; its approach to knowledge is contextual and interpersonal (Stacey, 1988) and Inuit would have obvious advantages in close encounters. Many Inuit have been engaged in conducting survey questionnaires, and in other less inventive tasks. The interpreter with whom I worked told me that through working on several projects with me that she is encouraged to learn more about the research process. We

feminist ethnographers must make more effort to include not only Inuit women (and men) in future studies, but to promote their life experiences as being necessary components of the research endeavour.

As I am nearing completion of this thesis, I am grateful that Coral Harbour was there for me--and that the people there were so accommodating. I read over the transcripts and I can almost hear their individual voices; three of these women have since passed away. Whether or not choosing to conduct the research for my final degree in Coral Harbour makes good scientific sense--it worked. It worked well for me, and I hope that I can reciprocate, in part, by supporting Inuit women in their future endeavours.

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Appendix A

Scientific Research Licence, NWT

**Science Institute of the Northwest Territories - East
Box 160, Iqaluit, NT XOA OHO**

SCIENTIFIC RESEARCH LICENCE

LICENCE # 0301295N

ISSUED TO: Christine Egan
105 Harvard Avenue
Winnipeg, Manitoba R3M 0J7
(204) 475-9627

TEAM MEMBERS: Dr. John O'Neil
AFFILIATION: University of Manitoba
FUNDS AGENCY: NHRDP, NSTP

TITLE: Inuit Understandings of the Benefits of traditional Foods and Inuit Women's Perceptions of Contaminants in the Arctic Food Chain

OBJECTIVES OF RESEARCH:

To examine the effects of contaminant discourse on Inuit perceptions of environmental health risks. To identify nutritional and sociocultural advantages for Inuit from consuming traditional arctic foods, and to explore the perceived potential risks of consuming Arctic foods which may be contaminated by environmental pollution. To describe the changing influence of cultural beliefs and practices on health status and their bearing on health care decisions undertaken by the Inuit. To explore a range of potential risk behaviours on the part of Inuit women faced with environmental threats.

TERMS & CONDITIONS:

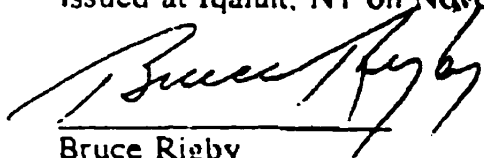
As attached.

DATA COLLECTION IN THE NWI:

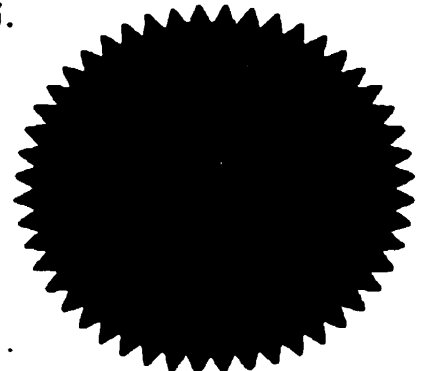
DATES: November 06, 1995 - December 31, 1995

LOCATION: Coral Harbour, NT (64°08'N, 83°10'W)

Scientific Research Licence 0301295N expires on December 31, 1995.
Issued at Iqaluit, NT on November 06, 1995.



Bruce Rigby
Science Advisor



Appendix B

Notification of Research

**Science Institute of the Northwest Territories - East
Box 160, Iqaluit, NT XOA OHO**

06 November 1995

NOTIFICATION OF RESEARCH

PLEASE BE ADVISED THAT SCIENCE RESEARCH LICENCE No. 0301295N HAS BEEN ISSUED TO:

**Christine Egan
105 Harvard Avenue
Winnipeg, Manitoba
R3M 0J7
(204) 475-9627**

TO CONDUCT THE FOLLOWING STUDY:

Inuit Understandings of the Benefits of traditional Foods and Inuit Women's Perceptions of Contaminants in the Arctic Food Chain

SUMMARY OF RESEARCH:

To examine the effects of contaminant discourse on Inuit perceptions of environmental health risks. To identify nutritional and sociocultural advantages for Inuit from consuming traditional arctic foods, and to explore the perceived potential risks of consuming Arctic foods which may be contaminated by environmental pollution. To describe the changing influence of cultural beliefs and practices on health status and their bearing on health care decisions undertaken by the Inuit. To explore a range of potential risk behaviours on the part of Inuit women faced with environmental threats.

TERMS & CONDITIONS:

As attached.

THE STUDY WILL BE CONDUCTED IN Coral Harbour, NT (64°08'N, 83°10'W) BETWEEN November 06, 1995 - December 31, 1995.



**SHARON TROKE
SCIENCE LIAISON COORDINATOR**

DISTRIBUTION:

**Mayor/SAO, Municipality of Coral Harbour
Chairperson, Keewatin Regional Health Board
RNO, Keewatin Regional Health Board
MHO, Baffin & Keewatin Regions
Director, Contaminants Unit, GNWT Dept. H&SS**

Appendix C

Scientific Research Licence--Conditions

Science Institute of the Northwest Territories - East
Box 160, Iqaluit, NT XOA 0H0

SCIENTIFIC RESEARCH LICENCE

LICENCE # 0301295N

ISSUED TO: Christine Egan
105 Harvard Avenue
Winnipeg, Manitoba R3M 0J7
(204) 475-9627

1. The principal researcher must make regular contact with the Environmental Health Officer of the KRHB until the Coordinators of the Human Health Baseline Monitoring Program are hired. At that time, communication will be with the coordinators.
2. This research must not confuse the larger human health baseline monitoring research that will be carried out by the KRHB.
3. The research must not create fear in individuals or the population of Coral Harbour.
4. The researcher will refer requests for information on contaminants to the KRHB.
5. There must be feedback by the researcher to the individuals and the Hamlet of Coral Harbour to ensure that the report is understood and that there is an opportunity for questions to be answered.
5. Preliminary data must be presented to the community of Coral Harbour and to the GNWT before disclosure to the media, general public or to delegates at the Circumpolar Health Conference in Alaska.

Appendix D

Scientific Research Licence--Responsibilities

SCIENCE INSTITUTE OF THE NORTHWEST TERRITORIES - EAST
Box 160, Iqaluit, NT XOA OHO

06 November 1995

Christine Egan
105 Harvard Avenue
Winnipeg, Manitoba
R3M 0J7
(204) 475-9627

RE: 1995 Science Research Licence

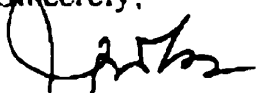
Please find enclosed your 1995 Science Research Licence No. 0301295N which was prepared under the ***NORTHWEST TERRITORIES SCIENTISTS ACT***, and forwarded to you today via mail. Should you require further support from the Science Institute's Research Centre, please contact the Research Managers to discuss your research needs.

According to the ***Scientists Act***, researchers issued licences must furnish an ***Annual Summary Report*** of their research. Upon completion of your 1995 field work in the Northwest Territories, please ensure that you submit a 200 word (maximum) non-technical summary of your research findings to our office by June of the following year. In addition, we require a copy of your ***Final Report*** and would appreciate copies of papers that you publish.

Thank-you in advance for assisting in the promotion and development of a scientific research community and database within the Northwest Territories. The reports and information you provide are utilized to prepare our annual research compendium, which is distributed to communities and organizations in the NT as well as to researchers across Canada.

Please accept our best wishes for success in your research project.

Sincerely,



Sharon Troke
Science Liaison Coordinator

Appendix E

**Approval, University of Manitoba,
Ethics Committee**

UNIVERSITY OF MANITOBA

FACULTY COMMITTEE ON THE USE OF HUMAN SUBJECTS IN RESEARCH

NAME: Ms. Christine Egan

OUR REFERENCE: E95:224

DATE: October 10, 1995

YOUR PROJECT ENTITLED:

Inuit Understandings of the Benefits of Traditional Foods and Inuit Women's Perceptions of Contaminants in the Arctic Food Chain.

HAS BEEN APPROVED BY THE COMMITTEE AT THEIR MEETING OF:

Approved by Dr. Gordon Grahame on behalf of the Committee on October 10, 1995.

COMMITTEE PROVISOS OR LIMITATIONS


Approved as per your letter dated October 6, 1995.

You may be asked at intervals for a status report. Any significant changes of the protocol should be reported to the Chairman for the Committee's consideration, in advance of implementation of such changes.

****THIS IS FOR THE ETHICS OF HUMAN USE ONLY. FOR THE LOGISTICS OF PERFORMING THE STUDY, APPROVAL SHOULD BE SOUGHT FROM THE RELEVANT INSTITUTION, IF REQUIRED.**

Sincerely yours,



 Gordon R. Grahame, M.D.,
Chairman,
Faculty Committee on the Use of
Human Subjects in Research.

GRG/11

TELEPHONE INQUIRIES:
789-3255 - Lorraine Lester

Appendix F

**Consent to Participate in Study
(English)**

CONSENT TO PARTICIPATE IN THE STUDY

I understand that I am being asked to take part in a study about traditional Inuit foods called, "Inuit understandings of the benefits of traditional food and Inuit women's perceptions of the potential risks of contaminants in the Arctic food chain." I have been given an oral and written explanation of the study. I have also been given the researcher's name and university address. I have been given the chance to ask questions and I understand that I can ask more questions at any time.

I understand that I can choose to take part or not in this study and that I can stop the interview at any time. I understand that my identity will not be revealed and all the opinions I express will be kept confidential. All tapes will be erased at the end of the study.

My signature below indicates that I understand and agree to take part in the study.

Name (print) _____

Signature of participant _____

Date: _____

I have explained to _____ the nature and purpose of this research project as described on the information sheet which has been given to the participant. I have asked if they have any questions about the study and have answered to the best of my ability.

Signature of investigator _____ Date _____

The participant would/would not like a summary of the results of the study.

Appendix G

**Consent to Participate in Study
(Inuktitut)**

ᐃᖃᑦᑦᑦᑦ ᐃᓕᐃᓂᑦᑦᑦ ᖃᐃᑦᑦᑦᑦᑦᑦ

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 ᖃᐃᑦᑦᑦᑦᑦᑦᑦ ᐃᑦᑦᑦᑦᑦᑦᑦ ᐃᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦᑦ ᐃᑦᑦᑦᑦᑦᑦᑦᑦ
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 ᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᐃᑦᑦᑦᑦ ᖃᐃᑦᑦᑦᑦᑦᑦᑦᑦᑦ ᐃᑦᑦᑦᑦᑦᑦᑦᑦ ᑦᑦᑦᑦᑦᑦᑦᑦᑦᑦ.

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ᐃᓕᑦᑦ _____

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Appendix H

Information about the Study

INFORMATION ABOUT THE STUDY

Project Title: "Inuit understandings of the benefits of traditional foods and Inuit women's perceptions of potential risks of contaminants in the Arctic food chain."

Investigators: Chris Egan will be doing the research. She is a graduate student in the Department of Community Health Sciences, Faculty of Medicine, University of Manitoba, 750 Bannatyne Ave., Winnipeg, Manitoba, R3E 0W5

Dr. John O'Neil, Department of Community Health Sciences, is supervising the research. Phone (204) 789 3677

Purpose of Study: The purpose of the study is to find out from Inuit men and women what they believe to be beneficial in the hunting and consuming of traditional Inuit foods. In addition, I would like to ask Inuit women about their understandings of the possible risk of contaminants in Arctic food. I would like to know what they have heard about contaminants and how it could affect what they eat. The interviews will last as long as people are willing to talk with me. With permission from the participants I will tape the interviews because (1) the interview results will be more accurate if the actual words are taped instead of my just writing down a summary, and; (2) I cannot write as fast as people talk and the interview will go more smoothly and take less time if it is done this way. The tapes will be erased at the end of the study.

Confidentiality: Records of the interviews will be coded only with a number and not a person's name. No one else will be given any of the interview data or the records. The consent forms will be the only record with a person's name on it.

Participation: Joining the research study is completely up to each individual. It is entirely voluntary and no one is obliged to join the study; a person can terminate the interview whenever they want. If someone does not want to be interviewed their treatment from any organization will not be affected.

Risk and Discomfort: In all research carried out by University personnel, the person conducting the research is obliged to point out any possible risks of participating in the study. I do not think this study will cause any problems for participants other than taking up someone's time. If a person does not want to continue the interview for any reason, they may terminate it.

Benefits: I think it is important that opinions expressed by the Inuit are heard. Traditional food has social and cultural benefits as well as nutritional value. If Inuit have any concerns about possible contaminants in the Arctic food chain it is important that they are able to tell people in the research community about them. Some similar studies have been conducted in other parts of the Arctic but in most studies there is a series of questions which require a short answer. My study is different in that I would like people to talk about issues that are important to them regarding food. There are no right or wrong answers as I will be asking only a few questions.

For more information: If after the interview anyone has further questions about the study, please feel free to contact me, Chris Egan, in Winnipeg at phone (204)475-9627, fax (204)478-8170.

Appendix I
Interview Guide

Interview Guide

1. What is your favourite food?
(a) Inuit
(b) Qallunaaq
2. What do you think are the benefits of?
(a) Inuit foods
(b) Qallunaaq foods
3. What percentage of family's food is Inuit food?
4. What do you think is the best food for growing children?
5. Do you think milk is good food?
6. What kinds of food do you think contributes to poor health?
7. Do you read the labels on food packages and tins?
8. Have you heard any warnings about any kind of food?
9. What is your greatest health fear?
10. Do you think that you and your family are healthy?
11. Do you think that the government should be responsible for the health of the Inuit?
(anyone else responsible?)
12. In general, do you trust the government?
13. What do you think the government could do to help the Inuit to be healthier?
14. Do you think you have any power to help things change in the community?
15. Do you usually go to community meetings?
16. Is there anybody here you are not related to?
17. Do you think that Inuit are healthier or less healthy than they were in the old days?
18. Do you think that you have a good life?

19. Are you happy?
20. What causes people to worry?
21. Do you have confidence in food products (I & Q)?
22. Do you believe in good luck and bad luck?
23. If a coin is flipped 20 times, how many times would “heads” turn up?
24. Do you believe in fate?
25. Do you believe in traditional Inuit myths and stories, eg, the Tuniiit?
26. Do you believe in Inuit spirituality?
27. Do you believe in taboos?
28. Do you believe that people are usually punished for wrong-doing?
29. What kind of things do you think are dangerous (behaviours)?
30. What do you think is the worst problem in this community?
31. Have you heard anything about contaminants?
32. Have you heard about nuclear power, mercury, PCBs?
33. Where did you hear this information?
34. Do you think that others know about contaminants?
35. What kinds of contaminants have you heard about?
36. When did you first hear about the risk of contaminants in the Arctic food chain?
37. Do you think these risks are real?
38. Who do you think is responsible for contaminants?
39. Do you know anyone who has become sick because of pollution/contaminants?
40. Do you think the drinking water in this community is safe?

41. **How is it treated?**
42. **Where does the community sewage go?**
43. **Do you find that rumours and gossip are generally true?**
44. **How are decisions made in this family?**
45. **Do you think that better communication/education about contaminants would reduce people's risks?**
46. **Would you like more information about contaminants--which ones?**
47. **Who would be the best person to give information to people in this community?**
48. **Do you think that most things can be proven scientifically?**
49. **Do you think that science has all the answers concerning risk?**
50. **Do you think anything is certain?**
51. **If it was found that traditional food was contaminated, what effects would this have on your family?**
52. **Do you mind if scientists come into your community and ask you question about food and contaminants?**
53. **Do you think it is better to ask Inuit women rather than men questions about food and contaminants?**