

THE SNOWMOBILE REVOLUTION

Technology and social change
in the Arctic



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in the Arctic*

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Pertti J. Peltó received his undergraduate degree from Washington State University and his Ph.D. from the University of California, Berkeley, in 1960. His specializations are in research methods, medical anthropology, technology and social change.

Dr. Peltó has taught at the University of California (Berkeley), the University of Minnesota, and Cornell University, before moving to his present position as professor of anthropology at the University of Connecticut. His interest in ecological approaches to technology and social change is of long standing, and has resulted in his active participation in several environmental associations. In 1986 he was elected president of the Society for Medical Anthropology.

His previous publications – of books, chapters, and journal articles – comprise a list too lengthy to cite here, and include: *The Study of Anthropology* (1965), *Anthropological Research: The Structure of Inquiry* (1970), revised in 1978 with Gretel Peltó, with whom he has published a number of articles in community health and nutrition. Recently Dr. Peltó and H. Russell Bernard published a second edition of their book *Technology and Social Change* (Waveland Press, 1987).

Foreword

The present study is concerned with the small population of Skolt Lapps of northeastern Finland. The Skolts have had a long history of contact with members of large-scale societies. From the fifteenth century until World War I, the Skolts fell within Russia's sphere of influence. Subsequent shifts in political boundaries placed them in Finnish territory and then back again within the borders of the Soviet Union. At the outset of World War II, the Skolts cast their lot with Finland, and they were evacuated from Russia to their present location. The Skolts' responses to outside influences and the necessity of adapting to a new homeland caused some alterations in their traditional culture and life-style. Prior to the 1960s, however, and as Dr. Pelto observed during his first fieldwork in Finland, certain basic features of Skolt society had remained relatively stable. Their economy was based on reindeer herding. Reindeer were important for both subsistence and transportation in the harsh arctic climate, and males took great pride in their skills as herdsman. Skolt society was also very egalitarian. As most individuals had equal access to crucial economic resources, there was little opportunity for the development of social or economic differences among them.

Beginning in the early 1960s snowmobiles were introduced into northeastern Finland, and the Skolts eagerly accepted the machines. On more than one occasion, Dr. Pelto has returned to the Skolts to observe the results. As his study reveals, this technological innovation has had repercussions on almost every facet of Skolt life. Their economic system, mode of transportation, and patterns of social interaction have been radically altered within a decade, and the egalitarian character of their society appears to be in the process of a major transformation.

Dr. Pelto's study focuses on the impact of the snowmobile on Skolt society, but he goes beyond the particular details of his materials and advances two generalizations about the processes of change

which occur in situations wherein societies abandon locally available sources of energy for those which must be acquired from the outside. Further, and in contrast to most anthropological studies, Dr. Peltó offers his own evaluation of the effect of the snowmobile on Skolt society. He suggests that the consequences have been disastrous, and he outlines certain courses of action which could perhaps alleviate the situation. His suggestions are timely given the present concern with the impact of man's technology upon his environment, and they have implications which extend beyond the present study.

ROBERT C. KISTE
EUGENE OGAN

Preface, 1987

I returned to Sevetijärvi in the spring of 1978 to study the continued unfolding of changes in reindeer-herding patterns (Pelto, 1978). Another visit in 1979 coincided with the celebration of the thirtieth anniversary of the post-war founding of the community. Many visitors from other parts of Lapland and southern Finland arrived to participate in the festivities, which highlighted features of the Skolt ethnic revival. Again, in November, 1984, I visited my friends in Sevetijärvi and found that the patterns of reindeer husbandry had continued to change and develop, reflecting tendencies that were only dimly apparent ten years earlier.

By 1984, the lifestyles of the Skolt Saami¹ had changed profoundly. The pre-snowmobile way of life was almost unknown to the whole younger generation, and middle-aged people recalled those days as a distant memory. Many other influences besides the snowmobile played a role in transforming the lifestyles of the people in the 1970s and 1980s.

The road from the south had been completed in the 1960s. By 1978, portions of the road were paved, and, by 1980, the road was connected via the main Norwegian coastal road to the arctic port of Kirkenes. With the advent of the road, the younger people came to be more interested in acquiring automobiles than snowmobiles. In 1967, I had been astonished at the idea that shopping trips to Norway required only a few hours by snowmobile; in 1984, I was astonished again – shopping trips to the Norwegian border were now made by taxi, post bus, or private automobile. Several new stores had sprung up at the border to accommodate the flow of tourists, as well as the local people who expanded their shopping patterns.

Housing is another area of rapid change. New Finnish legislation made housing loans available to the Skolt Saami. By 1984, a large number of modern homes had been built to replace the log cabins the Skolts had lived in since the founding of the community in 1949. The log cabins that remained in use were renovated and enlarged. Electricity came to the area in 1978. At that time, many families already operated television sets and other equipment using small, gasoline-driven generators. With the advent of electricity, household interiors

were modernized. Hot and cold running water, showers and bathrooms, comfortable modern furniture, electric stoves, central heating, washers and dryers, and other amenities became commonplace. In 1978, my children and I were invited to sit with one of the Severtijärvi families to enjoy sauna, to eat ice cream, and to watch Alex Haley's "Roots" on color television in a spacious new living room that would not have been out-of-place in an American suburb.

The most impressive new homes were built by Skolts and their Finnish neighbors in the area around Severtijärvi center – where most families have regular, salaried or wage-labor employment and increasingly Finnicized life styles. The socio-economic differentiation that developed as a result of the mechanization of herding (cf., Chapter 10) has shifted more and more to stratification based on access to modern employment. Wage and salaried positions include the teachers and other employees in the school, clerks in the stores, a variety of government jobs in road construction and telephone maintenance, plus an increasing number of other miscellaneous full-time or nearly full-time, wage-earning positions. In addition, three local men furnish taxi service in the area. The construction of new homes, as well as an apartment complex for the elderly, has also provided employment for local people, as well as for several temporary construction workers from other parts of Finnish Lapland.

Another important aspect of "modernization" in northeastern Finnish Lapland is the growth of an unemployment and welfare sector. Changes in this aspect of social life are largely due to decisions and developments in Finland's central governmental circles in Helsinki. The concept of "unemployment" was practically unknown among the Skolt Saami until 1960, but took on great importance in the late 1960s and 1970s, as a large percentage of the population entered the Finnish unemployment rosters. For many individuals, the maintenance of snowmobiles and other amenities was largely dependent on unemployment compensation checks (cf., Ingold, 1976:116-121). For 1972, Ingold listed thirty-one Skolt males as unemployed – approximately a third of the male labor force. In addition, several other males were functionally "under-employed," but did not register with the unemployment authorities. Partial unemployment, particularly among younger males, has continued in the 1980s. The official statistics for 1984 put the unemployment level at thirty-seven percent. The Finnish unemployment policy includes a system of vocational training. Many of the younger members of the community have received specialized training in automotive work, boat-building, and other skills.

De-localization, and reactions to it, are also evident in the increased ethnic revivalism among the Skolt Saami, beginning in the middle of the 1970s. Curiously, the ethnic revivalism is in part linked directly to national unemployment policies. Two important changes occurred in the

unemployment patterns in Sevetijärvi which reflect aspects of Finnish government policies. Housewives became eligible for unemployment benefits, and the well-organized system of vocational training was expanded to include instruction in traditional handicrafts. Skolt women had already embarked on a program to revive traditional weaving of woolen wall hangings. Women on the unemployment rolls were given per diem allowances plus transportation to participate in weaving classes, then leather work (using reindeer and sheep hides), beltwork, and construction of the highly ornate, complicated married women's headdresses. Basketry made from roots was added in the 1980s, as well as the making of the traditional male headwear. As a result of these training programs, some Skolt women have begun to make these items for sale to the tourist trade, as well as for local sale and use in connection with ethnic revivalist activities.

The revitalization of the Skolt language began in 1973 with the publication of the first grammar book (Korhonen, Mosnikoff and Sammallahti, 1973), followed by a language primer for use in elementary grades (Sammallahti, 1973). Publication of these books made possible the beginning of Skolt language lessons in the elementary school. Since that time, the number of hours devoted to Skolt language and literature has increased in the school system, even though a group of local parents are strongly opposed, arguing that their children should be trained only in the dominant Finnish language.

Traditional Skolt singing received a boost in 1978 when the internationally known Kaustinen Music Festival in central Finland included performances by three Sevetijärvi women. They had only recently begun to revive the half-forgotten songs, partly through listening to tapes and records from the Finnish national music archives. In 1979, at the celebration of Sevetijärvi's thirtieth anniversary, the first major LP recording of Skolt traditional music was released, with songs by the women who performed at the Music Festival the previous year. It is noteworthy that the revival of Skolt traditional singing is paralleled by development of a *new* Skolt singing style by the nationally acclaimed Gauriloff Brothers, who combine indigenous Skolt language themes with a modern beat and guitar accompaniment.

Fishing with the traditional sweep-seine had all but disappeared from the Sevetijärvi area during the 1960s and 1970s. The fish stock had been drastically reduced, the few remaining seines were old and tattered, and it was looked on as a thoroughly "old-fashioned" activity. In 1984, however, sweep-seining was revived in the form of a government-sponsored course in which the participants learned how to build the sweep-seines from net materials. Several families have revived seine-fishing in the nearby lakes.

In the spring of 1986, Sevetijärvi, and most of the rest of Finnish Lapland, narrowly escaped the disastrous effects of another, more insidious de-localization. Fallout from the Chernobyl nuclear disaster in the Soviet Union

brought severe radioactive contamination to large parts of Swedish and Norwegian reindeer-herding areas. A large portion of the Swedish reindeer herds were condemned as unfit for human consumption. The entire culture of the Swedish Saami people, so intertwined with reindeer-herding, is in crisis. On the Finnish side, only a small area in southern Lapland (not Saami) received radioactive fallout in amounts that affected the edibility and marketability of reindeer meat.²

Reindeer-herding in the Sevetijärvi community is still an important part of the local economy, even though, today, many families are more dependent on “modern” employment than on the reindeer for their maintenance. The pessimism of the 1960s – the chaotic situation of the “snowmobile disaster” – has changed dramatically. The snowmobile had brought about the “de-domestication” of reindeer, as described in the following chapters, but now the era of “de-domestication” is largely over. During the past 15 years, since I wrote this book, the Sevetijärvi herders have achieved a new system of reindeer management. I describe highlights of that story in the “Postscript” beginning on page 195.

In the original Preface, I expressed my gratitude to a large number of people who aided me in many ways in the course of research and writing. That list of acknowledgements stands unchanged, but I will add here the new debts incurred over the past fifteen years.

A major share of the new data, particularly concerning new developments in reindeer herding and the cultural revival, has been assembled with the help of Satu Mosnikoff (school teacher) and her husband, Jouni Mosnikoff (reindeer herdsman and secretary of the Näätamö Reindeer Association). Jouni's brother Elias and family also provided a great deal of support and information. The brothers Illep and Elias Fofanoff assisted me with valuable information concerning reindeer herding and other economic activities. I owe many thanks to Community Nurse Leena Semenoja and her husband, taxidriver Antti Semenoja, as they provided new information about some of the health hazards of snowmobiles. At the northeast end of the Sevetijärvi community, Pekka and Vassi Semenoja and family and the Mitri Semenoff family have continued the friendship and active research help that began twenty-nine years ago. Pekka and Liisa Feodoroff and family, in whose house I lived during the summer of 1958, have continued their open hospitality and informative discussions. My new debts of assistance and hospitality also include the Sanila family, Jaakko and Veera Killanen and family, Jaakko Gauriloff, the Porsangers, Sandra Kiprianoff, and several people at the new apartment complex for elderly persons – particularly Olli Gauriloff and Pimen Semenoff. With the Sevetijärvi people, I mourn the passing of most of that older generation of women and men who bravely entered the sparsely inhabited wilderness of Sevetijärvi in 1949 to build a new life after the heart-breaking loss of the

traditional homeland in World War II.

Most of the other persons to whom I expressed my indebtedness in the earlier printing have continued to provide intellectual support, challenge, and encouragement. I thank them all again and, finally, must add some explicit recognition of my own family, who came to play an active role in research when we returned to Lapland in 1978. Son Jonathan quickly learned Finnish and, in July, made an invaluable expedition alone to a summer calf-marking roundup. Daughter Dunja helped with housekeeping and a variety of other supporting activities. Ari, nine years of age, bravely went off to school with the Skolt Saami kids and gave them demonstrations of American English. My wife Gretel's very special role has been to provide wise counsel, warm encouragement, editorial expertise, and friendly critique even while deeply immersed in her own research projects.

Storrs, Connecticut

June, 1987

Preface, 1973

I decided to write this book because I became convinced that a single technological device—the snowmobile—was bringing about a social and economic transformation of major proportions among the reindeer-herding people of Lapland. My attention in this research has been concentrated mainly in northeastern Finnish Lapland, on the Skolt Lapps¹ of Sevetijärvi. These people used to depend on a livelihood from their small but well-watched reindeer herds, augmented by the abundant fish in local lakes and streams. However, changes in life-style have taken place since I first visited the community (in the middle of the 1950s) and they have been much more extensive than anyone would have predicted, yet they are merely a prelude to the still more striking changes anticipated in the future. Many different technological items, consumer goods, political developments, and other creations of the rapidly changing European cultural scene are having major effects on Lappish lifeways. And although it cannot be claimed that one particular mechanical contraption has been the single most important factor for change; nevertheless, the snowmobile in Lapland, and in other parts of the arctic, is outstanding in its speed of acceptance and range of impact.

Because the advent of the snowmobile is so new and so stark, we have the opportunity to examine the complex of related technological, economic, and environmental elements that brought about the transition to modern, cash-oriented lifeways. Instead of merely wondering what happened, we are close enough in terms of time to be able to study and to understand how the change actually occurred. Since all this has taken place in the past seven or eight years, what happened is so clearly etched in the increasingly anxious minds of the Skolt Lapps of Sevetijärvi that we can read the printout of the statistical changes *and* recapture something of the play-by-play course of events that has brought these people to the present stage of unrelenting sociocultural change.

The argument that I wish to present in this book rests on the assumption that, whatever their origins, technological changes that shift production processes (in this case reindeer herding) from local, autonomous sources of energy to a dependence on outside sources, (for example, gasoline) will almost certainly have wide-ranging consequences on the social and cultural patterns of the affected people: the replacement of reindeer sleds by snowmobiles in Lapland is not just another technical replacement. It represents a substitution that is more powerful by several magnitudes than, for example, the adoption of gas lamps in place of kerosene or radios and TV sets in place of the former relative isolation from outside communication. The penetrating influence of snowmobiles has resulted in a process I will call "de-localization" of energy sources.

In the context of reindeer herding there is another significant element: the machines by their nature force the herdsmen into quite new and unprecedented relationships with the animals with which they interact to make their living. It is not just the people who have changed their ways of life; the reindeer also have reacted sharply to the presence of machines. This double impact compounds the socio-cultural force of the snowmobile revolution.

To understand the many-sided influence of the snowmobiles we have to take a quite eclectic ecological approach to this instance of human social adaptation. The web of interactions among the Lapps, their new machines, and the reindeer takes particular shapes because of the physical landscape on which they operate. The social environment, made up of neighboring groups, structures of government and economic enterprise, as well as international boundaries, must be carefully considered in the picture. The structure of local social action, and the personal qualities of the individual reindeer herdsmen also contribute elements to a total ecological framework.

Although the central "cause" in this particular instance of socio-cultural change has been the snowmobile, it seems to me that many other technological devices, especially those involving relatively large energy requirements, are likely to have effects similar to these when they impinge on previously more autonomous societies. These general outcomes, which I suggest are likely to occur among many peoples and places around the world can be stated as follows:

1. When modern factory-produced technological devices, especially those that are motor driven, replace man-powered and animal-powered machines in local production systems, the inevitable and very far-reaching consequence is a *de-localization* of essential energy sources. This creates greatly increased dependencies on the mac-

rosom of commercial enterprise and political influence outside the local community.

2. As de-localization and technological development proceed, a likely concomitant is an increasing technical and economic differentiation among the individuals and family units seeking to adapt to these changes in their environment. Increased social stratification is likely to be a further consequence of these processes.

In order to document the transformations that I have labeled the "snowmobile revolution," I first provide some introductory remarks in Chapter One and then describe Skolt society prior to the advent of the snowmobile in Chapters Two, Three, and Four. The latter two are particularly important as they deal with the methods and technology of reindeer herding and arctic transportation before the snowmobile.

Chapter Five brings on the snowmobile and its spread throughout the Lapland arctic. Some of the characteristics of the innovators and the innovational circumstances are discussed. Snowmobile use and ownership must be considered within the context of the problems and techniques of upkeep and maintenance. Chapter Six is devoted to these materials.

All this is preliminary to the main focus of the book—the mechanization of reindeer herding. My assessment of the results, which I have come to see as a "reindeer disaster," is provided in Chapter Seven. The social, political, and economic effects of this disaster are then examined in Chapters Eight and Nine in statistical and qualitative terms, particularly as expressed in what seems to me a growing stratification of material wealth and economic resources in the community.

In an earlier day of anthropological inquiry I would have concluded my work with a general summary, Chapter Ten, couched in theoretical terms, hoping thus to communicate some ideas to the general audience of social science readers. But this time I must go a step further. As part of my debt to the Skolt Lapps I feel that I should take the ethically and pragmatically risky step of *recommending* some alternatives to the course of events now unfolding in that Lapland community. In making recommendations I am, of course, introducing a series of value judgments about "good" and "bad" in relation to aspects of life in northeastern Lapland. I am judging the "reindeer disaster" to be a "bad thing," and one which should be corrected. My recommendations are risky not only because of the value judgments involved. They also depend on my assessment of the pragmatics of reindeer herding. I have even presumed to make some judgments

about different techniques of herding—which are hotly debated by Lapps who have years of experience in these matters. My suggestions about the possible future shape of reindeer herding, presented in the Epilogue, must of course be taken with great reserve (better to say suspicion) by persons who have practical interests in this part of the Lapland economy, but I feel that I can offer some opinions here because I have accumulated a fair amount of concrete data (both statistical and qualitative) from extensive firsthand contact with the activities about which I am recommending. No one is going to take my word for these things, but I set out some of these ideas nonetheless, in hopes that they might in some way contribute to the careful discussion of the future of reindeer-herding organization in northeastern Finnish Lapland. I very earnestly hope that the data and ideas that I set forth here might have some future positive effects for the Skolt Lapps.

In the many months that I have spent in the Sevettijärvi area of northeastern Lapland I have become indebted to a great many people for their information, their hospitality, and other help. At one time or another I have been offered coffee, food, or other hospitality by practically every household in the Sevettijärvi region, as well as in a number of houses in adjacent areas. I must now find some way to reciprocate the help given me by these people. The persons to whom I owe these debts are the protagonists in the dramatic events I describe in this book, and in part the intended fairness and effectiveness of my description is part of the bargain that I seek to strike with them.

One of those protagonists, whose limitless energies and innovative capacities have never failed to excite my admiration, found time among all his other activities, to try his hand at anthropological fieldwork. He has been an amazingly perceptive informant but has also derived some satisfaction from primary data-gathering work, including the administration of interviews and projective psychological tests. During the past twelve years, he has played a very large role in my fieldwork; his centrality to my research is quite congruent with his role in the events I want to describe. He was the first Skolt Lapp to buy a snowmobile and the first to buy an automobile; he was asked to be the chairman of the new reindeer association (he declined this honor). He is also one of the younger generation who participates in the embryonic Pan-Lappish activities enacted in annual summer meetings of the Nordic Lapp Council. Lest all these tendencies to “modernism” deceive anyone, I must mention that he was considered

one of the most able herdsmen in the pre-snowmobile stage of the local reindeer economy.

Arto Sverloff³, therefore, plays a front-stage part in many of the scenes that I recount in the following chapters. He is there because, like the ideal Lappish reindeer herdsman, he has managed to be "everywhere at once." Over time there has naturally developed some convergence between his interpretations and mine with respect to Sevettijärvi reindeer herding. In recent times I have developed the habit of checking my data and my interpretations with him to see if they seem reasonable to him. Nonetheless, I must hasten to protect him from readers who might blame him for whatever mistakes and biases appear in this work. The mistakes and biases are mine, not his. He must not be held responsible. I have cross-checked the data with many informants and many personal observations, as well as with available statistical materials. Any blame for weaknesses in my work must be born by me—not by the protagonists in the Sevettijärvi scene. Nonetheless the strong presence of Arto and several other actors in these episodes of life in Sevettijärvi is a strong reminder of my very great indebtedness to them all.

I have made several attempts to construct lists of the Lapps and Finns (and others) in northeastern Finland whom I especially wanted to mention and to thank in this public form. Each time, however, the list grows and grows until it becomes obvious that it is pointless to try to enumerate them all. However, I wish to express my sincere gratitude to all of those people. They are most directly responsible for whatever success I achieved in this research, and they are also the people who made my several sojourns in northeastern Lapland enjoyable and extremely rewarding in personal terms. I must be content in the hope that this book might in some small way be of benefit to everyone in the region, at least by reminding the urban people of Finland and elsewhere that the things they decide in their legislatures, and the products they send to Lapland, have powerful and often unforeseen impacts on the peoples of the arctic backlands.

Several Finnish scholars, as well as researchers from other areas, have helped me with information, critical comments, and other forms of colleagueship. Among these I owe special thanks to my long-term friend and fellow "*lapinkulkija*" Martti Linkola, and to his family. Other Finnish colleagues and friends to whom I am deeply indebted include Pekka Sammallahti, Karl Nickul and his entire family, Asko Vilkuna and family, academician Kustaa Vilkuna and family, the late T. I. Itkonen, and Juhani Nuorgam and family. Other individuals

who have aided me in this research and to whom I wish to express here my heartfelt thanks include Ludger and Linna Müller-Wille of McGill University and Michael C. Robbins of the University of Missouri.

Financial support for my research trips to Lapland has come from a number of different sources. I gratefully acknowledge and give thanks to the following for their support: National Institute of Mental Health (Fellowship in 1960 and Small Grant Award in 1962); Wenner-Gren Foundation for Anthropological Research (travel grant in 1967); Graduate School of the University of Minnesota (small grant); the University of Connecticut Research Foundation (research grant in summer, 1971, 1978 and 1979); and last but far from least, my parents, Jack and Jenny Pelto, for substantial loans during my first fieldwork in 1958-59.

Mansfield Center, Connecticut

PERTTI J. PELTO

AUTHOR NOTES

¹One aspect of modernization in Lapland, as in other parts of the world, is the change in the ways we refer to various cultural/ethnic groups, especially minorities. The old term, "Lapp," has been replaced by the more appropriate name the people apply to themselves – the Saami.

²The unusual wind patterns in the crucial moment of the Chernobyl disaster brought radioactive fallout to the Swedish and Norwegian areas, and largely spared Finnish Lapland. However, there are more complicated factors as well. In Sweden, the regulations on acceptable levels of radioactivity are especially strict – twice as strict as in most of Europe. Thus, reindeer that would be unacceptable for human consumption in Sweden are considered marketable in Finland and in most of the European Economic Community.

³Arto Sverloff died tragically in 1975 when a small plane carrying him and three other Saami leaders to a Pan-Saami Conference in Norway disappeared in stormy weather.