Coping with the Chernobyl disaster: a comparision of social effects in two reindeer-herding areas

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Abstract: Lapland reindeer herders in the Vilhelmina and Jokkmokk municipalities of Sweden were interviewed in summer, autumn and winter 1987/88. The great variability in nuclear contamination between these areas has occasioned obvious but also unforeseen differences in the social effects for the Saami. The variability of contamination has also been compounded by the variability of compensation policy, variability of expert statements about risk, and also the change in state limits on Bq. concentrations set for meat marketability. This paper will illustrate the broad spectrum of Chernobyl-related social problems and the methods of coping with them.

Key words: *Rangifer tarandus*, Saami, Sweden, Lapland, anthropology

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This paper concerns socio-cultural issues following upon the Chernobyl nuclear disaster with regard to the Swedish Saami. Studies treating the social aspects of the Chernobyl disaster have been few, and yet they are essential if reasonable policies are to evolve for coping with nuclear contamination of our food chain. Such a focus reveals diverse unforeseen consequences deriving not only from the contamination itself, but also from the compensatory policies which it has occasioned. I have recently raised a number of these points with regard to assessment of low-dose radiation risk at the twelfth International Congress of Anthropological and Ethnological Sciences in Zagreb (Beach, forthcoming) and will have cause to recapitulate some of them here. In this paper I shall demonstrate the broad scale of Chernobyl-related social issues. While it will not be possible to examine all of the problems, I shall draw attention to some of the anomalies that can occur with the superimposition of ad hoc measures onto old regulations.

It should be noted at the outset that many of the topics raised here lend themselves easily to larger political debates and are controversial in a number of different contexts. My purpose, however, is to give the the views and experiences of my herding informants. While these views might not always be based on a fully correct knowledge or interpretation of the facts, the are nonetheless real and of social significance.

The data sampled here originate from interviews made in the field with herding families as part of a long-term study financed by the Bank of Sweden Tercentenary Foundation and administered under the Center for Arctic Cultural Research at Umeå University, Sweden. We

have sought to record from the Swedish Saami reindeer-herding families themselves their fears, the damages they have sustained, and their efforts to deal with these problems. Both male and female research team members interviewd people in two main regions, one highly impacted by nuclear fallout (Vilhelmina), and one relatively lightly impacted (Jokkmokk). Care was taken to interview herders and family members of different sex and age as well as to include families with young children. Non-herding Saami, Saami handicraftsmen, and even non-Saami were also interviewd in order to gain insight into the herders' social context and possible cultural constraints. Interviews were conducted both in Vihelmina and Jokkmokk in summer 1987, autum 1987 and winter1987/88. The project will attempt to cover a five- year period with repeated follow-up interviews.

As background information a few essential facts deserve mention: The reindeer-herding area of Sweden is currently divided into 51 grazing districts called *samebys*. Membership in these *samebys* is tightly controlled both by regulations in the Swedish Reindeer Herding Act of 1971 and by the existing members themselves. Membership confers, besides the right to graze one's reindeer on *sameby* territory, also certain hunting and fishing rights. The right to herd reindeer in Sweden is almost exclusively reserved for those of Saami heritage. A *sameby*, therefore, defines both a territorial and a social unit.

Reindeer herding is centrally administrated under the National Board of Agriculture, to which is tied an advisory body with Saami representation. Regionally herding questions are handled under three provincial agriculture committees. The *samebys* all belong to the Swedish Saami Parliamentary Organization (SSR), which is the main political body of Saami in Sweden. In Sweden today, there are only about 900 active reindeer herders, with family members bringing the total of those directly dependent upon herding to approximatley 2,500 people. The reindeer stock in Sweden today is estimated at about 275,000 head. Reindeer herding is not, however, of major economic importance to the Swedish State. It is tolerated under normal circumstances and has been supported during the Chernobyl crisis largely as a concession to the cultural preservation of the Saami. The reindeer industry is hard pressed even in the best of times to assert itself against the heavy industrial exploitation of the grazing land.

In the early 1980s, the reindeer-slaughter company, Sameprodukter, servicing as much as 75% of the reindeer herding area, was reorganized and taken over predominately by Saami. SSR, the Saami political organization, bought controlling interest in the company. Although Sameprodukter is one of the largest and most modern of slaughter facilities active in the Jokkmokk area, it is not the only one. There are a number of other, smaller slaughter companies competing for the purchase of reindeer from the herders. The Vilhelmina area is almost entirely serviced by the large and fully modern slaughter facility of Lapplandsvilt. The different slaughter companies are capable of meeting different hygienic standards, and these differences in turn determine the extent to which the meat can be exported.

The following is a highly compressed account of the kinds of issues raised by the Chernobyl disaster which affect the livelihoods and traditions of the Saami:

In the wake of Chernobyl, contradictory statements and confusion were legion. As a result, Saami faith in politicians and administrative authorities seems to have reached a low point. Not only have different experts evaluated health risks differently, but in many instances herdes claim that administrative blunders have resulted in unnecessary reindeer losses.

Herders resent the "sacrifice" of their reindeer meat to preserve a contamination limit on marketability devised on the basis of risks to

newborn infants and their consumption of milk (Labba, 1988). Most potential consumers of reindeer meat are not infants. Furthermore, since pre-Chernobyl reindeer often displayed Bq values over the post-Chernobyl state marketability limit (Hagberg, 1976), herders understandably ask why no limit was set previously if the pre-Chernobyl reindeer contamination really posed a health risk. If such pre-Chernobyl levels constitute no major risk, why then have so many reindeer been confiscated with such low levels following upon Chernobyl? There may be valid answers to some of these questions. My point is to show the confusion surrounding these issues.

In May of 1987, the marketability limit was raised by Statens Livsmedelsverk (SLV), the National Board of Foodstuffs, from 300 Bq/kg to 1500 Bq/kg for reindeer meat, game and inland fish, basic foodstuffs of the Saami, while the lower limit for the basic foodstuffs of the average Swede was maintained. According to the authorities, this measure was acceptable as the average Swede eats only 200 grams of reindeer meat per year (at least he did previous to Chernobyl) and, moreover, this would put more reindeer meat on the market. It is evident that many of the state's reactions to the complicated ramifications of this sudden and unique disaster have not been fully considered. Understandably, the Saami feel themselves to be discriminated against when, for example, their school children who normally eat a substantial amount of rendeer meat are now referred to meat with levels up to 1500 Bq/kg, while meat below 600 Bq/kg is selected out for export to Germany. Even though low-level meat was accessable to Saami children by various means, many resented the fact that a quality separation was made for export to small-quantity consumers but not for local, large-quantity consumers.

SLV sought to meet the obvious criticism for having established one health limit for the basic foods of the Swedish majority and another for the basic foods of the Saami minority by issuing a pamphlet of dietary recommendations (Statens Livsmedelsverk, 1987) to each herding family. In it, those with a high consumption of reindeer meat were advised to keep records of the quantity and contamination level of all the reindeer meat they ate, the dosage being a product of the two. As long as the yearly recommended dosage was not exceeded, the pamphlet did not discourage the consumption of meat with values up to 10,000 Bq/kg. Yet, at the same time, expert statements claimed the risks from low-dose radiation to be directly proportional to exposure, whether it be for an instant or over the years. The analogy was made to driving a car; the more one drives, the greater the danger of accident. (Note that this analogy should be broadened to include the risk to fellow "passengers" so as to encompass the possible risk of genetic disorder to the offspring even if the "driver" appeard to survive the "traffic" unscathed.) Some herders wonder: If it is not the Bq value itself but the product of Bq value times quantity consumed which is important, why should the tally for one year be significant rather than the compounded tally of Bq/kg times kg over a lifetime?

Obviously, confusion over the issue of health risk is widespread. Almost none of the herders interviewed bothered to keep records of the contamination values and quantities of the meat they consumed. Although they were well aware that it was Bq value times quantity which was important, many still treated the marketability limit as a health risk barrier, even if they would rather take the risks than respect it. The quintupling of what many tended to regard as the health risk limit was met with great cynicism by those who had previously had faith in the authorties. Had the initial limit been set at 1500 Bq/kg, the matter would have deen different. Due to the confusion, herders have fashioned their own Bq limits for the meat they would eat, based largely on general social consensus (neighbours, experts, media, the Norwegian limits etc.) and personal discomfort

(economic, dietary and cultural).

Some of the problems seem to be inevitable consequences of the state's need to supervise inspection and enforce saftey standards. Members of herding families repeatedly complain over the loss not only of reindeer meat, but also of foods obtained from the blood and internal organs of the reindeer. These are of major importance to Saami identity. Foods prepared from the reindeer are loaded with traditions. The Saami who cannot slaughter and prepare food from his own reindeer according to his own special customs feels himself culturally impoverished. Herding parents fear that their children will miss the opportunity to learn these customs.

Herders in the hardest hit regions are often able to purchase frozen, low-level reindeer carcasses from further north, but although these provide meat, they do not provide blood and organs. Herders frequently complain that these reindeer, purchased from the slaughterhouses, are not handled or slaughtered to their liking. Many herders would accept the risks of greater contamination within bounds in order to slaughter and butcher their own household reindeer, rather than obtain cleaner meat from the north.

Slaughterhouses which had access to reindeer under the contamination limit would sometimes allow herders to make a simple exchange of "bad" meat for an equal amount of "good" meat. At other times, however, this would not be feasible. In either case, the testing itself would supposedly leave the herders several options of choice. Herders would be allowed to choose themselves whether or not they wanted to keep the meat of a bad reindeer for their own use—as long as it was not sold. But events proved that frequently the slaughterhouses could not guarantee such special treatment, and all reindeer over the limit, whether or not one was chosen by a herder for his own personal use, would be confiscated. Many herders complained that when they tried to collect the reindeer they had picked for their own household use, they found that it had been destroyed already, even if the test results showed it to have had a becquerel level as low as only 310 Bq/kg. Large-scale testing and compensation operations were hardly geared for the needs of the herding family to provide its own meat supply.

A leading cause of all the controversy is the fact that while the risks from various amounts of contamination consumed are scaled, they are not calibrated. Consumption of one kilogram of 600 Bq meat may be twice as dangerous as consumption of an equal amount of 300 Bq meat, but no one can yet provide a credible account of the risks to health involved with either dosage expressed, for example, in percentages of additional deaths. Expert statements cover the breadth of the spectrum from claiming there is almost nothing to fear and almost no precautions necessary, to predicting hundreds of additional cancer deaths. The social consequences of the Chernobyl disaster are therefore largely the result of opinions and fear—those of the herders and those of the state—without concrete foundations in biological fact. This is not to say that all such reactions are unreasonable given the situation, only that the facts are not available for reason alone to dictate a course of action.

Families with small children in regions of high contamination took extra care to ensure that their children ate meat with the lowest contamination they could obtain, usually, at levels under the state marketability limit. Even though some parents would eat meat they would not serve their children, others found it too difficult to keep menus divided and therefore joined their children in a low-level reindeer diet. In the early stages of the disaster, many herders took the precaution of preparing their food in such a way as to rid it of as much cesium as possible. To give but one example, the water in which reindeer meat was cooked was often discarded. This practice declined in many areas

once the states's marketability limit was quintupled, freeing most reindeer for sale.

Other efforts to decontaminate reindeer meat attempt to lower cesium levels in the reindeer while it is still alive. These efforts involve the use of artificial fodder (even with cesium-reducing additives) and/or the freighting of entire herds by truck long distances to cleaner pastures. Such measures can involve major changes in land use and herding scheduling, besides much extra work and the extended separation of family members.

The effort to decontaminate the reindeer before slaughter has brought about considerable extra costs. Among these are expenses incurred through changes in reindeer management scheduling. Prior to Chernobyl, slaughterhouses would not accept rut bulls. Some herders have claimed that because of initial policy delays by the authorities, the September slaughter of bulls near full rut in their *samebys* was also delayed, with the result that hormone levels increased enough to render the meat unusable. In one of the particularly hard-hit areas, herders, realizing that their bulls would all contain a very high level of contamination at the usual autumn slaughter anyway and therefore unavailable to them as food even if bringing income from compensation, chose to postpone the regular slaughter of early rut bulls in September in order to hunt moose. Meat from the moose is not at all as contaminated as reindeer meat and therefore is more attractive to the herders as food (Labba, 1988:36).

Saami who, because of their need for funds, had acquiesced in the slaughter of animals doomed for becquerel confiscation, were prone to ignore the pre-rut slaughter schedule (no longer conceived of as time critical) when this came to interfere with their ability to supply themselves with another traditional food. Under the existing circumstances, it seemed absurd if meat were to be rejected by the slaughterhouses, because of hormone levels when it was already non-consumable from the becquerel perspective. In a hasty measure intended to make up for losses form delayed autumn slaughters, the Minister of Energy agreed in Sept. 6, 1986 to extend compensation to all "rut" bulls slaughtered, i.e. even to those bulls which had progressed too far in the rutting cycle to be saleable. This compensation would apply whether or not the meat would have passed becquerel safety standards.

Compensation policies have been disigned primarily to keep herders unharmed while pursuing their traditional work with the reindeer, as if nothing had happened. But the herders preferred to hunt the moose whose meat was far less contaminated than that of their reindeer. In the hard-hit areas, especially, moose meat has been one of the main substitutes for reindeer meat. Moose meat has always been a part of the traditional diet and has the advantage of being a subsistence commodity, frequently requiring no cash purchase. The herders knew that whether or not their bulls were slaughtered at the normal time or obtained too high a hormonal level for sale, they would still be barred from the market and confiscated on the grounds of their radiation contamination.

A recurring general issue of major importance concerning compensation policies is whether funds should be distributed simply to compensate for so called "becquerel meat" obtained through following a normal year's routine, or if it should in some way prioritize the production of good meat. This problem is complicated by consumer purchasing resistance against reindeer meat and the difficulty in selling even low-level meat. As a result, some slaughterhouses have already come to offer the herders less for their good meat than the herders can obtain from the compensation payments for their becquerel meat. Herders have commented that it would be smarter for them to feed their reindeer becquerels rather than the artificial fodder designed to decontaminate them.

Besides compensating for contaminated rein-

deer meat itself and the expenses connected with producing marketable meat, the goverment has also provided compensation for the destroyed fishing and berry picking harvests of the northern inhabitants, Saami as well as Swedes. Compensation of this sort, however, involves quite a different process from that related to reindeer meat. Whereas the herders are compensated for the unmarketable meat they produced, it would be senseless to require people to catch the contaminated fish or pick the contaminated berries, only to throw them away after establishing compensation demands. Instead, estimates of lost income or food value have been made on the basis of a person's previous harvest record. Those seeking such compensation are supposed to file for it, giving information about lost harvests. Often a standard sum in compensation is given each applicant, who, if he or she thinks it too little, can appeal the decision. To substantiate a case of high compensation demand, the authorities usually have requested the applicant to demonstrate his or her customary harvest size on the basis of the tax declaration of 1985. Many of my informants have accepted what they consider grossly inadequate compensation rather than subject themselves to what they regard as a rude inspection of their tax records.

Herders in different provinces, when comparing notes, have found that similar applications could result in vastly dissimilar compensation payments. Within each province, the strictness of the rules for distributing compensation varies according to the ratio of the total demand for compensation in relation to the amount of funds allocated to the province for that purpose by the central government. While a herder in the Norrbotten province might receive good compensation for the loss of his traditional catch of fish (even if small), a herder in Västerbotten with similar demands might receive nothing because the fishing is not considered his major source of income. Rather than administering a single policy for the entire country, so that similar demands would lead consistently to similar compensation, the central government has given the provinces the job. The provinces have not at all received the same amount of compensation funds or an equal proportion of compensation funds in relation to demands.

As a result of the Chernobyl disaster, herding households suffered not only a blow to their herding directly, but also to their herding lifestyle in general, a lifestyle to considerable degree dependent upon supplemental incomes from non-herding sources and non-herding subsistence resources. Besides the loss of fishing and berry picking, tourism has decreased. The earlier slaughter of reindeer has even made it more difficult to obtain reindeer antlers of a quality fit for handicraft work. In short, the economic flexibility of the family has decreased, and herders must weigh the trouble and humiliation of seeking compensation against taking greater Bq risks.

On the positive side, herders in the hard-hit areas have managed to cope with many of the problems of access to traditional foods of low contamination with help of a wide network of friends and family. Especially herding families of northern Saami origin have relatives spread throughout the Swedish herding districts due to the enforced relocation of northern Saami in the early part of this century. Saami in low-contamination areas have often sent fish, berries and even reindeer meat to their less fortunate relatives and friends. Herders in the hard- hit areas have not infrequently undertaken trips further north where they have been able to purchase a reindeer and slaughter and butcher it themselves according to traditional specifications. Even if such channels of food redistribution have not had heavy traffic, their influence can hardly be overestimated. The ability to obtain at least some traditional foods to prepare oneself according to customs means very much indeed, not least for the expression and practice of cultural identity.

Naturally, the Chernobyl disaster has also taken a psychological toll upon many herders who had come to feel themselves as wards of the state, subsidized by state compensation payments, people whose work was meaningless. With the change of marketability limit (which alone had freed most reindeer for the market) and the decontaminating efforts of artificial fodder and earlier slaughters (which have brought many of the reindeer in high contamination areas under the limit), most herders are no longer receiving compensation for their reindeer. As noted earlier, however, there is the danger that they will receive a relatively poor price for their meat due to purchasing resistance.

There has been a good deal of worry if, after the Chernobyl disaster, young Saami recruits to the herding livelihood will be as numerous as would otherwise have been the case. We have yet to come across any examples in our research areas of a decrease of Saami herders or Saami herding recruits because of Chernobyl. However, we have found young herders who have prudently decided to postpone major new investments in livestock or housing until they were more sure of the future.

Even in the hard-hit regions, herders now feel that the problems they face, although very likely long-lasting, can be dealt with. While many of their reindeer are still over the limit, they now know that their reindeer can be brought below the limit, albeit for short periods and at added expense. This expense is borne by the state, but herders need not feel that they are mere welfare recipents, for they can produce a quality product for human consumption.

Nonetheless, even though government expense for supporting the herding industry in this hour of crisis has decreased greatly, compensation to herders and slaughterhouses is still considerable. Herders are worried if compensation payments will impair the ability of herders to resist threats to the grazing lands by extractive industries such as the hydro-electric power industry and the timber industry? Will prolonged compensation place the herders in such a position of dependency that the herding livelihood will collapse once this compensation is removed? Many herders fear that the considerable support provided them by the state will in time cause their Saami rights to be looked upon as Saami privileges which can be removed (like compensation payments) by the state at will without due process (Beach, 1987).

A more permanent extra expense occasioned by alteration in the scheduling of herding events has been that brought about by early slaughter in southern Lapland. In the Vilhelmina area, the discovery that slaughters in late August might result in meat under the limit—in contrast to the high values recorded during the winter—causes earlier than normal slaughters. Currently, the relatively low Bq levels in the Jokkmokk area and the institutionalization of the raised marketability limit demand no changes in slaughter timing for the reindeer to clear the limit. Previous to the raising of the limit, however, many *samebys*, even in the more lightly contaminated areas, corralled their reindeer for autumn slaughters earlier than customary in order that the reindeer would be slaughtered before making the transition to the heavily contaminated lichen diet. In southern Lapland, the early slaughters will probably continue for many years to come. Such changes in scheduling have had unforeseen ramifications. In the Swedish mountain *sameby* herding cycle, the earlier it is in autumn, the further removed the reindeer are toward the west and the more spread out they are. Bringing these reindeer to slaughter has necessitated in many instances a far greater reliance upon air support, notably helicopters, than usual. This has added a sizable cost, one that was initially, at least, borne by the state.

A number of our informants indicated that the promise of compenstaion for the extra flying time needed has resulted in an overly carefree use of helicopters. They worry that, should

this compensation continue for many years, the herding system would become far too helicopter dependent. Herders and reindeer would no longer know any other way. The emergency measure would become customary, and before long even a necessity, driving up the costs of herding. Even before Chernobyl, the over-use of technological equipment has been viewed as a growing problem by many herders, and some regard the compensation measures as aggravating the problem. Other herders do not see the use of modern equipment as a problem at all, but they are concerned that compensation policies will generate costly habits of use which will prove ruinous once state compensation ceases.

Of course, the added expense of rounding the herd up for early slaughter stems not only from increased use of helicopters, but also from reduced sales income. The earlier in autumn the bulls are slaughtered, the less they weigh. The herders and their Saami organizations have been negotiating with the government over compensation payment to cover the weight sacrificed for the sake of producing marketable meat.

The reindeer slaughter industry, too, has been affected heavily by Chernobyl. In the Jokkmokk area, where slaughterhouses are numerous and habitually in competition for reindeer, herders have been constantly discussing slaughterhouse policies. Although a herder will usually sell to whichever slaughterhouse is on the scene and gives the best price, herders have often expressed strong preferences and loyalties to particular slaughter companies. A number of herders have voiced the suspicion that government compensation to the slaughterhouses is being distributed in an unfair manner partly in an effort to promote restructuring of the slaughter industry according to state plans.

Due to the quirks of compensation policy to the slaughterhouses, considerable profits could be made from the slaughter of becquerel reindeer without much effort. Like the herders, slaughterhouses have also been compensated for the meat of the becquerel reindeer they have slaughtered, though at a much lower rate. As highly contaminated meat is destroyed, processing procedure at the slaughterhouses is unnecessary. Moreover, slaughterhouses have also received compensation for their reduced sales of processed meat sold as a delicacy product. Competition for becquerel reindeer became fierce, and slaughterhouses have been accused of using inequitable methods in the struggle. Some slaughterhouses have obtained large sums in compensation and support of their businesses, while others have received nothing. Those which have received funding are accused of using their compensation to gain an unjust advantage in the bidding for becquerel meat.

One slaughterhouse which was heavily dependent upon state aid offered a better price for becquerel meat than the usual governmeant rate of compenation, if in return the herders would refrain from inviting other slaughterhouses to attend their slaughter. Naturally this has caused a storm of protest by other slaughter companies and the herders supporting them. Was compensation payment to be utilized as a weapon in market wars between slaughterhouses? Moreover, if one slaughterhouse tried to meet the problems imposed by Chernobyl, for example by laying off personnel so as to minimize losses, should this company receive less compensation than another slaughterhouse that refused to cut back and therefore could demonstrate a larger loss incurred by Chernobyl? If the rule governing compensation payment is that it should simply cover loss, then any business which tried to cut its losses would be rewarded with less compensation. Incentive to improve the difficult situation would thereby be destroyed.

The differential payments to the different slaughterhouses have appeared quite arbitrary. The authorities are accused of helping a few big companies, whether inadvertently or by de-

sign while ruining the small companies' ability to compete. If this has been by design rather than by the blind following of insensitive regulation (and I have not been able to establish for certain which it is), perhaps it is motivated by a wish to rationalize the reindeer slaughtering business. Even so, while it may well be that the authorities deem it unnecessary to have so many competing companies given the scale of the reindeer slaughters, nonetheless one can as a matter of principle question whether disaster compensation payments should be slanted in such a way as to promote the rational restructuring of a business, favoring some against others.

Some herders worry that many of the small slaughterhouses will be forced from the field and that herders will lose the benefit of a competitive market for their reindeer. If competition in the slaughter industry should fall, the risk could grow that slaughterhouses might give the herders a lower price even for their good meat, under the pretence that purchasing resistance demanded it. But while it may well be that some resistance to the purchase of reindeer meat forces down the price the slaughterhouses can in turn pay the herders, it is practically impossible to know what part of a price drop is due to real purchasing resistance and what part is due to the slaughterhouses' desire for greater profit.

There is also cause for concern in the fact that Sameprodukter, one of the largest slaughter companies to receive massive state support in the form of Chernobyl compensation payments, is mostly owned by SSR, the Saami herders' major political organization. Just prior to the Chernobyl disaster, Sameprodukter seemed to be on the verge of bankruptcy. Now, some say as a result of large compensation payments, it has made a fast recovery. Owners of slaughterhouses which have received little to no compensation compared to Sameprodukter argue that the Swedish state, sworn to protect the Saami herders and the Saami culture from the ills of Chernobyl, can hardly afford to let Sameprodukter be a victim. But while the aid to Sameprodukter is generally applauded by the herders, many are worried if this economic link to thier political organization might not in some way come to compromise its other, political efforts for the Saami in its confrontation with the state. Sameprodukter itself claims that is has received no particularly favorable treatment, and surely one cannot expect it to refuse government compensation and risk financial ruin because of its connecton to the Saami political organization.

While both the state and the Saami can be relieved that the effects of Chernobyl now appear to be of a scale which can be absorbed by the flexibility of the government's budget, as well as by the herders' economy and by the Saami culture, I think it sobering to contemplate in closing the dilemma of principle in which this disaster has placed the Saami culture. It could have been worse. After all, the fallout from Chernobyl was by no means the first to reach Lapland, and the absorption properties of the lichen place the reindeer, and through them the Saami, in an extremly vulnerable position.

At first appearance one might consider that the demonstrated threat of nuclear fallout to the Saami culture through the reindeer would cause the Saami to seek a broader cultural base, one that would serve to hold them together even if the herding industry should be desperately crippled sometime in the future. At the same time, however, it is precisely because of this vulnerability of the Saami through their reindeer that they have been granted special compensatory policies over and above those bestowed upon other citizens. Should another, similar disaster occur, the Saami may well be best served in the short run by promoting even more the linkage between their culture and the practice of reindeer herding. In the long run, however, to absolutize this linkage could be fatal. The state can only do so much. If ever beset with long-lasting, wide-spread and high-level

contamination at some future date, reindeer herding in Sweden will be in the hands of the consumer, regardless of any compensatory policies devised by the state. These can be but stop-gap measures. Of course, it is true that the importance of this practice to the Saami as a whole can hardly be overemphasized; yet there is more to Saami culture than reindeer.

In this first year of work with investigating the long-term social effects of the Chernobyl nuclear disaster for the Swedish Saami, our results cannot necessarily boast of long-term applicability. Many of the issues raised have concerned the worries of herders over some future possible development. While such things as worries, depressions, and the methods to cope with them do consitute social facts in themselves, deserving consideration on their own account, concrete social changes (sometimes the objects of worry, but sometimes unanticipated) will reveal themselves only with time. Will herder numbers decline further as a result of Chernobyl? Will the slaughter industry take on a new structure? Much further research is necessary to determine to what extent such developments materialize, what part Chernobyl has played in them, and what their consequences will be.

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