



*Photo: Alaska Native Service*

Roundup of the Golovin herd, 1949.

## THE REINDEER INDUSTRY IN ALASKA

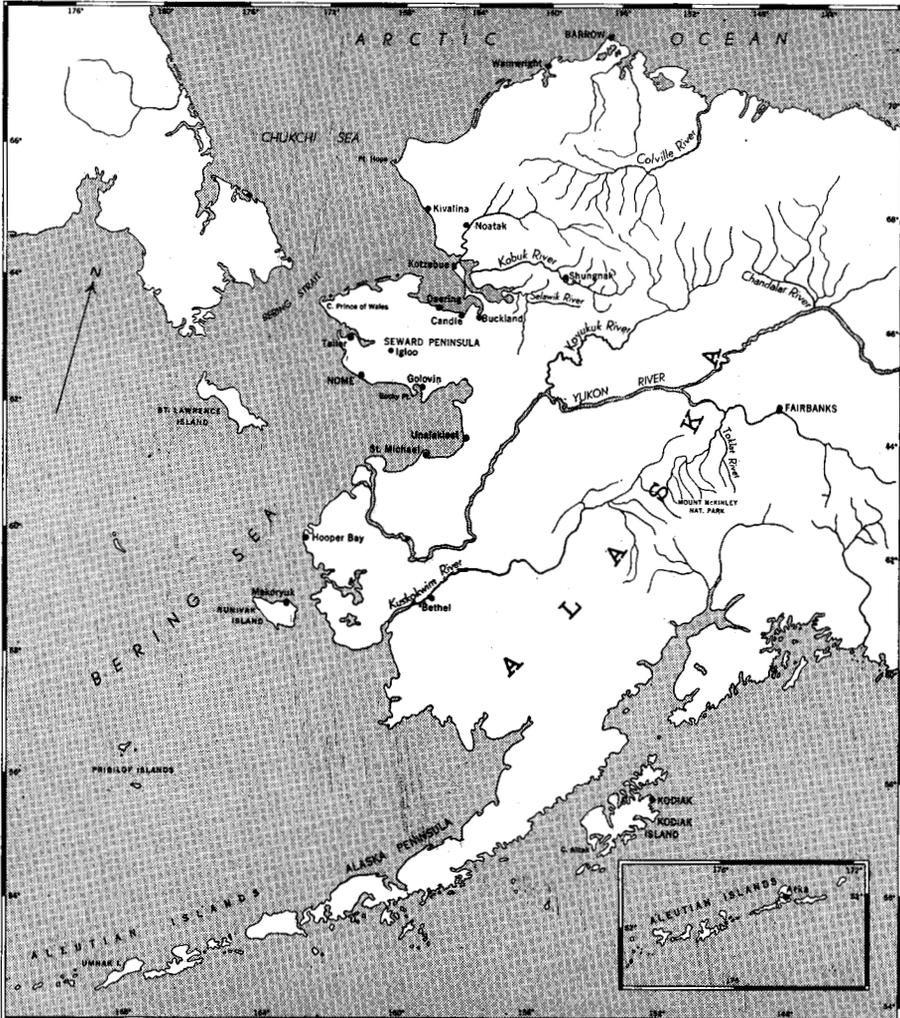
*By Margaret Lantis*

**F**EBRUARY 1916 at Igloo in the region of Nome was a hopeful time. Eskimo owners of reindeer herds and apprentice herders had come here from all northwest Alaska to attend a Reindeer Fair. This was not the first Reindeer Fair sponsored by the U.S. Bureau of Education. But that year the Fair was much more impressive, with representatives of ten villages competing in many contests: fastest sled deer, strongest deer, best trained deer for driving, most skilful lassoer who could catch and break a bull to drive most quickly, herdsman who could butcher and dress a carcass cleanest and fastest, and sledlashing for the trail. There were other contests: composing a song about reindeer, shooting with bow and arrow and with rifle, snowshoe racing, and other sports. Sleds, harness, clothing also were judged.<sup>1</sup> The competitive emphasis on skill, the showing-off of fur clothing and other fine homemade possessions, the resourcefulness displayed in long travel by reindeer sled across strange country to reach Igloo—all fitted into the Eskimo system of individual prestige. These Reindeer Fairs are a symbol of the high point in satisfaction obtained from Eskimo ownership of reindeer.

However, elements of the anticlimax were already present. In 1914, a white family had formed a company for commercial development of

<sup>1</sup>Forrest, 291-296 (see references p. 44).

reindeer, beginning a new and very troubled period in the reindeer industry. The first period, in which only Eskimo and Lapps owned deer in Alaska, had begun in 1892 when domestic reindeer were first imported to Alaska from Siberia. The second period, that of commercial exploitation, extended from 1914 to 1939. In the latter year, the Federal Govern-



ment bought all non-native-owned reindeer. The third period, since 1939, has been one of slow recovery from the chaotic conditions in the '30's. While it is unlikely that Congress will change the rules of ownership, various people periodically think they can develop a profitable new industry. To indicate the actual prospects, we review the history and present status of Alaska's reindeer.

Dr. Sheldon Jackson, first Superintendent of Education in Alaska,

was worried by the depletion of whales, walrus, and other food resources of the Eskimo, resulting from the 19th century's uncontrolled hunt for oil, whalebone, and ivory. To provide a supplementary source of food and skins, he imported 1280 domestic reindeer in the period 1892-1902.<sup>2</sup> Funds were supplied by Congressional appropriation and small contributions of private groups. The deer were introduced at Teller, on Seward Peninsula west of Nome, and from there distributed westward to Cape Prince of Wales at Bering Strait and to St. Lawrence Island, southeastward to Golovin, Unalakleet, and still farther to the Kuskokwim River. Later they were taken to the Pacific shores: Kodiak, Umnak, and Atka Islands. Quite early they were distributed northward to Kotzebue, Point Hope, Wainwright, and Point Barrow. The original Teller-Nome-Golovin area later became the breeding range for quarrrels as well as reindeer.

Meanwhile, in the 1890's several church missions had an official connection with the Bureau of Education by which their missionaries were employed also as teachers in the Federal school system. Reindeer, therefore, were entrusted to these mission schools, of eight different denominations, as well as to the first secular schools, for the teachers' general supervision of herds and herders in the following system: individual Eskimo were loaned 100 reindeer on their agreement to care for them, train apprentices, and repay at the end of five years the number of animals borrowed, keeping their increase. For his pay as a herder, the Government gave an apprentice a specified small number of deer and an amount of supplies annually for four years, and allowed two months' attendance in school each year. This last usually was not achieved, though. When his herd numbered 100, he took an apprentice himself; when 150, another apprentice, and so on, until he had four. Those Eskimo receiving the original loans of deer had been specially trained by Lapps at Teller. By their exploits on long deer drives, they became some of the most famous Eskimo in the history of Alaska.

The Nome Gold Rush brought a new demand for meat, and the price of reindeer meat doubled. With the Whites thereupon showing considerable interest in reindeer ownership and with the missions quite unsure of their ownership rights, it became necessary to adopt strong regulations in 1907. The most important clause was that, "No female deer shall be sold or otherwise disposed of to any person other than a resident native of Alaska."<sup>3</sup> Old, barren, or disabled does were killed and reported to

<sup>2</sup>Some reports give the number 1296, although 1280 is the more frequently cited figure.

<sup>3</sup>The term "natives of Alaska" was generally understood to mean "the native Indians, Eskimos, and Aleuts of whole or part blood inhabiting Alaska at the time of the Treaty of Cession of Alaska to the United States and their descendants of whole or part blood, together with the Indians and Eskimos who, since the year 1867 and prior to the enactment hereof, have migrated into Alaska from the Dominion of Canada, and their descendants of the whole or part blood," as worded in later legislation. Senate Subcommittee Hearings, p. 20,351.

the superintendent. Surplus males could be slaughtered, the meat and hides sold to anyone, thus yielding income.

Ownership was not so simple as it might appear, however. In the winter of 1897-98, to provide relief for some gold miners supposedly faced with starvation, a herd of reindeer (for meat and driving, not breeding stock) and 113 people, 77 of whom were Lapps, were brought from Norway. These families expected to be permanent settlers, unlike the few Lapps who had been brought in 1894 to instruct the Eskimo and then return to Europe. Six men took the deer up toward the Yukon on the relief expedition, all others going on to the north Bering Sea.<sup>4</sup> Although all were promised reindeer, fortunately some decamped for the gold creeks. Finally eight men were loaned 100 deer each and assigned to missions to instruct Eskimo dependents of the missions, the deer being part payment for services. In 1909, ownership of deer was reported as follows: Lapp instructors 14 per cent, missions 22 per cent, U.S. Government 23 per cent, Eskimo herders and apprentices 41 per cent.<sup>5</sup> In other words, all but 14 per cent were for the Eskimo's use. By 1914, ownership had changed somewhat, yet not to the detriment of the Eskimo; in a total of 57,872 deer, the Government held 7 per cent, missions 12 per cent, Lapps 17 per cent, and Eskimo 64 percent.<sup>6</sup>

Even though most herds contained fewer than 2000 deer each, until about 1916, the necessary number of earmarks for identification had increased confusingly. A single herd would contain Government reindeer (from original import and repaid loans, held for use of the villages in case of famine) or deer still assigned to the missions for loan and relief although the latter were no longer part of the school system, plus animals belonging to individual Eskimo and Lapps. It was not easy to determine ownership from the slices, swallow-tailed cuts, and other marks on the ears. And no other system has even yet been found satisfactory, such as hot-iron branding—the reindeer coat is much too heavy, the skin is too thin—or metal tags on the ears.

This was only one of the many difficulties, most of which still must be surmounted. Reindeer herding is difficult in many different ways. In the early period, the European system of "close herding" was used with good results. This means staying with the herd *all the time*, through blizzard, spring thaw, summer mosquitoes, through Christmas holiday, whaling, sealing, and attendant festivities on the coast. It is, moreover, herding in some of the world's worst country for overland travel, for example, in the Kuskokwim Valley.

<sup>4</sup>See Senate Subcommittee Hearings, p. 20,347 for Laplanders' names and their agreement (in part) with the Government.

<sup>5</sup>Ibid, p. 20,061.

<sup>6</sup>Ibid, p. 20,179. By 1938 the Reindeer Service reported that Whites owned 33 per cent, "a rather ominous trend", p. 20,358.

Here are the most important discouragements:

1. Most Alaskan Eskimo are, in a deep fundamental way, a shore-dwelling people, their culture adapted to hunting on the sea. Even many who lived inland most of the year liked to be on the coast at special times. The revolution in their way of life required by herding a semi-domesticated animal was difficult and disturbing. For such skilled hunters, herding is boring, confining, and its rewards too far in the future, as the author of 'Daylight moon' has said.<sup>7</sup> Anticipation of the kill keeps the hunter going through the tedious effort of sitting attentively by a seal-hole or waiting beside a flaw in the ice. He anticipates also the fresh seal, his basic food, and muktuk (whale-skin), his favourite delicacy. When the salmon or herring are running in east Bering Sea or when the walrus come north along the coast of the Arctic Ocean, it is asking a lot of the Eskimo to expect him to disregard family, village, and old habits in order to plod along after half-wild reindeer.

The Eskimo were not forced by anyone to take up reindeer herding; but economic need, encouragement by many of the early teachers, and especially the sincerity, enthusiasm, and personal efforts of W. T. Lopp, Walter C. Shields, and a few other officials sustained their wavering interest. Also, probably most important of all, some Eskimo were gaining wealth and prestige by means of their herds.

2. As the herds grew, they required even more protection. Wolves, lynx, and other predators were constantly attacking the deer. As many as 60 deer have been killed in one night, it has been reported.

3. When the herds increased and spread inland, they encountered the American caribou on their great migrations. Being closely related, reindeer are often carried off by caribou migrations unless there is very watchful herding.

4. As the herds spread and mingled, it was harder to keep account of them. However, until large-scale commercial herding developed, a fawn was "marked to its mother" and the difficulty was not insurmountable.

5. The problem of long-term forage was developing on Seward Peninsula where the deer had been first introduced. The lichens, so-called reindeer moss, on which the deer feed in winter are brought back very slowly when once depleted. The Reindeer Service and the Fish and Wildlife Service have found that it requires twenty-five years or more to replenish thoroughly depleted lichens.<sup>8</sup>

6. Finally, there were the parasites: the bot-fly whose larvae infest the nose of the reindeer, weakening them, almost maddening them, and the warble-fly whose larvae burrow through the skin, decreasing the

<sup>7</sup>Forrest, p. 46.

<sup>8</sup>The 1945 report by Lawrence J. Palmer, then Range Examiner, gives a gloomy prognosis. See "The Alaska tundra and its use by reindeer," 1945, pp. 12-13.

commercial value of the hide. These also can be combatted by care in moving the herd from an infested range.

To fight all the reindeer's enemies, close herding is needed, herding by experienced men who know reindeer ways, local geography, and condition of ranges. They must know how to live on the trails of the arctic interior for weeks at a time. They must know selection, corralling, butchering, tallies, accounts, and all the other tasks of livestock raising. A good reindeer man deserves admiration and assistance.

Three developments in the next period, however, discouraged the Eskimo and weakened their new interest in herding: formation of reindeer associations, inauguration of a policy of "open herding," and impingement on their range by White-owned herds, especially those of the Lomen companies. The reindeer were allowed to run in large herds, managed by corporations—or rather, their boards or councils—each owner being credited with a percentage of the herd. Livestock specialists of the Biological Survey (now Fish and Wildlife Service), thinking of cattle ranges in the Western states, encouraged free ranging of the deer, i.e. open herding. But reindeer are not cattle. First, they are not so thoroughly domesticated and they react more like sheep. Second, their tundra and mountain country is much more difficult to travel in locating and rounding up the deer. Third, having to find their own forage during the long hard winters, the deer are likely to be weakened and need protection in the spring at fawning time. Above all, fourth, they are in danger of mingling with wild animals like themselves, as if the pioneers on the U.S. frontier had tried to herd half-domesticated bison, without fences, when the great bison migrations moved north and south on the high plains.

The associations or native corporations, unfortunately, were too much like some of those on Indian Reservations in the States. When the whole group owned the herd, no single individuals took the responsibilities of ownership. And without system or facilities for marketing meat, they could not get money to hire herders. In this period, 1914 to 1939, some of the superintendents were not strong leaders, did not understand the business, or did not have sufficient conviction of its value. Moreover, a \$4,000,000 private business in reindeer had developed, with the inevitable politics of large enterprises.

Between 1914 and 1921, Carl J. Lomen, of a politically prominent Nome family, bought 8,693 reindeer from two missions and from the Lapps.<sup>9</sup> He paid \$18 and \$20 a head for most of them. Although the sellers thought they had the right to sell, the legality of these purchases remained questionable, since no female deer could be sold to non-natives.

<sup>9</sup>Statement by Mrs. Carl J. Lomen. Senate Subcommittee Hearings, p. 20,071.

(Small herds were acquired by other Whites subsequently.) The purchases never were tested in the courts, however. The Lomen herds were grazed on public domain along with the others.

The Lomen reindeer business grew with tangled luxuriance. Companies were formed and dissolved. Relations of subsidiary companies to parent companies never were clarified. The original capitalization of \$750,000 in 1914 came to be more than \$2,000,000 by 1930 (with alleged assets of \$4,785,000) although no one actually knew how many reindeer were owned by the Lomen interests. By 1924, the Lomen family claimed 40,000 deer from their original 8,700, despite shipments to the States, 1916-20 inclusive, of 436,650 pounds of meat, representing 4,000 animals or more. (Figures not given for other years.<sup>10</sup>) While 40,000 was not impossible, the claims became almost fantastic after 1924. After the last thorough roundup in 1923, everyone connected with the industry, including Government representatives, based estimates of probable increase on the known birthrate of reindeer without adequately estimating losses. In 1932, the Alaska Reindeer Supervisor estimated 374,160 deer in 51 herds for native use.<sup>11</sup> With the additional 250,000 claimed at the time by the Lomens and the herds of a few other White men, there still could not have been more than 700,000.<sup>12</sup> Yet throughout the 1930's Alaskans talked about 1,000,000 to 1,500,000 head of reindeer.<sup>13</sup>

Carl Lomen undoubtedly was deeply interested in reindeer intellectually and emotionally as well as financially. He not only bought refrigerator ships, built four abattoirs, many corrals and other facilities, he also wrote articles and organized committees to publicize the fine qualities of reindeer meat. But unfortunately the Northwestern Livestock Corporation was a too pretentious front for the straying reindeer and grumbling Eskimo.

Even with goodwill from both Eskimo and Whites, there still would have been misunderstandings in the situation existing in the late 1920's and early 1930's. Casual marking of mavericks and fawns with the Lomen mark, despite the range rule that mavericks were to be marked to the herd in which found, and a few cases of pirating by Lomen herders made the Eskimo suspicious, especially when the Corporation began calling itself co-owner of any herd in which its deer happened to be running. The Lomens may not have been responsible for acts by their herders, but the mere fact that several hundreds and even thousands of company rein-

<sup>10</sup>Financial review from an article by Trumbull White, "Coming storm over Alaska" (*New Outlook*, August 1933) included in Senate Subcommittee Hearings, pp. 20,060-20,066.

<sup>11</sup>Anderson and Eells, p. 197. Of these 51 herds, 43 were held by, or for, Eskimo.

<sup>12</sup>For the number of deer owned by Whites in 1936, see Senate Subcommittee Hearings, pp. 20,343-5. In 1938, the Reindeer Service estimated a total of 600,000 reindeer in Alaska, having counted 175,000 in 1937, including native and non-native ownership (p. 20,358). Of the 175,000, 33 per cent belonged to White individuals and companies.

<sup>13</sup>*Ibid.*, pp. 20,126 and 20,131.

deer were feeding on the ranges of the Eskimo's deer engendered resentment.

In 1931, apparently working closely with the company, the Reindeer Service issued complicated new range rules. These allocated a percentage of the annual increase of animals for each local co-owner of a herd and a smaller percentage for owners of strays from other herds. Moreover, these percentages varied according to the total percentage of increase each year, entailing still more figuring of the number of adult females and fawns. When, by such allocation and marking, an owner was "over" or "short," he was debited or credited reindeer. One can imagine sorting and marking fawns, tallying accurately, figuring percentages, in the terrific hurly-burly and noise of corralling several thousand terrified deer, often in bad weather. Naturally, the ear-marking never was accurate, resulting in overs or shorts for every owner from year to year until the Eskimo owner did not know what he had. With large numbers of reindeer of so many owners running together, with fawns separated from their mothers, and with so many adult strays, some such scheme for crediting animals to owners had to be used. It is doubtful, though, whether the rules ever were accurately translated into the Eskimo language in all interested villages so that the older men could understand.

The company, over-capitalized, had to press hard against resources in order to squeeze out profit. In favour of the company it should be said that marketing of reindeer meat in large quantity—at its best—is very expensive and difficult. The following difficulties must be met today, and most were present 25 years ago.

1. There are no docks anywhere along Bering Sea or the Arctic Ocean where the herds are located, hence there are lighterage charges to transport carcasses from shore to ship and equipment from ship to shore. Furthermore, the equipment is expensive by the time it reaches Alaska.<sup>14</sup>

2. Freight charges of the few ships with refrigerator space are high.

3. Ships can reach such places as Kotzebue and Deering for a very limited season and usually come on short notice when the weather happens to be good, making it difficult for herd owner or manager to know when and how many animals to butcher, especially if he does not have much cold-storage space.

4. Although at a few fields, cargo aircraft now can be used profitably, most village sites still cannot accommodate large enough aircraft for shipping the bulky carcasses in profitable quantity. In the days of the Northwestern Livestock Corporation, there were, of course, no large

<sup>14</sup>Lighterage is an especially serious problem at Mekoryuk, Nunivak Island, where the only reindeer abattoir in Alaska is now located. Ships anchor five miles, or more, offshore. The Nunivak Development Project (the slaughterhouse project) tow-barge was lost in a storm in 1946. A power barge was then obtained.

cargo aircraft.<sup>15</sup>

5. Public demands regarding meat condition are more rigorous than they were twenty-five years ago when the business first boomed commercially. Deer can no longer be butchered on the beach and fresh carcasses loaded on the ship to be refrigerated en route. Now they must be hung (bled) and cleaned properly, cooled, frozen and stored in deep-freeze, and sacked in stockinette or, as some of the Eskimo say, the deer must have their underwear when they go travelling.<sup>16</sup>

6. The best markets for luxury meats are in New York and other cities of the Eastern states, requiring another 3,000 miles of freight charges.

7. Some states prohibit sale of reindeer meat, classifying it as game. V. Stefansson has claimed that the tremendous livestock interests of the Western states were responsible for this and other restrictive measures.

8. There is no steady market, as most Americans prefer beef no matter how good the reindeer meat may be.

After several Government investigations and probably considerable loss of money, the Lomen companies offered to sell to the Government. Finally, in 1939, \$750,000 was authorized for purchase of deer, abattoirs, and other equipment from forty owners: individuals (including Lapps), missions, and companies. When the reindeer at last were counted with fair accuracy, the Lomens were found to have only 87,000 deer, of which 14,000 to 15,000 were on Nunivak Island.

Very few condemnation suits were brought. Most owners sold to the Government willingly, at prices ranging from \$3 a head for most herds to \$11 for the good herd on Nunivak. Average payment per head was \$3.74. Total expenditure was less than the appropriation. This was the kind of clean sweep of a tattered problem that Government agencies periodically long for.

The Reindeer Service had been given to the Alaska Native Service in 1937 to try to rehabilitate the ailing industry for the benefit of the Eskimo.<sup>17</sup> The A.N.S. was handicapped at first by personnel without adequate knowledge and judgment for handling either reindeer herds or Eskimo communities and by continuation of most of the old difficulties. Then there were two new factors: the defence program bringing unusually high wages, enticing men from both herding and hunting; and the demand for fawnskins for military parkas, resulting in slaughter of does and fawns.

<sup>15</sup>Refrigerator power-barges are the most promising means of transporting meat on the Yukon and Kuskokwim Rivers and elsewhere in west Alaska.

<sup>16</sup>The Eskimo preferred to have internal bleeding, to save all the blood, which they were accustomed to eat. They also had to learn to select animals for prime meat rather than for colour of coat, which mattered to them in making parkas. Forrest, p. 45.

<sup>17</sup>In 1931 the Federal schools were transferred from the Office of Education to the Bureau of Indian Affairs, which operates in Alaska through the Alaska Native Service.

There may have been poor herd management, too, and some unnecessary slaughter beyond military requirements. But reorganization has been effected as follows:

A housecleaning in personnel.

Reinstitution of constant ("close") herding except on the islands, where there are no wolves and the reindeer cannot get away.

A new program to get herds from the old corporations (associations) into the hands of individual Eskimo who are then personally responsible for the deer.

Examination and allocation of ranges by a range specialist.

Institution of a program of predator control.

Abandonment of the old slaughterhouses, located in areas of poor forage and straying herds, and construction of a slaughterhouse on Nunivak Island, which began to operate in 1945 and shipped 13,000 carcasses in three seasons (1945, 1946, 1947).

Development of a market for hides—the skin makes good gloves—and fawnskin jackets, fur boots and other fur articles.

In addition, the U.S. Public Health Service has included reindeer and caribou in its research on parasites of Alaskan animals. A veterinary-pathologist, working at a Ladd Field laboratory (Fairbanks), has examined tissues for *Echinococcus*, which causes a growth in the lung. In 1949 two doctors visited Nunivak Island to make a specific study of parasites of reindeer. Results of these studies are not yet available.

In the summer of 1948, a special survey of reindeer north of the Kuskokwim River was made by a biologist of the U.S. Fish and Wildlife Service and the director and assistant director of the Native Resources section of the Alaska Native Service. Twenty localities with reindeer interests were visited, many summer and winter ranges were examined, and seventeen herds were reported on in detail.

Eskimo when asked what they thought caused the decrease in reindeer listed wolves, starvation, poor herding and management, excessive butchering, and mixing with caribou. Whites cited wolves, poor herding and management, starvation due to wolves scattering and chasing. The survey party's listing of losses in each herd shows that wolves caused serious damage to seven herds and straying to seven, not necessarily the same ones. Wolves were unusually numerous from 1946 to 1949 inclusive.

To control them, poisoned bait has been dropped from aircraft onto the ridges at 3,000 to 4,000 feet elevation. It is claimed that the doses are not harmful to caribou and mountain sheep (apparently because in a form that these animals do not eat) and are placed in areas unfrequented by dog-teams. After the bait has been dropped in the winter, the predator-control agent mashes through the area in the spring to check on results. In the winter of 1948-49, the Chandalar region of northern Alaska and the area from the Big Toklat River to Big Delta were baited, chiefly for

the protection of caribou. During the preceding three years, important reindeer areas covered were Seward Peninsula and the Noatak region. Although difficult to evaluate precisely, this program is said to be effective.

Regardless of other incentives, bush pilots, herders, trappers, and others kill wolves to get the bounty. The Shungnak herd owner, for example, reported that wolves caused a known loss of 75 animals in a herd of about 770 deer during the winter and spring of 1947-48 despite his trapping of eight wolves that winter. The killing of four wolves around the Hooper Bay herd in the winter of 1947-48 stopped molestation that season, but there already had been a reported loss of 107 head from a herd numbering fewer than 600.

Forage problems are not so serious for the new generation of reindeer men, trained regarding range condition and herd management, who can usually find adequate winter range in their home areas if they are careful in shifting their animals. According to the 1948 report, out of thirteen herds, ten had access to good winter grazing. The winter range of the other three was "questionable," "fair," and "overgrazed." Although it has been claimed that reindeer will burrow down through deep snow to get at the lichens, in reality they seem uninclined to flounder through deep snow but will keep to the higher land blown relatively clear. While it is true in some cases that it is the herders who are most anxious to stay on higher ground (and near the villages), such a tendency does not explain the condition on Nunivak Island, for instance, where the deer are not herded in winter. Though they have parasites, the Nunivak animals have been large, healthy, and not beset by wolves or the temptations of wandering off with caribou.<sup>18</sup> Yet in winters of heavy snow, the loss from starvation is much greater than in normal years. The explanation is that the more accessible ranges where the deer tend to go of their own accord are overgrazed.

Now that young Eskimo have other interests besides hunting, the new loan program is more attractive and functions better. An Eskimo—nearly half of the borrowers are Second World War veterans—is loaned a minimum of 500 deer to be repaid in five years. For efficient herding, a man is encouraged to take 1,000 head. A borrower also receives supplies for the first year, in return accepting supervision and training. In this system, a man has a strong interest in protecting his herd. For example, whereas in 1947 migrating caribou carried away three herds of Govern-

<sup>18</sup>Caribou bulls introduced into the Nunivak herds largely account for the greater size. By personal checking of weights, I found that most carcasses of adult animals shipped from the Island in 1946 weighed between 90 and 130 lbs. dressed (heavier than north Alaskan reindeer) and not a few were between 150 and 175 lbs. Nunivak animals also have had good conformation and good meat. The Nunivak herds, which may have numbered 18,000 or more in 1940 (officially counted 15,000), grew from 98 reindeer brought in in 1920 and 10 caribou bulls brought in in 1925.

ment reindeer, an alert and capable owner in the Kotzebue area managed to get his herd into the corral before the caribou came by. This man now has 3,000 head from his original loan of 1,000, which he is repaying to the A.N.S.

Herds in the winter of 1947-48 were located as follows:

Government ownership and management: 7 (Kotzebue, Hooper Bay, Nunivak Island, Alitak on Kodiak Island, Umnak Island, Atka Island, Pribilof Islands).

Eskimo corporations: 7 (Wainwright, Point Hope, Noatak, Buckland, St. Lawrence Island, Teller, interior of Seward Peninsula).

Individual Eskimo owners from the original system of ownership: 3 (2 at Barrow, one at Wainwright).

On loan to individual Eskimo under the new system: 11 (3 at Barrow, 2 at Kotzebue, one each at Selawik, Shungnak, Deering, Golovin, St. Michael, Bethel).

In the summer of 1949, the Reindeer Service record was as follows:

SIZE AND DISTRIBUTION OF REINDEER HERDS, 1949

<i>Type of Ownership</i>	<i>Location</i>	<i>Number of Head</i>
Association (corporation)	Wainwright .....	270
	St. Lawrence Island .....	450
		720
Government	Escholtz Bay (Kotzebue) .....	3,500
	St. Michael (including former Egavik herd) .....	150
	Hooper Bay .....	400
	Nunivak Island .....	4,500
	Atka Island .....	1,700
	Umnak Island .....	1,400
	Pribilof Islands .....	700
		12,350
Individual	Barrow .....	750
	Barrow .....	1,600
	Barrow .....	650
	Kotzebue .....	1,500
	Kotzebue .....	1,500
	Shungnak .....	400
	Selawik .....	1,500
	Noatak (new herd from Escholtz Bay) .....	1,100
	Wainwright .....	450
	Golovin .....	1,500
	Igloo (Seward Peninsula) .....	750
	Candle .....	650
	Alitak (Kodiak Island) .....	2,500
		14,850
Grand Total .....	27,920	

Comparison of the two lists shows that while most Association herds have been dissipated or were loaned to individuals because Association

management was inadequate, the individual owners have held their herds quite well. (Many are still technically borrowers, not having fully repaid their loans, but are classified as owners.)

Even though the care of most herds has improved, the record is not uniformly cheering.

The Kivalina-Noatak (Association) herd, on loan, by 1948 had decreased to only about 100 head, too small to pay its way, hence was returned by the borrower and, without attention, by the summer of 1949 had strayed. Another remnant of an Association herd, the Point Hope, numbering 327 deer in July 1947, similarly was returned. A herder was hired, but when he left the deer for a short while to get supplies, the remaining 250 animals disappeared (1948).

At Hooper Bay, the Government herd deteriorated and suffered serious losses, chiefly because the community was not interested. Here, it was true that the Eskimo had tried to hold the herd near the village, where ranges were depleted. A loss of 600 reindeer in one year could not be explained adequately. The herd was down to 500 animals by the summer of 1948 and 400 by 1949.

The Bethel herd, not mentioned in recent reports, apparently has strayed. Two or three Seward Peninsula herds mentioned in 1947 are not identifiable in the 1949 list. There has been shifting, combining, and renaming of herds rather than total loss. Deering is now included in the Candle herd, for example.

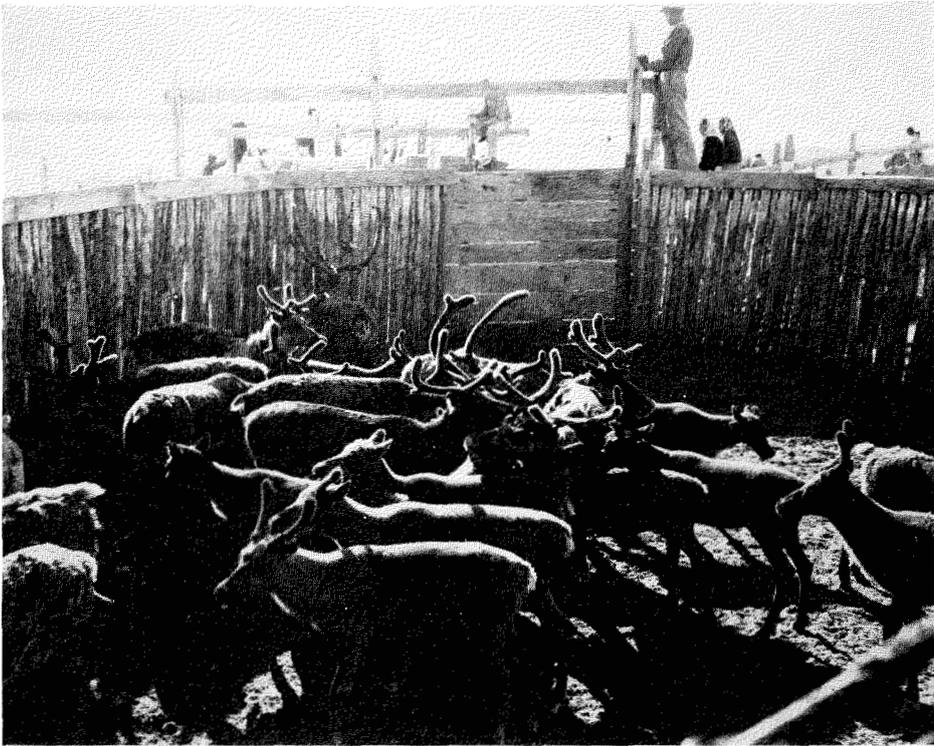
In 1946 and 1947, the Wainwright Association herd lost about a thousand reindeer by straying.

The Escholtz (Government) herd, which was started in 1941 with 4,500 reindeer from the old Lomen herds, suffered a loss—chiefly by straying—of 1,500 head the first winter on its new range in the Kotzebue area, but has held together well since 1942. From it have come several good herds now under private Eskimo management. It should not, therefore, be classed among the losses.

The heaviest loss in the past two years has occurred on Nunivak Island. In 1949, plans to operate the slaughtering plant were cancelled at the last moment, when an aerial survey revealed an unexpected decrease of animals. Causes of the loss (parasites, range depletion, etc.) are being investigated. Local Eskimo earned about \$15,000 at this plant in 1946. They received most of the \$20,000 cost of operation in 1947, for which they cannot find an adequate substitute in other sources of cash income. In 1948, when there was also no slaughtering for shipment, Nunivak men who went away to work in fish canneries earned not more than \$6,000, and other earnings were very small. Because Alaska institutions and households need the meat and the isolated Nunivakers need the wage work, strong efforts will be made to bring the Nunivak herds back to a size that will permit "commercial" slaughtering. It may require ten years or more for the winter forage to recover. It is planned, therefore, to move some animals to the mainland if possible (but this is difficult) or to slaughter

1,500 or whatever number is necessary to hold the herd down to 3,000 head.

Part of the meat of the 3,000 carcasses shipped from Nunivak Island in 1947 was divided, as in previous years, among boarding schools and hospitals administered by the A.N.S. and the remainder sold in Alaska towns, in Seattle and New York to pay costs of abattoir and cold storage.<sup>19</sup> This was a useful enterprise, showing that Alaska has a place for one such plant.



Roundup of the Golovin herd, 1949.

*Photo: Alaska Native Service*

Among the individually-owned herds those in northwest Alaska that have prospered and look most promising are the three at Barrow, the two at Kotzebue, and one each at Selawik and Golovin, as reported in the 1948 Reindeer Survey. Others probably will be successful, but have not been maintained as separate herds long enough or have suffered seasons of bad luck. The following quotations, which are typical of the individually-owned herds, show why there is hope for some of these herds.

<sup>19</sup>There is no luxury quality in Alaska marketing of reindeer meat, as there is in U.S. marketing. Towns like Nome and Bethel have a steady market for both meat and skins. In such western communities, not served by highway or railroad, reindeer meat can compete easily with meat shipped from the States, not infrequently brought from Anchorage by expensive air freight.

*Golovin:* "Government herd, totalling 500 head, which was loaned to S—— in 1946. The herd when handled in August 1948 totalled 1,177 head including a fawn increase of 56% on adult females, or about 31% on the total herd.

"The herd is well situated with summer range on Rocky Point and winter range in the vicinity of White Mountain. A brief survey of the White Mountain area indicated adequate lichen forage. . . . There has been some molestation from wolves during the past year on the winter range but none on the summer range. The rate of increase indicated this herd is well managed and in a good thrifty condition.

"This herd has a good market outlet at White Mountain and is only a short distance by air freight from the Nome market. There is also a limited local market. . . .

". . . . this herd is supporting one family and furnishing employment to two or three additional helpers during fawning, roundups and other extra work periods."

*Barrow:* "This herd was started in 1946 when H— borrowed 300 reindeer from the Northern Frontier Association. It is now estimated to number about 600 head. The herd is cared for by one family with the additional help of two herders hired for the winter season; however, H— has a supplemental income from work at the Meade River Coal Mine. This permits him to meet herd expenses without excessive butchering.

"The summer range is along the Arctic coast from Dease Inlet to Point Barrow while the winter range is inland along the west side of Meade River and about 80 miles back from Peard Bay. Fawning range is in the vicinity of the Meade River Coal Mine. Summer range appears adequate . . . H— reported that his winter range was good and that it is far enough back from the coast so that no icing occurs." There have been virtually no losses from wolves or caribou.

"There is a ready market at Barrow Village and Point Barrow for all the reindeer products this herd can supply. During the past year, 70 carcasses have been sold for meat.

"Side lights which have a bearing on the welfare of this herd include some illegal slaughter by both Whites and Natives."

For small herds, involving the sale of perhaps only 20 or 30 carcasses at a time, air freight is adequate, and for local hauls, not too expensive. When White men come in expecting to make a big business of the reindeer, they must ship many hundreds or thousands of carcasses and must have, therefore, modern refrigerator ships, abattoirs and other facilities, which are all very expensive. Surprisingly, the dream of commercial reindeer breeding has died reluctantly.

In 1945, two White men at Nome organized Santa Claus, Inc., to take a few reindeer to the United States for exhibition in the Christmas shopping season. One of the men was Dewey Anderson, a former associate of the Lomens, and the other an employee of the A.N.S., released in 1946 and later returned to the States. By special permission of the Secretary of the Interior in accordance with present regulations, they

bought a few deer, including females, from an Eskimo at Golovin. When some of the deer were lost, they tried to make the seller supply others. When this failed, next year they tried to get a herd owner at Kotzebue to sell, again without success.

In 1947 when Dewey Anderson was a Representative from Nome to the Alaska Legislature, that legislative body sent a Memorial to the U.S. Congress demanding that "immediate steps be taken to repeal existing laws whereby Whites are restricted from owning reindeer." Fortunately, no one paid much attention to the Memorial.

The Eskimo's interest in the reindeer business both before 1920 (at the time of the Reindeer Fairs) and since the Second World War suggests that they might by now have had many thriving herds if there had not been the commercial interlude. Since it did occur, the only way to judge the possibilities of this as a native industry is to give the Eskimo a chance for about a generation. Because the Second World War occurred immediately after the Whites' herds were bought and the Eskimo were given an opportunity to start over again (1939), the latter have been operating in a reasonably normal way only since 1946. The most important factor, demonstrated repeatedly, is good herd management. By constant attention of trained reindeer men, the herds can be protected from their enemies, with of course occasional seasons of unavoidable losses. It takes time, though, to develop the necessary knowledge and develop the herd itself so that it yields sufficient profit for a strong incentive.

There is good evidence that, even with proper care, there never will be the 4,000,000 head of reindeer that V. Stefansson postulated as feasible, basing his figures on U.S. Department of Agriculture estimates of possible range load in Alaska.<sup>20</sup> If inhabitants of north and west Alaska did nothing but tend reindeer, a total of one million or perhaps two million head might be achieved. Modern trends are against this, however. For example, Clarence J. Rhode, a regional director of the U.S. Fish and Wildlife Service, said in 1949, after an aerial survey, that only nine sizeable herds of caribou (2,500 head or more) remained in Alaska. These were located in the Colville River, Chandalar, Steese, Point Hope, Kobuk-Noatak, Upper Koyukuk, McKinley Park-Minchumina, Netchina and Alaska Peninsula areas, with small scattered herds elsewhere. The recent decrease in caribou was attributed to improved weapons and means of transportation, now added to the natural hazards. With more and more Whites entering Alaska, most of whom are not interested in herding reindeer, and with relatively fewer and fewer Eskimo, it becomes extremely difficult to protect either caribou or reindeer. Since a herd to be manageable and also profitable should have not more than 3,500 and not less than 1,000 head, with about 2,000

<sup>20</sup>Stefansson, V., "The Arctic in fact and fable," pp. 81-2.

as a good number, there would have to be 500 such herds to make a total of even 1,000,000 animals. In west and north Alaska, including Eskimo, Indian, Aleut, and White towns and villages, there are not 500 communities with herds or likely to be sufficiently interested to support even one local herd. There might be, of course, five herds to supply a community like Kotzebue and none in four or five other localities. If the herds are well managed, however, they will increase at such a rate that one can serve the area now supplied meat by several.

There appear to be natural limits on reindeer increase, not yet clearly understood. On islands like Atka where there have been no predators and where there has not been excessive slaughtering, the herd, nevertheless, has not increased for several years and seems to have reached its natural limit. The explanation may be continued dominance by over-age bulls, or some unknown factor. Until more is known about such biological controls and until the trend of economic development and the pattern of settlement are clear, it seems unrealistic to predicate such things as marketing facilities and reindeer associations on great natural increase and a big industry.

After twenty years of chaos, reindeer management is reviving soundly. The Alaska Native Service and its subsidiary, the Reindeer Service, have been honest in admitting losses and in trying to find their causes. Now that they have the difficult task of picking up the pieces of a broken industry, they—like the Eskimo—should be given an unharried period in which to work with the Eskimo in their modern development.

#### *Conclusions and Recommendations:*

1. A loan herd should be large enough to encourage the borrower to try to make most or all of his living from it; otherwise, he is tempted to abandon the herd. It should contain, therefore, 500 to 1,000 head.

2. The borrower should also receive the first year a cash grant to stake him until he can obtain cash income from sale of animals. While the loan of deer must be repaid in animals, the cash can be repaid in deer or in time and experience given in training and supporting apprentice herders.

3. A reindeer herd, whether Government or individually-owned, must be kept small enough to be guarded carefully and to prevent range depletion. The Alaska Native Service recommends 2,000 head. Probably 3,000 are not too many. When herds grow larger, they should be split and taken to different winter ranges if it is not feasible to slaughter the excess immediately.

4. All borrowers must agree to accept livestock-management supervision, especially on such matters as percentage of fawns and old bulls to

be killed, percentage of animals to be castrated, and methods of corralling and slaughtering. The supervisors, on their part, must travel extensively with the herds. This is not an office job but one requiring first-hand knowledge of each herd.

5. "Close herding," that is, constant herding, is strongly recommended.

6. Government herds, with adequately-paid chief herders, are necessary to maintain reserve stock for loans, emergencies, experimentation, and for training herders. In Alaska, four such herds would be the minimum requirement, one for each of the major western regions of the Territory.

7. Although community or association or corporation reindeer herds might be feasible in Canada, they have not turned out well in Alaska, hence are not recommended.

8. Steady supply of local markets is recommended in preference to large-scale periodic supply of distant markets in larger population centres. The large investment in equipment necessary for the latter is a hazardous risk. Also, transportation facilities in the Arctic have not yet developed sufficiently to assure marketing economically and at seasons to take advantage of favourable price, shortage of competing meats, and other market factors.

9. The aircraft and the refrigerator power-barge or other shallow-draft vessel are best suited to local transport of meat. Their cost, therefore, must be figured in any reindeer business.

10. It is recommended that the reindeer business be kept for the native people for the next fifteen or twenty years.

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