

TABLE H-1.—THIAMINE INTAKES: CHILDREN 2 TO 6 YEARS OF AGE  
By Area, By Age Level

Area	2-5 Years of Age				6 Years of Age			
	No. of Records	Mean Daily Intake (mg)	Intake Range (mg)	Percent Under NRC	No. of Records	Mean Daily Intake (mg)	Intake Range (mg)	Percent Under NRC
Northcentral Athapascan. . . . .	102	1.077	.347-5.075	34	31	1.096	.476-4.888	35
Northern Eskimo. . . . .	197	1.071	.314-4.931	43	48	2.005	.586-3.603	15
Southwestern Eskimo. . . . .	347	0.954	.058-3.986	43	118	1.903	.033-4.254	26
Totals. . . . .	646	1.009	.058-5.075	42	197	1.801	.033-4.888	25

TABLE H-2.—SOURCE OF THIAMINE: ADULT MALE  
AND FEMALE DIETS \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Food		Imported Food		Mixed Food	
	M	F	M	F	M	F	M	F
Dairy . . . . .	0.019	0.020			0.019	0.020		
Egg . . . . .	0.006	0.006	0.004	0.004	0.002	0.002		
Meat . . . . .	0.364	0.311	0.322	0.271	0.011	0.010	0.031	0.030
Fish . . . . .	0.383	0.307	0.377	0.300		0.002	0.006	0.005
Fats . . . . .	0.006	0.007			0.006	0.007		
Fruits . . . . .	0.032	0.030	0.005	0.005	0.010	0.010	0.017	0.015
Vegetables . . . . .	0.021	0.018	0.008	0.008	0.013	0.010		
Grains . . . . .	0.643	0.543			0.643	0.543		
Sugar . . . . .		0.001				0.001		
Miscellaneous . . . . .	0.109	0.163			0.109**	0.163**		
Mean Daily Intake . . . . .	1.583	1.406	0.716	0.588	0.813	0.768	0.054	0.050

\* 558 records for males and 1067 for females.

\*\* About 2/3 from pharmaceutical preparations.

TABLE H-3.—SOURCE OF THIAMINE: MALES AND FEMALES 13-19 YEARS OF AGE \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Food		Imported Food		School Lunch		Mixed Food: Preparations	
	M	F	M	F	M	F	M	F	M	F
	Dairy . . . . .	0.059	0.060	.....	.....	0.038	0.038	0.021	0.022	.....
Egg . . . . .	0.009	0.008	0.005	0.004	0.001	0.001	0.003	0.003	.....	.....
Meat . . . . .	0.211	0.193	0.177	0.161	0.008	0.008	0.002	0.002	0.024	0.022
Fish . . . . .	0.214	0.200	0.210	0.196	.....	.....	.....	.....	0.004	0.004
Fats . . . . .	0.004	0.004	.....	.....	0.004	0.004	.....	.....	.....	.....
Fruits . . . . .	0.038	0.036	0.004	0.004	0.011	0.010	0.009	0.009	0.014	0.013
Vegetables . . . . .	0.046	0.046	0.008	0.008	0.011	0.010	0.027	0.028	.....	.....
Cereals . . . . .	0.635	0.598	.....	.....	0.616	0.579	0.019	0.019	.....	.....
Sugar . . . . .	0.002	0.002	.....	.....	0.002	0.002	.....	.....	.....	.....
Miscellaneous . . . . .	0.942	0.941	.....	.....	0.045**	0.045**	0.897**	0.896**	.....	.....
Mean Daily Intake . . . . .	2.160	2.088	0.404	0.373	0.736	0.697	0.978	0.979	0.042***	0.039***

\* 303 records for males and 298 for females.  
\*\* Mostly from pharmaceutical preparations.  
\*\*\* Mostly from local foods.

TABLE H-4.—SOURCE OF THIAMINE: CHILDREN 7 TO 12 AND 2 TO 6 YEARS OF AGE \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Food		Imported Food		School Lunch		Mixed Food Preparations	
	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6
	Dairy	0.059	0.086	.....	.....	0.036	0.086	0.023	.....	.....
Egg	0.008	0.004	0.004	0.002	0.001	0.002	0.003	.....	.....	.....
Ment.	0.193	0.185	0.159	0.150	0.008	0.009	0.003	.....	.....	0.026
Fish	0.199	0.168	0.194	0.163	0.001	0.001	.....	.....	0.004	0.004
Fats	0.004	0.002	.....	.....	0.003	0.002	.....	.....	.....	.....
Fruits	0.036	0.026	0.004	0.004	0.010	0.012	0.009	.....	0.013	0.010
Vegetables	0.047	0.014	0.008	0.006	0.010	0.008	0.029	.....	.....	.....
Grains	0.595	0.566	.....	.....	0.575	0.565	0.020	0.001	.....	.....
Sugar	0.002	0.001	.....	.....	0.002	0.001	.....	.....	.....	.....
Miscellaneous	0.997	0.168	.....	.....	0.045**	0.138**	0.952**	0.020**	.....	.....
Mean Daily Intake	2.140	1.210	0.369	0.325	0.691	0.824	1.040	0.021	0.040	0.040

\* 916 records for 7-12 and 848 for 2-6 year olds.  
\*\* Mostly from pharmaceutical preparations.

TABLE I-1.—SOURCE OF RIBOFLAVIN; ADULT MALE  
AND FEMALE DIETS \*

All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Food		Imported Food		Mixed Food Preparations	
	M	F	M	F	M	F	M	F
Dairy .....	0.149	0.147	.....	.....	0.149	0.147	.....	.....
Egg .....	0.018	0.017	0.008	0.010	0.010	0.007	.....	.....
Meat .....	1.242	1.057	1.133	0.945	0.008	0.012	0.101	0.100
Fish .....	0.952	0.752	0.944	0.741	.....	0.002	0.008	0.009
Fats .....	0.003	0.005	.....	.....	0.003	0.005	.....	.....
Fruits .....	0.023	0.022	0.006	0.006	0.010	0.009	0.007	0.007
Vegetables .....	0.035	0.038	0.025	0.029	0.010	0.009	.....	.....
Grains .....	0.395	0.333	.....	.....	0.395	0.333	.....	.....
Sugar .....	0.003	0.002	.....	.....	0.003	0.002	.....	.....
Miscellaneous .....	0.108	0.168	.....	.....	0.108**	0.168**	.....	.....
Mean Daily Intake....	2.928	2.541	2.116	1.731	0.696	0.694	0.116	0.116

\* 858 records for males and 1067 for females.

\*\* Approximately 3/4 from pharmaceutical preparations.

TABLE I-2.—SOURCE OF RIBOFLAVIN: MALES AND FEMALES 13-19 YEARS OF AGE \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Food		Imported Food		School Lunch		Mixed Food Preparations	
	M	F	M	F	M	F	M	F	M	F
	Dairy.....	0.453	0.423	.....	.....	0.292	0.266	0.161	0.157	.....
Egg.....	0.027	0.025	0.012	0.011	0.006	0.005	0.009	0.009	.....	.....
Meat.....	0.670	0.612	0.576	0.528	0.009	0.009	0.003	0.003	0.082	0.072
Fish.....	0.526	0.481	0.514	0.471	0.003	0.003	.....	.....	0.009	0.007
Fats.....	0.004	0.004	.....	.....	0.003	0.003	0.001	0.001	.....	.....
Fruits.....	0.033	0.031	0.007	0.006	0.012	0.010	0.008	0.008	0.006	0.007
Vegetables.....	0.052	0.050	0.021	0.020	0.009	0.009	0.022	0.021	.....	.....
Grain.....	0.391	0.355	.....	.....	0.378	0.343	0.013	0.012	.....	.....
Sugar.....	0.064	0.003	.....	.....	0.004	0.003	.....	.....	.....	.....
Miscellaneous.....	0.962	0.938	.....	.....	0.040**	0.036**	0.922**	0.902**	.....	.....
Mean Daily Intake.....	3.122	2.922	1.130	1.036	0.756	0.687	1.139	1.113	0.097	0.086

\* 803 records for males and 298 for females.

\*\* Mostly from pharmaceutical preparations.

TABLE 1-3.—SOURCE OF RIBOFLAVIN: CHILDREN 7 TO 12 AND 2 TO 6 YEARS OF AGE \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Food		Imported Food		School Lunch		Mixed Food Preparations	
	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6
	Dairy.....	0.429	0.561	.....	.....	0.264	0.558	.....	0.165	.....
Egg.....	0.026	0.011	0.012	0.006	0.005	0.005	.....	0.009	.....	.....
Meat.....	0.614	0.528	0.528	0.461	0.009	.....	.....	0.004	0.073	0.067
Fish.....	0.482	0.333	0.472	0.327	0.003	.....	.....	.....	0.007	0.006
Fats.....	0.004	0.002	.....	.....	0.003	0.002	.....	0.001	.....	.....
Fruits.....	0.030	0.019	0.006	0.006	0.010	0.009	0.008	.....	0.006	0.004
Vegetables.....	0.052	0.021	0.021	0.015	0.009	0.006	0.022	.....	.....	.....
Grains.....	0.357	0.289	.....	.....	0.344	0.288	0.013	0.001	.....	.....
Sugar.....	0.003	0.004	.....	.....	0.003	0.004	.....	.....	.....	.....
Miscellaneous.....	0.985	0.146	.....	.....	0.040**	0.129**	0.945**	0.017**	.....	.....
Mean Daily Intake.....	2.982	1.914	1.039	0.815	0.690	1.001	1.167	0.021	0.086	0.077

\* 918 records for 7-12 and 843 for 2-6 year olds.

\*\* Mostly from pharmaceutical preparations.

TABLE J-1.—SOURCE OF NIACIN: ADULT MALE  
AND FEMALE DIETS \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Food		Imported Food		Mixed Foods	
	M	F	M	F	M	F	M	F
Dairy.....	0.1	0.1			0.1	0.1		
Egg.....								
Meat.....	14.9	12.8	13.9	11.7	0.1	0.2	0.9	0.9
Fish.....	18.0	15.0	17.8	14.8			0.2	0.2
Fats.....	0.1	0.1			0.1	0.1		
Fruits.....	0.4	0.3	0.1	0.1	0.2	0.1	0.1	0.1
Vegetables.....	0.3	0.3	0.1	0.1	0.2	0.2		
Grains.....	5.7	4.9			5.7	4.9		
Sugar.....		0.1				0.1		
Miscellaneous.....	0.8	1.2			0.8**	1.2**		
Mean Daily Intake.....	40.3	34.8	31.9	26.7	7.2	6.9	1.2	1.2

\* 858 records for males and 1067 for females.

\*\* Males, more than half and females 2/3 from pharmaceutical preparations.

TABLE J-2.—SOURCE OF NIACIN: MALES AND FEMALES 13 TO 19 YEARS OF AGE \*  
 All Areas and Villages, All Seasons  
 In Milligrams

Food Group	All Foods		Local Food		Imported Food		School Lunch		Mixed Foods	
	M	F	M	F	M	F	M	F	M	F
	Dairy.....	0.3	0.3			0.2	0.2	0.1	0.1	
Egg.....										
Meat.....	9.7	8.4	9.5	8.2	0.2	0.1		0.1		
Fish.....	12.2	10.4	12.2	10.3				0.1		
Fats.....	0.2	0.2			0.1	0.1	0.1	0.1		
Fruits.....	0.3	0.5		0.1	0.1	0.1	0.1	0.1		0.2
Vegetables.....	0.7	0.6	0.1	0.1	0.2	0.2	0.4	0.3		
Grains.....	6.4	5.4			6.1	5.2	0.3	0.2		
Sugar.....	0.1	0.1			0.1	0.1				
Miscellaneous.....	7.5	6.7			0.4**	0.3**	7.1**	6.4**		
Mean Daily Intake.....	37.4	32.6	21.8	18.7	7.4	6.3	8.1	7.4	0.1	0.2

\* 803 records for males and 298 for females.

\*\* Mostly from pharmaceutical preparations.

TABLE J-3.—SOURCE OF NIACIN: CHILDREN 7 TO 12 AND 2 TO 6 YEARS OF AGE \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Foods		Imported Food		School Lunch		Mixed Food Preparations	
	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6
	Dairy.....	0.3	0.4				0.4		0.1	
Egg.....										
Meat.....	7.7	6.5	6.8	5.6	0.2	0.2		0.1	0.6	0.7
Fish.....	9.5	7.1	9.4	6.9	0.1					0.2
Fats.....	0.2									
Fruits.....	0.4	0.2	0.1		0.1			0.1		
Vegetables.....	0.6	0.2	0.1		0.2	0.2		0.1		
Grains.....	5.0	4.5	0.1		0.1	0.2		0.3	0.1	
Sugar.....	0.1	0.1			4.8	4.5		0.2		
Miscellaneous.....	6.3	1.1			0.1	0.1				
Mean Daily Intake.....	30.1	20.1	16.4	12.5	5.8	5.7	7.2	1.0**	0.7	0.9

\* 916 records for 7-12 and 848 for 2-6 year olds.

\*\* Mostly from pharmaceutical preparations given at school.

**TABLE K-1.—SEASONAL VARIATIONS IN MEAN DAILY ASCORBIC ACID INTAKES**  
**All Areas and Villages, By Age and Sex, By Season**  
**In Milligrams**

Age-Sex Category	Number of Records	Mean Daily Ascorbic Acid Intakes			
		Fall	Winter	Spring	Summer
Male 20-60 Yrs.....	746	47	22	24	58
Male 60 + Yrs.....	112	38	17	15	50
Male 13-19 Yrs.....	303	60	48	25	45
Female 20-60 Yrs.....	633	49	23	33	48
Pregnant Female.....	121	65	15	34	45
Lactating Female.....	193	41	20	19	55
Female 60 + Yrs.....	120	20	20	11	43
Female 13-19 Yrs.....	298	61	48	25	64
School Child 7-12 Yrs...	916	57	50	25	42
Preschool Child 4-6 Yrs..	526	52	29	20	55
Preschool Child 2-3 Yrs..	317	40	11	16	54
Total Records.....	4285	933	2330	624	398
Percent Under NRC(4)...	82	71	86	89	79

**TABLE K-2.—SOURCE OF ASCORBIC ACID: ADULT MALE AND FEMALE DIETS \***  
**All Areas and Villages, All Seasons**  
**In Milligrams**

Food Group	All Foods		Local Foods		Imported Food		Mixed Foods	
	M	F	M	F	M	F	M	F
Dairy.....								
Egg.....								
Meat.....								
Fish.....	1						1	
Fats.....								
Fruits.....	21	22	12	10	3	5	6	7
Vegetables.....	5	5	4	5	1			
Grains.....								
Sugar.....								
Miscellaneous.....	2	3			2**	3**		
Mean Daily Intake.....	29	30	16	15	6	8	7	7

\* 858 records for males, 1067 for females.

\*\* From pharmaceutical preparations.

TABLE K-3.—SOURCE OF ASCORBIC ACID: MALES AND FEMALES 13 TO 19 YEARS OF AGE \*  
 All Areas and Villages, All Seasons  
 In Milligrams

Food Group	All Foods		Local Foods		Imported Food		School Lunch		Mixed Foods	
	M	F	M	F	M	F	M	F	M	F
	Dairy.....									
Egg.....										
Meat.....										
Fish.....										
Fats.....										
Fruits.....	22	25	9	11	4	4	3	3	6	7
Vegetables.....	6	6	3	3	1	1	2	2		
Grains.....										
Sugar.....										
Miscellaneous.....	19**	18**			2**	2**	17**	16**		
Mean Daily Intake.....	47	49	12	14	7	7	22	21	6	7

\* 303 records for males and 298 for females.

\*\* Mostly from pharmaceutical preparations.

TABLE K-4.—SOURCE OF ASCORBIC ACID: CHILDREN 7 TO 12 AND 2 TO 6 YEARS OF AGE \*  
All Areas and Villages, All Seasons  
In Milligrams

Food Group	All Foods		Local Foods		Imported Food		School Lunch		Mixed Foods	
	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6	7-12	2-6
Dairy.....										
Egg.....										
Meat.....										
Fish.....										
Fats.....										
Fruits.....	21	21	8	11	4	2	3	3***	6	5
Vegetables.....	6	4	3	3	1	1	2			
Grains.....										
Miscellaneous.....	17	5				1	17**	4**		
Mean Daily Intake.....	44	30	11	14	5	4	22	7	6	5

\* 916 records for 7-12 and 843 for 2-6 year olds.  
\*\* Mostly from pharmaceutical preparations given at school.  
\*\*\* Mostly for 6 year olds attending school.

## SOME PARTICULAR METHODS OF FOOD PREPARATION

### CARIBOU PREPARATION TECHNIQUES

Caribou is an important food in the diet of many of Alaska's Northern Eskimos. Practically all parts of the animal are eaten. Some of the typical food preparation techniques are as follows:

A. CARIBOU STOMACH AND CONTENTS (partially digested vegetation including lichens such as reindeer moss).

1. The stomach and its contents may be frozen immediately after butchering and stored for future use. It is eaten frozen with seal oil.

2. Sometimes at butchering a small amount of the stomach contents are removed, just enough so that the stomach and its remaining contents can be easily handled. The stomach is then set in the snow and covered with caribou skins to prevent freezing. In about two to three days the stomach contents become sweet.

3. Two of the stomach parts, the rumen (knee-oo-kuk) and the omasum (muk-pee-rawk) are removed, cleaned thoroughly and boiled a short time. They are eaten with or without seal oil, as desired.

### B. INTESTINES

1. The cleaned small intestines of the caribou are stuffed with strips of visceral fat obtained from around the stomach and intestines. The ends are tied and this "sausage" is then boiled a long time. The cooked fat may then be used as a spread or in any other way much as we do butter.

2. At the hunting camp the visceral fat strips may be placed in the cleaned small intestine but left uncooked. On returning home the strips are removed and hung up to dry, either indoors or outdoors. This fat is used in making *agutuk*.

3. The small intestines with the visceral fat left attached are cleaned, thoroughly washed and then cooked in water. The rendered fat is removed, the cooked intestines chopped into  $\frac{3}{4}$ " to 1" lengths and the two are thoroughly mixed together.

4. The cleaned small intestines with attached visceral fat are ground chopped and pounded thoroughly, and then heated in water. The fat is removed as it is rendered. This fat is then

whipped, gradually mixed with seal oil, stirred until it becomes light and fluffy, and one or more of the following added: blueberries, crowberries, chopped cooked "mashu", raisins, pilot bread crumbs, cooked dried apples, cooked, chopped or ground caribou meat or cooked whitefish—squeezed dry and thoroughly flaked. Sugar may be added if fruits are used.

### C. LIVER

1. Liver may be fried or it may be prepared as *Nay-ru-kuk* as follows: Short strips of liver and muscle tendon, particularly those found close to the sinews along the back and in the hind and forelegs, are mixed with the stomach contents, put into a cleaned caribou stomach, and then set aside in a warm, but not too hot, place for about a week. The mixture becomes sweet. If kept too long it gets too sweet.

### D. EYES

The eyes, including the muscle and fat around them, are cooked until soft. Only the muscle and the fat are eaten.

### E. BONE MARROW (*Pa-tik*)

1. Bone marrow may be eaten raw or cooked. Marrow differs in consistency depending on the location of the bone. The most solid part is found in the hip and upper thigh bone and is called *ki-nik-nik*. Less solid marrow is found in the lower thigh and upper part of the shank bones. This marrow is called *ah-noa-tuk-suk*. The marrow found in the lower part of the leg is oil-like in consistency and is called *peg-nick*; this is the most preferred.

2. In times past, but less frequently now, it was a common practice to break up the caribou bones, cover them with water and simmer to render out the fat. Both fat and marrow were then removed from the cooking pot and mixed thoroughly. This mixture was stored in a thoroughly cleaned and dried caribou stomach and then frozen. It was used as a spread or as a condiment with fish and meat. At Shungnak this mixture is called *poing-nik*.

### F. KIDNEYS

The kidneys are not often eaten and when they are, they are preferred raw right after the animal is killed and the kidneys still "hot and steaming," at which time they are said to have a very spicy taste.

## G. BLOOD

1. Blood is sometimes drunk raw from the freshly killed animal, but its most common use in aboriginal times was as a soup thickener. It had to be stirred carefully into the hot, but not boiling, liquid to prevent coagulation. Then thin slivers of caribou fat were added and stirred to make a creamy mixture or gravy.

2. Fresh caribou blood is sometimes stored in the thoroughly cleaned stomach part, the reticulum, and then frozen. This blood is used in soups or in the preparation of *azeesuk*. *Azeesuk* is made by chopping low-bush cranberries, adding caribou blood and stirring and whipping the mixture to a fluff.

3. Sometimes caribou back fat is dipped into blood and air dried. According to my informant, the fat inside never gets spoiled or yellow.

4. Caribou back fat is sometimes ground, and to it is added blood, flour, pepper, onion, and salt. This sausage mixture is stuffed into cleaned caribou intestines, the ends tied, and the whole cooked by boiling. This was learned from the Lapps who were brought over in the early days to help with the reindeer industry.

## H. BRAINS

Brains are sometimes eaten raw, especially by the men at hunting camps; sometimes dried, sometimes cooked with tongue to make a stew or used to make *kah-kay-suk*. The latter is made by boiling the caribou brain along with the meat and fat from the jaws and around the eyes, and other parts of the head. The meat is separated out, mixed with the melted caribou fat and salted to taste.

## I. CARIBOU AGUTUK

Caribou meat, preferably that along the sinews from the back and the hindquarters, is boiled and either chopped into very fine pieces or ground and added to a mixture of fats. Here is a typical Point Hope recipe:

1 cup caribou or edible beef tallow	4 pounds caribou meat, cooked and ground
1 cup seal or whale oil	1 cup caribou cooking broth

First, the tallow is thoroughly chopped or hammered; then softened by squeezing in the hands or by warming it slightly on the stove. It is then beaten or whipped to a fluff—using a circular mo-

tion of the hand. Seal or whale oil is then added gradually and after each small addition the mixture is whipped until it is light and fluffy. The lukewarm cooking broth is next added, again whipping and stirring thoroughly after each small addition. Lastly, the ground meat is stirred in thoroughly and the mixture set aside to cool. Caribou *agutuk* has a very pleasant delicate cheesy taste.

### SEA MAMMALS:

#### SEAL, UGRUK, BELUGA WHALE, BALEEN WHALE

Most of the meat from these common sea mammals is eaten either fresh, cooked or raw, frozen or dried. The greater share of the summer catch is air-dried.

Dried meat is usually eaten uncooked with seal oil, the rib meat especially being enjoyed in this way. Half-dried meat is usually cooked; thoroughly dried meat, only occasionally.

Specialty products include the following:

1. The *liver* from the smaller varieties of seal is especially relished. It is eaten either raw-frozen with seal oil or cooked, usually fried, or it may be "soured". This latter process involves placing the liver in a dish and then setting it aside in a cool place for about a month. When sufficiently soured, it is eaten raw with seal oil.

2. Well cleaned *seal stomachs* are sometimes eaten. On Diomedé they are sometimes filled with walrus blubber and boiled<sup>(66)</sup>.

3. *Seal kidneys* may be eaten either fresh, raw-frozen or diced and cooked with liver in seal oil.

4. *Seal heads* are boiled and all parts eaten.

5. The *seal intestines*, well cleaned, are often eaten as *kwak* (raw frozen). They may also be boiled in water or cooked in oil. They are sometimes dried and eaten either raw or cooked by boiling or frying. The cleaned, chopped ugruk intestines are sometimes mixed with berries. Seal oil may be added or not as desired.

6. *Infant seals*, and occasionally *embryo seals*, are a well-liked food. They are usually boiled, and then set aside to cool, before eating.

7. On Diomedé, *seal lungs* are first inflated and then all the air is expressed out. They are then cut into strips and hung over the lamps or in other suitable places to dry. When dry, they may be eaten raw or cooked but always with seal oil.

8. *Seal oil* is considered by many Eskimos the best of the sea mammal blubber oils for eating purposes. The careful Eskimo housewife stores it in clean barrels or seal pokes in a cold place so that it stays light colored, free from dirt and other extraneous matter.

Seal oil is used to make "poke" fish or meat; it is used in making *agutuk* and other mixtures; it is used mostly as a condiment or dip for frozen and dried meats and fishes; it is occasionally used medicinally, sometimes taken by the tablespoon for colds or by the cupful as a cathartic.

9. *Seal and beluga flippers* are considered great delicacies by most of the coastal Eskimos. They are enjoyed fresh, raw. They may also be buried in grass-lined ground pits and allowed to sour or putrefy. The usual method is to line the sides and bottom of a 1½ to 2½ foot deep pit with grass sufficient to prevent the meat from making contact with the ground. The flippers are thoroughly rubbed with oil and laid in the pit. They are first well covered with plain blubber and then with a strip of blubber and meat from where the two meet on the carcass. This is then covered with grass, next with seal skin and then wood or dirt and left until the skin and hair from the flippers peels off easily.

Sometimes the clean flippers are laid in a clean ugruk skin (hair side on the outside), with plenty of blubber added and then the skin is folded over all. It is then placed in a grass-lined pit and covered to protect from the sun.

Eskimos emphasize that great care must be taken to protect the flippers from sun and heat both when butchering and during storage in the ground pit. Such care is especially important during a warm dry arctic summer. The pit site must be selected carefully, preferably where there is some shade. Eskimos report that buried flippers can cause fatal illness unless these precautions are taken.

Rabeau<sup>(67)</sup> has reported 13 cases of botulism with five fatalities in the Kotzebue area from the ingestion of improperly handled and stored flippers. Kotzebue Eskimos say flippers should be stored only in wooden containers, and even though stored in oil, must never be kept longer than a month. Some of the present day Kotzebue Eskimos have freezers and find this a satisfactory method of preservation.

The favorite Diomedé way of preparing the *flippers*, *flukes*, and *head skin* of the *beluga whale*, which are considered the choice parts, is to place them in a dish in the upper part of the room, preferably above the oil lamp. In about a week they will be somewhat soured and a little more tender. They are then

eaten raw with leaves of *kaghat* (*Polygonum bistorta*) if they are available. Meat is treated similarly. It is first cut into strips and sometimes meat juice added, preferably that drained from the fresh meat. When the product begins to bubble it is ready for eating. It is eaten raw more often than cooked<sup>(66)</sup>.

*Seal flippers* are soured in the same manner. When the hair will slip off, the product is ready to eat raw.

10. *Beluga muktuk* consists of the outside skin of the beluga whale which is about  $\frac{1}{2}$ " to  $\frac{3}{4}$ " thick with about  $\frac{1}{2}$ " of attached blubber. It is considered a delicacy by the Eskimos who hunt this animal in the Kotzebue Sound. Long, three-to-four inch wide strips, deeply knife scored, are hung on racks and left to dry a day or two. They are then boiled a long time until the skin is soft. After removal from the cooking water, they are allowed to drain with the blubber side down, and again air-dried on racks for another day or two. In the meantime, the bulk of the blubber is heated in large containers to render the oil. The cooled oil is poured over the properly dried *muktuk*, completely covering it. The *muktuk* is then ready for either immediate eating or storage.

#### BALEEN WHALE

The baleen whale is caught more or less regularly at Barrow and Point Hope. Point Hope usually gets one to five animals each year. At Barrow the yearly catch varies from none to twenty or more.

Whale meat is never dried. That not immediately consumed is stored in special underground pits (at Barrow) or abandoned sod igloos (Point Hope) which remain cold the year round and therefore provide effective storage.

*Whale meat* is eaten mostly as *kwak* (raw-frozen), but it may also be cooked on occasion. Other parts of the animal cooked and used for human food include part of the *small intestine*, the *kidneys*, the *heart*, and the *muktuk* (outside skin with attached blubber). *Whale muktuk*, when fresh, is usually eaten boiled. When a little older, it is generally eaten raw, as the older skin is considered too tough to cook. Part of the blubber may also be used to obtain a clear oil. This is done by cutting the whale blubber into pieces, scoring it with a knife, and packing the blubber in a barrel and letting it stand. The oil, rendered by autolysis, is stored in a cold place.

Whale meat is sometimes made into a special dish called *mikiyuk*, a soured product. This product is made especially for "Nullikituk", the annual whale feast, held every June at both Bar-

row and Point Hope. Thinly cut slices of whale meat and pieces of whale *muktuk* are placed in clean barrels, pokes or other suitable containers and left in a slightly warm place for about a week. The mixture is stirred daily and the temperature of the surroundings watched carefully. If the meat is tender, it sours fairly fast; if tough, it is a slow process. The control of temperatures in the making of *mikiyuk*, without benefit of thermometer or automatic controls, requires considerable experience to prevent spoilage. When the meat reaches the desired stage, and experience is the only guide, *mikiyuk* can be eaten or frozen for future use.

## WALRUS

At Point Hope and other arctic coastal villages where only a limited number of walrus are caught or where they are only available in certain years, the meat is generally eaten either raw, frozen (*kwak*) or boiled. The blubber is usually cooked and eaten with the cooked meat or skin. But on Diomedé, St. Lawrence and King Islands and at Wales, where walrus is a much more important food, there are naturally many more methods of preparation. On St. Lawrence Island the meat of animals caught throughout the winter is eaten fresh cooked by boiling and is especially relished in combination with stored greens and fresh blubber oil. On Diomedé Island<sup>(66)</sup> fresh walrus meat is generally well boiled, but that which has been "soured" during storage, is usually only half cooked. On all of these islands, and in the mainland villages, too, meat not immediately used is buried in ground pits where the temperature during such storage is variable depending on the time of year. During such storage, the meat often becomes "soured" or putrefied and may even become covered with mold. This is apparently no deterrent to its use as human food.

On both St. Lawrence and Diomedé Islands the meat from walrus caught in May and June is cut into strips and air-dried. This dried meat is used throughout the summer, fall and early winter until walrus and seal hunting is again possible, usually in November. Old dried walrus meat is then stored in seal oil.

Other parts of the walrus used by residents of Diomedé, St. Lawrence Island, and probably by other Eskimos too, include the following:

On St. Lawrence Island walrus skins not needed or desirable for boat covers are rolled into huge balls, sometimes weighing up to 100 pounds, and stored in caches as an emergency food in case the walrus catch during the winter is not sufficient to meet their food needs. If the skins are not needed as an emergency human food, they are eventually fed to the dogs.

Heinrich<sup>(68)</sup> reports that the Eskimos of Diomed Island commonly eat *walrus skin* fresh boiled throughout the season, but skin soured during storage is also relished and is eaten either raw, frozen or cooked.

On both Diomed and St. Lawrence Islands *walrus flippers* are sometimes eaten fresh, raw, unfrozen, but preferably after they have become somewhat soured during storage in the underground meat pits. Walrus flippers eaten with frozen stored greens are a winter favorite on Diomed Island.

According to Heinrich *walrus heads*, buried under a pile of rocks on the beach and left there until late summer to "ripen", are another Diomed delicacy. He says, "They are eaten with relish, brain and all."

Also on Diomed the *intestines* of the walrus are cleaned, filled with blubber and boiled to make a sausage. On St. Lawrence Island fresh tom cod roe is sometimes stored in cleaned walrus gut, frozen and later mixed with berries and eaten.

The *kidneys* of the walrus are soured and eaten raw.

*Walrus heart* is sometimes eaten fresh raw at butchering time, but it is usually boiled. On Diomed the thick heart arteries and veins are considered a special delicacy and eaten fresh raw.

Fresh *walrus liver* is often eaten raw-frozen with seal oil; sometimes fried or boiled; sometimes diced and cooked in seal oil; and sometimes soured, using either the same method as for seal liver, or as on Diomed Island, by first boiling medium sized pieces of liver and walrus flippers in two different pots, then packing them together in a barrel or poke, covering the mixture with the liver cooking water and then storing in the cold. This mixture is usually eaten the following fall or winter.

The *stomachs* of many freshly killed walrus are full of recently ingested clams in various stages of digestion. Such clams are highly relished by the Eskimo, and are eaten either raw, or put in a pan and hot water poured over them although they are not really cooked. Such clams are eaten plain and only occasionally with a small amount of oil.

*Walrus milk*, sour but not curdled, obtained from baby walrus stomachs was formerly used and highly prized.

## BEARS

Polar bear are caught by Eskimos from St. Lawrence, King and Diomed Islands, and by those living along the coast north through the Bering Straits to the Arctic. Polar bear meat is never eaten as *kwak* (raw-frozen) but is always boiled. It is usually eaten with polar bear fat.

Occasionally black and grizzly bear are caught and used as food. Most experienced Eskimos cook the meat thoroughly before eating it.

The liver of the polar bear is never eaten by Eskimos. When asked why, they invariably reply, "It makes your hair fall out." Rodahl<sup>(68,69)</sup> reported that its toxicity is due to its extremely high vitamin A content.

## WILDFOWL

Birds of various kinds are used by almost all native Alaska groups:—Eskimo, Aleut and Indian—for many areas in Alaska are either major breeding grounds, or else are located strategically on the migration flyways. Some of the most important food birds are ducks, geese, snowy owls, ptarmigan, spruce hens, cormorants, murre, puffins and auklets.

The usual method of cooking birds is by boiling. The cooking broth, usually with onion, salt, rice and/or macaroni added, is served as a soup. On St. Lawrence Island seaweed is added.

Many birds are stored for winter use. On St. Lawrence Island ducks, sea gulls, cormorants and auklets are dried before storage. An old method of preservation was to skin the birds and place them in a barrel or poke with seal oil, setting them aside for several months until they become "high" or soured. Heinrich<sup>(66)</sup> reports that on Diomedes the breasts of birds, especially those from crested auklets, puffins and murre, are first dried, then cooked in oil or water, and stored in seal oil. Another Diomedes practice he reports is that of tying the birds in burlap bags and storing them under the other meat in the underground meat pits. In winter they are dug out, plucked and boiled. They are generally eaten with seal oil. Occasionally birds are preserved by salting.

*Bird Eggs:* During June and July bird eggs are often harvested by the hundreds. Most are served fresh, boiled or scrambled. Occasionally, they are used in making cakes. Duck, goose, murre, cormorant and sea gull eggs are used in greatest abundance, but the people of the tundra villages may also eat the smaller bird eggs too. Bird eggs are used in all stages of incubation. The old method of preservation was to either cook first, or preferably leave uncooked, and store in seal oil.

Another old method of egg preservation practiced at Northeast Cape, St. Lawrence Island, was to dry the egg yolks on rocks in the sun, then put them in walrus stomachs and store in the cold.

Giddings<sup>(36)</sup> reports that in the Kobuk area bird eggs were preserved by burying them in a mixture of fine sand and gravel,

and that they were cooked by placing them in a willow bark tube (peeled from a large willow), plugging the ends and laying it in a bed of coals.

### CLAMS, CRABS, TUNICATES

At scattered points along the Alaska coast from the Arctic southward, a variety of other sea foods which are used by Alaskan native groups are available in variable amounts. Chief among these are clams, crabs, shrimp and tunicates. While these foods are rarely obtained in significant amounts, they are enjoyed seasonally.

1. *Crab*. At Point Hope a small hermit crab is caught and eaten, usually raw-frozen. They are left in the shell, set out on the ice to freeze, then the meat is cut out and squeezed to get rid of the salt. Only a few of the people cook crab, a method of preparation learned from Caucasians.

At Diomedes, Nome and other Bering Sea points, the *King Crab* is hooked through the ice. It is a staple in the diet in late winter and early spring.

2. *Clams*. Partially digested clams obtained from the stomach of freshly caught walrus are considered a delicacy by the Eskimo who hunt this animal. Fay<sup>(70)</sup> has found several kinds of mollusks in walrus stomachs, the most abundant being *Clinocardium ciliatum*, *Hitella arctica* and *Mya* ssp.

On St. Lawrence Island clams, mussels and tunicates, washed up on the beach after fall storms are collected and used as food. They are only occasionally available in amounts sufficient to freeze for winter use. These are eaten raw or partially cooked.

Clams are also obtainable in limited quantities at Hooper Bay and other Bering Sea coastal villages.

### FISH

Fish is the most important year-round food in the Yukon-Kuskokwim Eskimo diet. It is used seasonally, often in considerable quantities by all other Alaskan Eskimos, as well as by Indians and Aleuts. The fishes used in greatest abundance are blackfish, flounder, grayling, herring, ling cod, needlefish, pike, salmon (king, silver, dog and red), sculpin, smelts, tom cod, trout and whitefish. The individual importance of these fish in the Eskimo and Indian diet depends on the geographic location of the village.

Fish are prepared in a variety of ways. In season they are

preferably eaten either boiled or raw-frozen, the latter often dipped in seal or other oil.

The bulk of the salmon (king, dog and silver), whitefish, tom cod, herring and smelt caught during seasonal migration runs is air-dried. Dried fish is preferably eaten after dipping in seal or whitefish oil, but when these oils are not available, they are eaten plain. At Hooper Bay and other Norton Sound villages certain of these fish—silver salmon at Hooper Bay and tom cod and herring at Hooper Bay and other coastal tundra villages—are preferably prepared and eaten as '*poke*' fish, i.e. partially air-dried and stored in seal oil.

*Smoked fish*, especially king salmon, is relished as a trail food since it is not only very tasty, but easy to carry.

A practice of both the Eskimo and the Yukon-Koyukuk Indians, done less often today than in the past, is the extraction of oil from salmon heads. As described by Sullivan<sup>(71)</sup> this consists of stringing several fish heads on a stick and keeping them submerged in the river for about two weeks or until they are partially decomposed. On removal they are boiled and as the oil is rendered it is removed. When the rendering process slows down, the heads are first allowed to cool and then squeezed to express more oil. The fish heads are then boiled again and the oil squeezed out again. The cheesy-textured material remaining is eaten. It is in all probability a good source of calcium.

Boiled fresh *fish heads*, especially those of the salmon and whitefish, are highly prized. The cheeks and fat behind the eyes and the soft chewy cartilage are particularly well liked for their very delicate flavor. Occasionally when cooking fresh salmon heads, some of the fresh salmon roe may be added.

*Blackfish* and *needlefish*, two of the smaller fish species found in shallow tundra waters, are eaten whole, either boiled or raw-frozen. Occasionally blackfish are dried. Blackfish are caught in winter in willow traps placed under the ice and needlefish by both trap and dip netting (see illustration #17).

Eskimos living in the Kuskokwim-Yukon delta hold the blackfish in high regard both because of its flavor and its availability when other foods tend to be scarce. Petroff<sup>(15)</sup> wrote that this fish "furnishes subsistence to whole settlements (in the Kuskokwim district) where nothing else could be found to sustain life at certain seasons of the year" . . . that the people who eat blackfish "are in better condition physically when spring approaches than any of their neighbors in regions where it does not exist . . . they being almost exempt from the annual period of starvation preceeding the beginning of the salmon run in the rivers."

Eskimos in the Bethel area, however, claim that dogs fed an exclusive blackfish diet for any length of time will not survive. The reasons are not known.

Blackfish are highly infested with tapeworm, but these are easily destroyed either by boiling or by freezing. Hilliard<sup>(72)</sup> found that the fish tapeworm was completely destroyed when the fish were held at temperatures not exceeding 18° C. for 48 hours.

Nordinskiold<sup>(73)</sup> found a similar blackfish, *Dallia delicatissima*, on the Chukchi Peninsula, Siberia, and describes it as a "veritable delicacy, in taste somewhat resembling eel, but finer and more fleshy."

During the early summer salmon run along the Kuskokwim River, the heads of King Salmon sometimes with the liver and pancreas added, are putrefied by burying them in grass-lined ground pits, carefully covered first with grass and then with turf or mud to exclude all air and to protect from the heat of the sun. According to present-day informants, that used for human consumption is putrefied only until the flesh is soft and falls away from the bones easily. This takes 3 to 4 weeks. Only a small amount, that which can be used immediately, is taken out at a time. It is eaten with dried fish. When the material putrefies beyond this point, it is used almost exclusively for dog feed. However, Nelson<sup>(45)</sup> states that fish heads were kept buried until autumn and that at the time of removal from the pit, the bones had taken on the same consistency as the general mass. This material was kneaded in a wooden tray to form a pasty compound and eaten as a favorite delicacy. He states, however, that the odor is sometimes "too strong, even for many Eskimos." Along the Kuskokwim River this material is called *tip-nuk*; at Hooper Bay *uk-suk*. It does not appear to be used as much as it was in the past.

At Shungnak either dog salmon or sheefish heads are allowed to putrefy only mildly, from one to one and a half weeks only. It is eaten plain and is called *or-ruk*.

When the salmon runs are particularly heavy, the whole fish, usually dog salmon, may be buried for putrefaction. It takes a month or more for the fish to reach the desired stage. At Shungnak such fish are called *caw-suk*, and are either eaten raw or cooked, the latter no more than a momentary plunge into boiling water. Along the Kuskokwim River during the winter the pits are opened and pieces of the frozen mass are cut off as needed. These may be eaten either frozen or after they have been thawed.

Many Eskimos, particularly those from the Kuskokwim tundra, make an *agutuk* mixture using cooked whitefish or ling cod, as follows:

The fresh whitefish or ling cod is boiled. The flesh is then squeezed to force out the liquid. When it is dry enough to flake, it is added to a whipped fat mixture made of hydrogenated fat, edible beef or caribou tallow whipped with seal or whitefish oil. To this mixture is also added sugar to taste and either a mixture of crushed cloudberry and low-bush cranberry, a mixture of berries and sourdock, or "mashu" cooked and chopped very fine.

Here is a "typical" recipe:

Whitefish (9-10" long)—boil,	Seal oil or whitefish oil—1½ cups
squeeze the flesh dry and	Sugar—½ cup
flake	Cloudberry—6 cups
Hydrogenated fat—6 Tbsp.	

*Fish Roe:* Roe from various fish are used in a variety of ways. Herring, salmon, ling cod, tom cod, pike and whitefish roe are considered the most desirable by the Eskimo. It may be eaten fresh raw or cooked in season, or air dried or otherwise prepared for off-season use. An old practice of the Kuskokwim River Eskimos, who used to have their spring and summer camps in the Alaska Range foothills in the vicinity of the Kisaralik River, was as follows: Birch bark baskets, filled with salmon roe, were placed in cold ground pits, covered first with a layer of grass and then turf and mud to provide a tight seal. They were left undisturbed until the following spring when the people returned to camp. Apparently only small amounts could be eaten at a time for the taste and odor were very strong.

At Napaskiak, salmon roe, preferably that from the King Salmon, is laid out on logs and turned occasionally to facilitate partial drying. This usually takes about three days if the weather is good. The dried product is then put into a barrel or flour sack (formerly the sacks were made of salmon skins), and stored in a cool place, usually the family food cache. The roe, which starts to ferment within five days, is poked down with a stick two or three times. When needed, the hard, crusty surface is scraped off, and the softer material underneath is used. This material is called *m'look* and is used in the following ways:

- 1) To make "*muk-muk*". This is prepared by mashing and whipping *m'look* thoroughly and then adding sugar to taste and about four quarts or more of cloudberry. The stronger the *m'look*, the more berries required. Seal oil may be added in small amounts if desired. "Mouse-nuts," thoroughly washed, cooked and finely chopped, may be substituted for the berries.

- 2) As a soup thickener, in which case a small amount of *m'look* is mashed and added to the cooking broth, usually that in which rabbit or duck has been cooked, and stirred until it thick-

ens. Either chopped "mouse nuts" or *tayahuk* are added and the whole salted to taste.

3) To make *Kay-u-suk*, a soup, a small piece of fish or blackfish heads are boiled in a large amount of water and after removing the bones a piece of hard, crusty *m'look* mixed with a small amount of the broth is stirred into the pot. Then one or more of the following is added: chopped "mouse nuts", *tayahuk*, chopped tundra lichens (a large black fungus, almost plate sized, or small white hollow lichens about 2 to 2½ inches long). If lichens are used, some oil must also be added.

4) Sometimes dry fish is dipped into a small amount of the *m'look*.

Some of the Kuskokwim River Eskimos say *m'look* is a good food to have on hand in times of food shortage, for the taste is so strong that it gives one of sense of satiety.

Fish roe is also used in making soups. At Napaskiak a spring soup is made using fresh smelt roe and chopped willow catkins; a summer soup is made using fresh salmon roe and chopped, young, tender willow leaves.

Along the Kuskokwim River fresh or dry King Salmon roe is often used in making *agutuk*. The following is a typical recipe:

1 cup	mashed fresh salmon roe	1 cup	sugar
2 tbsp	water	4 cups	cloudberries
2 cups	seal oil	2 cups	crowberries

At Shungnak fish roe, especially that from whitefish and sheefish, is often eaten as *kwak*. In the spring season it is thawed and eaten raw.

Fresh pike, whitefish or sheefish roe, is often used with low-bush cranberries. Here is a typical recipe:

3 sacs	roe, mashed	3 tbsp	seal or whitefish oil
2 cups	very ripe low bush cranberries	3 tbsp	sugar

These ingredients are stirred or whipped to make a fluffy mixture, which must be eaten immediately after preparation, since the mixture does not hold its shape or consistency. On the tundra this mixture is called "cranberry creme" or *kapuktuk*. Along the Kobuk River a small amount of baking soda is usually added, and the mixture is called *e-tu-polik*. Koyukuk River Indians call the mixture *unjah*.

Along the Noatak and Kobuk Rivers, dog salmon and whitefish roe are prepared by cutting the fish so that the body cavity

containing the liver, entrails and roe is left intact. The fish are hung to air-dry for about a month. This is done fairly late during the fish run when the weather is cool. Roe prepared this way is used for human food until it gets too "tipoxsee", i.e. smelly or stinky; in which case it is used exclusively for dog feed. Dog salmon roe prepared in this way is called *ah-nah-lik*; whitefish roe *ah-mah-jak*.

In this same area intact sacs of dog salmon roe are also hung on racks to air dry, usually for a month if the weather is not too hot. These can be eaten as long as they last, again provided they do not get too "tipoxsee". The roe from salmon just about ready to lay their eggs is considered a delicacy by some of the northern Eskimos. It has a chewy texture and is called *mupcoleetuk*. In contrast, the roe from early caught salmon, i.e. that from fish which has just entered the river from the ocean, is juicy or watery. This roe is called *cupseeruk*, and is rated only second best.

Salmon, tom cod, herring and whitefish roe are often completely air-dried in the sac and later used in soups or soaked in a small amount of water and used in berry mixtures or eaten uncooked with seal oil. However, most dried roe is used in the preparation of dog feed.

At Hooper Bay and other Bering Sea coastal villages and summer camps, fresh-laid herring roe, where obtainable, is collected on seaweed or braided grass and air-dried. When needed for use, it is soaked in water. If collected on seaweed, the seaweed is eaten too. It is usually added to soup, but sometimes it is eaten alone with seal oil.

*Fish Livers:* The tundra Eskimos of the Kuskokwim River basin make a fish liver crease called *tingugtuk*, using most commonly the livers of whitefish, tom cod or ling cod. A typical recipe is:

10-20	whitefish livers, cooked and mashed
3-4 cups	berries (cloudberries, cranberries, or crowberries or a combination of these)
½-1 cup	sugar
2 tbsp-½ cup	whitefish oil

Sometimes the sugar and oil are added separately at serving time according to individual tastes.

At Hooper Bay tom cod livers are cooked and mashed and mixed with an equal amount of crowberries. This is called *tung-nuchak*.

In the Kotzebue area trout livers are used in a mixture called *tingulik*. The trout livers are gently simmered in water to

cover; the oil is scooped off carefully and reserved, the livers removed, mashed thoroughly, and mixed with the oil and berries.

At Unalakleet in times past, and probably in other areas where tom cods were available, the Eskimos used to simmer tom cod livers in a small amount of water. The oil was carefully removed and used in infant feeding. Many of the older women from several of the tundra villages report that in times past fresh fish liver, prechewed by the mother, was one of the first solid foods added to the infant's diet.

### AGUTUK RECIPES (Eskimo Ice Cream)

	1 cup	Beef or caribou tallow or moose fat
	1/2-1 cup	Seal oil (sometimes ugruk oil)
#1	1/2 cup, more or less	Water or snow
	10-12 cups	Cloudbberries
	0-2 cups	Sugar
	2 cups	Beef tallow
#2	1 cup	Seal oil
	1/2 cup	Sugar
	5 cups	Cooked and chopped "mouse nuts"
	1 pc. 7"x5"x1"	Caribou fat
#3	1 cup	Seal oil
	12 cups	Crowberries
	1 cup	Sugar
	1 pc. 4"x1"x1"	Moose fat
	1/2 cup	Hydrogenated fat
#4	1/2 cup	Seal oil
	1 cup	Sugar
	4 cups	Low bush cranberries
	2 cups	Crowberries
	1 cup	Beef tallow
	1/2 cup	Hydrogenated fat
#5	1 cup	Seal oil
	4 cups	Sourdock, cooked
	4 cups	Low-bush cranberries
	1 cup	Sugar
	1 1/4 cups	Beef or caribou tallow
	1 cup	Seal oil
	1 cup	Sugar
#6	1/2 cup	Water
	5 cups	Sourdock, cooked
	6 cups	Crowberries
	1 cup	Raisins, softened
	1/2 pound	Apples, dry, cooked

	2 cups	Reindeer fat
	1/2 cup	Ugruk oil
#7	1/2 cup	Water
	1/2 cup	Milk, evaporated
	5 cups	Sourdock, cooked
	5 tbsp.	Sugar

*Makuk* (Hooper Bay) and *pah-wun-a-kuk-kuk* (St. Lawrence Island) are mixtures of berries, mashed salmon roe, and seal oil with flour sometimes used as a thickening agent.

At Hooper Bay, sphagnum moss formerly was used as a food in a dish called *poo-ee-yah*. Seal oil was poured over the moss, which was then set aside in a cold place for about one month or until the mixture became very sticky. Then crowberries and water were added. This mixture had to be eaten right away.

### BLOOD SOUPS (Hooper Bay)

(Approximate recipe proportions)

#### *Oknuk* #1

4-12 cups	tayahuk
1-2 cups	seal blood
1/4-1 cup	seal oil
1/2-1 gal.	water or cooking broth

#### *Oknuk* #2

1 1/2 sacs	ling cod roe, fresh
16 cups	"mouse nuts"
1 cup	seal oil
4 cups	seal blood
4 qts.	water or cooking broth

#### *Oknuk* #3

3 cups	tom cod roe, dry
15 cups	"mouse nuts"
2 cups	seal blood
1/2 cup	seal oil
1 1/2 gal	water or cooking broth

# PRESENT DAY FOOD QUEST ACTIVITY CHARTS

## By Village

### CHART 1: ALLAKAKET AND HUSLIA (Northcentral Athapascan Indian)

Season	Foods Available	Remarks
FALL (September-October)	Moose	The first official hunting season for moose opens in September and every hunter in the village tries to get his quota of one at this time, since the meat is usually in prime condition.
	Sheefish	Sheefish are available only for a few days at most in September during the up-river migration. One or two families may get about 100 fish, but most average about 30. The average weight is about 10 pounds per fish.
	Whitefish	Whitefish are usually plentiful in October. They are caught by netting through the ice. A good catch for the month at Allakaket is about 100 fish per family averaging eight pounds each. In 1958 the average was only 40 fish per family.
	Grayling	There is about a two week run of grayling in October at Allakaket and the average catch is about 150 pounds of fish per family.
WINTER (November thru April)	Ptarmigan	Ptarmigan are hunted from about the middle of November through March, with most families snaring 1 to 2 every other day, although some years there are very few. March is the best month. About every third year ptarmigan are abundant; 1957 was a good year.
	Snowshoe Hare	Rabbits are caught by snaring. These animals used to be abundantly available in the area but they have been scarce for the past six years. The Indians say they were killed off by an epidemic of some kind characterized by diseased livers. At this same time there was a rabies epidemic among foxes and wolves.

Season	Foods Available	Remarks
	Moose	Moose is the most important meat source in the Koyukuk Indian diet. The second official hunting season opens in November but the people do not consider November a good time for moose hunting, because the meat is not at its best for eating. Moose appear to be more plentiful at Huslia than at Allakaket. The skins are used for making winter boots and gloves.
	Caribou	Caribou do not penetrate as far south as Huslia but at one time it was the most important winter food in the Allakaket Indian diet and the fur was especially prized for the making of winter boots, sleeping robes, etc. Caribou came every November into the Alatna River drainage area, usually staying for about a month only, but occasionally all winter. Caribou come into the area now only about once every three years. In 1957 they were plentiful; none came into the area in 1958; only a few in 1962; but they appeared in good numbers again in the winter of 1963-64.
	Mink Marten Otter Lynx Fox	The trapping season for these animals opens about mid-November. Mink and marten are the most readily available and the sale of their furs is an important source of income. In the early days the meat of mink and otter was used as human food but this is no longer a common practice. In 1957 the highest amount—and for one family only—obtained from the sale of mink and marten at Allakaket was \$500; three or four families realized \$300 to \$400 but several made only \$30 to \$40 for the season. Trapping returns are usually higher at Huslia.
	Ling Cod	At Allakaket ling cod are caught from late November through January using traps made of spruce set under the ice after it is sufficiently set, usually by the end of November. When the first run of fish begins, about 300 fish are taken every two days for about one week, then

Season	Foods Available	Remarks
SPRING (May and June)	Ling Cod, continued	only about 50 every other day for awhile, and then the catch further declines.
	Beaver	Beaver are trapped from about February 1st through March 31st. Beaver pelts are the most important income source for these people. The maximum allowance of 25 per individual trapper is caught most years. When the price is good, 25 skins may average \$500 gross income. The meat is a very important food item.
	Muskrats	Muskrats are available in the area and the trapping season opens about January 1st. However, at this time it is usually too cold for trapping—the thermometer sometimes drops to $-68^{\circ}$ F.—and the price for muskrat skins is now so low that it doesn't warrant the effort required to trap them unless there is a food shortage. Later in the season, when the temperature moderates they are caught and used to enhance the meat supply.
		April and May are not good months for travelling in this area. It is usually too soft under foot and the rivers are not yet open for boat travel.
	Porcupine	Porcupine used to be abundantly available and were used the year round. They were at their fattest and best from about April to August. Twenty-five or more years ago they were very plentiful in the Allakaket area, but apparently at that time some disaster wiped them out. Nowadays only about four or five animals a year are taken for the entire village. There is some indication that during the last year or two they have begun to increase.
Ducks Geese	Huslia is on the wildfowl route and ducks and geese in limited amounts usually appear on the spring dietary. This village is not located near a major wildfowl nesting area as is Allakaket, so	

Season	Foods Available	Remarks
SUMMER (July and August)	Ducks, continued	neither the birds nor their eggs are major foods.
	Pike Sucker Whitefish	During the latter part of May there is some fishing for pike, sucker and whitefish, but usually just enough are caught at a time for a meal or two.
	Rhubarb ( <i>Polygonum alaskanum</i> )	Wild rhubarb is available in prime edible stage only for about one week during the first part of June. There is not enough available to put up for winter use.
		During June and early July very few native foods are available. This is the traditional "hungry time" of the past.
	Salmon King Silver Dog	The salmon run begins approximately July 20th. First a few kings and then a few silver salmon are taken, followed by a more prolific run of dog salmon, but the run varies widely from year to year. In a good year at Allakaket the average family expects to catch 500 to 700 salmon, but only during three summers in the past fifteen years has the catch been this good. Most of the salmon is used for human food.
	Black Bear Berries  Rose Hips	Black bear are usually hunted during the last part of August. About 20 are taken per year for the entire village at Allakaket. Blueberries and low-bush cranberries are available in moderate amounts in the area. Only small amounts are stored for winter use.
Wildfowl	Summer has always been the best as well as the traditional time for getting wildfowl and their eggs at Allakaket. A family would average at least 100 or more birds per season. The present take is considerably less than this because wage employment extends well into the fall season.	

**CHART II: PT. HOPE  
(Northern Coastal Eskimo)**

Season	Foods Available	Remarks
FALL (September and October)	Wildfowl	Ducks, geese and snowy owls which pass over the village during their southward migration, and to a lesser extent ptarmigan (near Jabbertown), are obtained in moderate numbers at this time.
	Caribou	From September through February the men, usually in parties of 2 to 5, hunt caribou in the hills east of the village. The number taken varies considerably from year to year. For several years prior to 1958 caribou were relatively scarce in the immediate area but since then their numbers have increased.
	Grayling	Since aboriginal times many Point Hope families established fall camps along the Kukpuk River in the Cape Thompson area. Here they fished for grayling, first by pole and net fishing and later by hooking through the ice. Even though the men who obtain summer wage work may not be back in time, and although many families stay in the village because of the beginning of the school year (September), sufficient grayling are still obtained and they constitute a very important fresh food item in the fall diet.
WINTER (November through April)	Caribou	Caribou hunting continues, sporadically, from November through February.
	Seal Ugruk	From about late October or early November—as soon as the shore ice becomes solid enough for safe travel—and continuing throughout the winter, seal and ugruk are hunted in open leads. These animals are one of the most important food animals on present day Point Hope diets. A good hunter may secure 120 or more animals during the season. They serve as food for both dogs and man.

Season	Foods Available	Remarks
	Polar Bear	<p>This animal is hunted sporadically during this season and has always been an important item in the Point Hope economy. Its meat is used for both human and dog food; its fur as a source of cash income. In 1948 about 70 bear were caught; in 1958 about 35; in 1962 only 15. The drastic reduction in the take in recent years is primarily due to the sport hunting of this animal by "outside" hunters—from other parts of Alaska and from the south 48 states. Income from housing and feeding and, to a much lesser extent, from guiding hunters (most guides are from outside the village and use planes) is gradually replacing cash formerly obtained from the sale of the skins.</p>
	Whale Baleen	<p>Throughout March and April priority is given to the assembling and repairing of skin boats (oomiaks), guns and other gear used in hunting the baleen whale. The actual hunt for this animal usually begins in April.</p>
	Beluga	<p>The beluga whale, whose appearance in the area may just precede or occur simultaneously with that of the baleen whale, are hunted whenever there is an enforced curtailment in the pursuit of the larger animal. Only a few beluga are taken each year, and 1 to 5 baleen whale are usually caught.</p>
	Crab	<p>From late February through March a very small species of crab is obtained by jigging through holes in the ice on the south side of the village. Crab is not a major item in the diet.</p>
	Grayling Tom Cod	<p>Fishing for grayling in the Kukpuk River may continue until about mid-November. During January and February, the women and older men gig for tom cods through holes in the ice on the north shore.</p>

Season	Foods Available	Remarks
<b>SPRING</b> (May and June)	Ducks Murres	From early May through June, ducks and murres fly over and around the area (the murres nest at nearby Capes Thompson and Lisbourne). Usually enough are taken to satisfy day to day needs, although some families still store limited supplies for future use.
	Whale Baleen Beluga	Whale hunting continues into the spring season. Almost everyone in the village is occupied in some capacity in relation to it, either as an active hunter or assisting in supplying the needs of the hunter or in transporting and storing the catch. Rainey (7) states that prior to the whaling days of the 1800's the yearly whale catch at Point Hope was 15 to 18. Now as indicated above 1 to 5 is the usual number.
	Seal Ugruk	After whale hunting ceases, the hunting of seal and ugruk is resumed and carried on as long as the shore ice is safe. There is usually excellent hunting of this animal first along the south shore near the village and later near Jabbertown, but occasionally as in 1958 and 1963, the shore ice breaks away early and moves out so fast that very few are taken.
	Walrus	A few walrus may be taken at this time of the year but not in significant numbers nor every year. It appears that this animal no longer hauls up on the beach near Cape Thompson in the sizeable numbers that it did in the past.
<b>SUMMER</b> (July-August)	Wildfowl and Eggs	In July, wildfowl, especially ducks and murres, are hunted and significant amounts may be stored for future use. They are not hunted as assiduously as in the past due to the fact that many of the able-bodied men have already left the village for summer wage work. The men remaining in the village make several trips to Cape Thompson and Cape Lisbourne to gather murre eggs. The Bureau of Indian Affairs (11) estimated the yearly take at about 830 dozen eggs

Season	Foods Available	Remarks
	Wildfowl and Eggs, continued	or approximately 2½ dozen per family. In former times, but rarely today, significant quantities of eggs and young birds were stored for winter use. They were first boiled and then stored in seal oil.
	Caribou	This animal may be hunted at this season especially if, as is often the case, they come down from the hills to the lagoons at the time families happen to be camped nearby.
	Ground Squirrel	Families that still camp for the summer in the Jabbertown area (only one family did so in 1958) easily obtain significant quantities of ground squirrel.
	Whitefish Salmon Trout	There is sporadic fishing for whitefish, salmon and trout as the runs—comparatively small ones—pass close along the south coast near the village.

**CHART III: NOATAK**  
**(Northern Interior-Coastal Eskimo)**

Season	Foods Available	Remarks
FALL	Caribou Berries Eskimo Potato	By September most families are in the village because of the opening of school. However, the men in small groups establish camps upriver to hunt caribou and the women make all day trips out from the village for berries, and "mashu", the Eskimo potato.
	Trout Grayling Whitefish	Most families who camp upriver as well as those at the village may net trout, grayling and whitefish from the river. Later, as soon as the ice is solid enough to walk on (late October) the older women and occasionally the men go short distances from the village to hook these fish through the ice. An unusual lure used was a small piece of colored, preferably orange, gum drop.
WINTER	Caribou	Hunting for caribou continues as long as they are available within a reasonable distance from the village.
	Fish Trout Whitefish Grayling Suckers	As soon as the ice along the river has frozen sufficiently, the women and the men, too, if they are home, hook fish through the ice. Trout is the most abundant fish and a good fisherman during the run will get as much as two gunnysacks full at a time. Other fish available in lesser amounts are the whitefish, grayling and suckers.
SPRING	Bowhead Whale	A few men may go to Point Hope to participate in the whale hunt. Only limited supplies of whale muktuk are brought back to the village. It is a seasonal treat rather than a regular item on the dietary.
	Rabbits	From the last of April through May, depending on snow and ice conditions,

Season	Foods Available	Remarks
SUMMER	Rabbits, continued	families leave Noatak—usually by dog-teams—for the coast near Cape Krusenstern, settling mostly at Sealing Point and at Kuluksuk (meaning a place of many rabbits).
	Seal	Seal are hunted in open leads and on ice floes, using either dog team or boat as ice conditions demand.
	Wildfowl and Eggs	Wildfowl, especially ducks and geese, are hunted and later their eggs are gathered from the surrounding nesting area.
	Ugruk Beluga	By July most of the Noatak families have moved their camps to Sheshaulik and late comers from the village join them there. The men hunt ugruk and the beluga whale; the women prepare the meat and blubber for storage. At the end of the seal and beluga hunt a few families may remain at the camp site to fish for trout and whitefish and to gather blueberries, but by mid-July most families have moved to Kotzebue to trade and to pick up available wage work. By early August many families are already returning to Noatak. The men usually go up river to hunt caribou. Eventually most families scatter to their camps along the Noatak River below and above the village.
	Trout Whitefish Blueberries	
	Caribou	
	Salmon	
	Here they net salmon and dry it on racks or otherwise prepare it for later use. Most of the salmon is used for dog feed although if the weather is good for drying fish, they will be used for human food too.	

**CHART IV: SHUNGNAK**  
**(Northern Interior Eskimo)**

Season	Foods Available	Remarks
FALL	Moose	Most families have returned to the village by this time—the women from their fish camps, the men from their summer wage work. According to the Shungnak Eskimos moose have always been present in the upper Kobuk area but never in large numbers—4 to 5 is generally the largest number taken in a year. The area was closed to the hunting of this animal at the time the villages participated in the dietary study (1959-60).
	Porcupine	Porcupine, once plentiful in the area, are now scarce. Only an occasional one is now caught. This animal was at one time an important source of fat.
	Ptarmigan Spruce hens	Ptarmigan and spruce hens are usually available in moderate numbers near the village at this time. They are snared or shot with a .22 rifle.
	"Mashu"	"Mashu", the edible root of <i>Hedysarum alpinum</i> . is usually collected in good quantity from along the river banks and from the innumerable gravel bars in the river. Some years as many as three large gunny sacks full per family are stored for winter use.
	Crowberries Low-bush cranberries	Most years from 50 to 100 pounds—sometimes more—of crowberries and low-bush cranberries are collected and stored per family.
	Currants Rose Hips Raspberries	The fruit of the wild currant, rose and raspberry are available in limited amounts. They are usually collected casually during the summer—i.e. they are eaten off the bush.
	Whitefish	During October, whitefish, the last of the migrant fish to descend the Kobuk

Season	Foods Available	Remarks
WINTER	Whitefish, continued	River, are obtained by trapping or netting them under the ice. They are available for a limited time only and used fresh.
	Caribou	Caribou strays sometimes drift into the area in September and sizeable herds are usually in residence in the general area by October.
	Caribou	Caribou is the most important winter food in the diet of the Eskimos living in the upper Kobuk River area. Serious hunting of this animal begins in October and continues through April. In the most common migration pattern followed by the caribou they drift south from the Noatak drainage area through passes in the Brooks Range to the headwaters of the Selawik River. Here they stay throughout the winter, leaving just before the ice breakup is imminent. They usually fawn in the Colville River drainage area.
	Ling Cod	Intermittently, from November through about February, ling cod are obtained in moderate quantities by trapping under the river ice. They are used mostly as dog feed although the liver and roe are relished by the people.
	Ptarmigan Spruce hen	In December, ptarmigan and spruce hen, usually abundant in the area, are either snared by the women or shot with a .22 rifle by the men.
	Snowshoe hare	The snowshoe hare, formerly plentiful in the area, has not been seen since 1956.
	Beaver Muskrat	Beaver can be trapped in some areas but at a considerable distance from the village. Muskrats are obtained by trapping or shooting with a .22 rifle. Both of these animals were important late winter foods in aboriginal times, especially for those families who had winter camps favorably located for their ac-

Season	Foods Available	Remarks
SPRING	Beaver Muskrat, continued	quisition. They are scarce, however, in the immediate Shungnak area and to obtain significant numbers requires much travel; hence, they are little used now.
	'Parka' squirrel	Throughout May and into early June most Shungnak families establish temporary camps on high ground near or at best only short distances from the village. During this time ground squirrel may be obtained by trapping, snaring or shooting with a .22 rifle.
	Pike Sucker Ducks Geese	Pike and sucker may be obtained from valley lakes and sloughs; ducks and geese are hunted during migration and later in the season their eggs are obtained from local nesting areas. None of these foods is available in large quantities.
	Sheefish Whitefish Grayling Pickerel	In June, after the ice has gone from the river, sheefish and whitefish—now on their upriver migration—and grayling and pickerel are obtained in variable quantities using seines and gill nets.
SUMMER	Wild Edible Greens	Late in the season wild edible rhubarb and sourdock are sometimes obtained in quantity and often moderate amounts are stored for winter use.
	Dog Salmon	While the dog salmon run starts in June, the greater share of the catch is harvested in July and early August. This fish is one of the most important of the food resources of these people. It is obtained in quantity by seining and gill-netting. The women have the complete responsibility for both the fishing and the subsequent preparation of the catch for storage. Their traditional family camp sites are scattered along the river both above and below the village, occasionally at considerable distance from it. Salmon is used fresh in season but most

Season	Foods Available	Remarks
	Dog Salmon, continued	of the sizeable catch is dried and stored to be used in winter for dog feed. Limited amounts of dog salmon—most often the heads—are buried in ground pits and allowed to putrefy. The resulting cheesy-textured mass is a favorite on early fall diets.
	Blueberries	Blueberries are usually plentiful in the area and most families try to store from 100 to 150 pounds each for winter use.
	Bear Hoary Marmot	At this season of the year an occasional brown or black bear or a hoary marmot may be taken. Fat from the latter animal used to be a prized food but since most of the men now work in the summer for wages (in the mines, etc.) they rarely make the extended hunting trips to the mountains for these animals as they did in the past.
	Cloudbberries	Cloudbberries, the years when they are available, are eaten fresh in season. They are rarely available in sufficient quantities for storage.

**CHART V: SHISHMAREF**  
**(Northern-Coastal Eskimo)**

Season	Foods Available	Remarks
FALL	Berries	Crowberries, blueberries, low-bush cranberries and cloudberry are often available in significant quantities from the tundra in the vicinity of the village and from the mainland tundra area also. Crowberries and cloudberry are the favorites and most families store from 50 to 100 pounds or more for winter use.
	"Mousenuts"	In times past the Shishmaref people made special trips in the fall of the year to the mainland for "mousenuts" ( <i>piknik</i> ) but this is rarely done today. Early health workers discouraged the practice thinking it was a possible source of disease and illness. This food, however, is thoroughly cooked before eating and is probably safe.
	Wildfowl	Ducks and geese are still hunted on the mainland. Relatively small numbers are stored for winter use. The total take is probably much less than in former years since many of the active hunters are away on summer jobs and do not return to the village until after the birds have left on their southern migration.
	Squirrels	Moderate numbers of both the ground squirrel and flying squirrel are obtained. The furs are used to make parkas and the meat used as food.
WINTER	Seal	Sealing is sporadic, depending always on the weather. It begins in November after the shore ice is solid enough for walking and dog-team travel, and continues until the ice goes out sometime in late May or early June. Some years one or two polar bear may be caught, sometimes none at all.
	Polar bear	

Season	Foods Available	Remarks
SPRING	Tom cod Flounder Sculpin	Throughout the winter tom cods, flounders or bullheads (sculpins) are caught by the women and older people of both sexes by jigging through ice holes in the inlet and the lagoon in back of the village.
	Rabbits Ptarmigan	Whenever weather permits, the men make mainland trips to hunt rabbits and ptarmigan. They are not found in abundance.
	Willow (inner bark)	The inner bark of the willow, <i>Salix alaxensis</i> , is sometimes collected in late April and early May—at about the time the sap begins to run. The outer bark is carefully cut and removed and the thin inner layer is scraped off with a knife. The Eskimo name for this food is “keel-eeyuk” meaning the “scrape”. This is a very incidental food collected by the men while hunting on the mainland for rabbits and ptarmigan, but they often bring back limited amounts of all of these foods for the family.
	Rabbits Ptarmigan	Rabbits and ptarmigan, but they often bring back limited amounts of all of these foods for the family.
	Ugruk Seal	Ugruk is hunted and captured, usually in good quantities, on the pack ice in late May and June or as long as the pack ice persists and is safe. A good hunter at this time may obtain 12 to 14 ugruk as well as many smaller seal. The meat is either completely air-dried or small quantities may be only partially air-dried and then stored in seal oil. The blubber is cut into small pieces, stuffed into clean seal pokes and stored in the cold. During a good year enough seal and ugruk are caught within a two to three week period to furnish a good share of the entire year's supply of meat and oil. By tradition, young boys 13 to 14 years of age accompany the older hunters at this time. The boy's first catch goes to the oldest man in the camp. Prize young seal skins are carefully cleaned and pegged out on the ground to dry. They are later tanned

Season	Foods Available	Remarks
	Ugruk Seal, continued	and used to make sealskin parkas and pants.
	Geese Ducks	In May wildfowl, now on their northern migration, are hunted but usually the amount taken is enough for immediate daily use only.
	Wildfowl eggs	Later, in June, small quantities of duck and geese eggs, and larger supplies of gull eggs, are collected and used in the daily diet.
	Wild edible greens	<p>Sourdock is the most important of the locally available wild edible greens and it is usually collected in sufficient quantity by most families to store for winter use. These greens are cooked before storage.</p> <p>Willow buds and leaves, from the smooth-leaved ground varieties, chiefly <i>Salix arctica</i>, are also collected in quantity and stored for winter use. They may be pre-cooked but most often they are left raw and are lightly marinated with seal oil just prior to storage in the cold. This product is called "surrah". Other greens and plant parts used in lesser amounts are <i>Sedum roseum</i>, both the leaves (<i>Eveakluk</i>) and the root (<i>Eku-tuk</i>); the leaves of the marsh marigold (<i>Caltha palustris</i>); and the flower of the wooly lousewort (<i>Pedicularis lanata</i>); the latter, to which a small amount of water is added, and then allowed to sour is called <i>Nahzakmetak</i>.</p>
SUMMER	Herring Smelts	A moderate but significant herring run occurs along the coast near Shishmaref. Smelts may also be available but in lesser amounts. Excess fish beyond immediate needs are dried for winter use.
	Salmon	There is a relatively small salmon run in July and limited amounts are also dried for future use.

**CHART VI: AKIAK**  
**(Southwest Interior-River Eskimo)**

Season	Foods Available	Remarks
<b>FALL</b> (September and October)	Moose	<p>Moose are the most important meat source at this time of the year. Most of the active hunters in the village get one each during the regular hunting season and another when special hunts are allowed. Only a few bear, mostly black but occasionally a grizzly, are caught each year in the Alaska Range foothills. Usually only 2, occasionally as many as 5, are obtained for the entire village. Mink trapping is only fair in the area but the meat is relished. Ducks and geese are generally available, but usually only enough for immediate needs. They are not stored for winter use to any great extent.</p> <p>“Mousenuts” are gathered in moderate amounts. These bits of root and Eriophorum (ssp). seedlings are found in underground caches around tundra lakes and ponds. In the past the Eskimo stored them in tightly sealed unlined ground pits but nowadays they are put in gunny sacks and stored in the shed or other cool place. They are not collected and used in the quantities they formerly were.</p>
	Bear	
	Mink Ducks Geese	
	Plant Food	
<b>WINTER</b> (November thru April)	<i>Fish</i> Ling cod Whitefish Sheefish Pike Blackfish	<p>Intermittently throughout the winter limited supplies of fresh ling cod, whitefish, sheefish and pike are caught in willow root traps placed under the river ice. Blackfish are caught in similar but smaller traps placed under the ice in tundra streams and sloughs. These fish provide only occasional meals of the fresh product throughout the long winter season for those remaining in residence at the village. Individuals who still go to spring camp in April obtain considerable quantities of blackfish, most of which is dried for future use.</p>

Season	Foods Available	Remarks
SPRING (May and June)	<p><i>Meat</i> Beaver Rabbit Ptarmigan Muskrats Geese Ducks Spruce Hens</p>	<p>Beaver are available in February. In 1958, the year diets were collected at this village, only five Akiak men trapped beaver seriously. These men obtained the maximum catch allowed which varied from 10 to 25 animals, depending on the drainage area trapped. The fur is sold; the meat eaten. Rabbits and ptarmigan are snared and used to a very limited extent. Muskrat meat is an important late winter or early spring food for Eskimo families who still establish spring camps out on the tundra. They may also obtain limited numbers of geese and ducks, and spruce hens—but only enough to meet daily family food needs.</p>
	Smelts	<p>Immediately after the ice goes out of the river in May, smelts are obtained in good quantity by dip-netting. Most of the catch is dried and stored for dog feed. King salmon, which feed on the smelts, are the next on the list of fish obtained in quantity from the river.</p>
	Salmon	<p>They are used fresh in season, but the major portion of the catch is dried for future human consumption. Smaller amounts of this fish may be salted, smoked or canned. Most families preserve 25-50 pounds of king salmon roe for human consumption, but the bulk of it is stored in barrels or kegs and used for dog feed.</p>
	Sourdock	<p>Sourdock is no longer stored in quantity as it was formerly. Only a few families gather it to any extent.</p>
	Squirrels	<p>Ground squirrels, the meat of which is relished as human food and the skins for making parkas, are still used in moderate amounts.</p>
Bear (black or brown)	<p>Only an occasional bear is caught.</p>	

Season	Foods Available	Remarks
<b>SUMMER</b> (July- August)	Salmon (Dog, Silver) Whitefish Sheefish	The netting and preparation of dog salmon for future use continues throughout most of July. A smaller run of silver salmon follows, most of which is either salted or dried for winter use. Whitefish and sheefish are obtained in limited amounts, usually by netting or with fish traps.
	Berries	Most years moderate supplies of cloudberries are available from the surrounding tundra—usually from mid to late July. Later in the season low-bush cranberries and crowberries are also obtained. Each family stores from 50 to 200 pounds or more of berries for winter use.
	Seal (meat and oil)	Most families obtain limited amounts of seal meat and from 1 to 2 pokes of seal oil, averaging about 65 pounds each, by cash purchase from Kipnuk and Nunivak Island Eskimos visiting the Bethel area.

**CHART VII: NAPASKIAK**  
**(Southwest Interior River-Tundra Eskimo)**

Season	Foods Available	Remarks
FALL	Ducks Geese	Ducks and geese continue to be available at least during the early part of the season. Very limited supplies of geese are salted for winter use.
	Moose	Moose are not available near the village but in recent years a few of the young hunters have gone upriver to hunt them during the open season. Only 3 moose were brought back to the village in 1958. Most hunters are unable to finance trips of this kind.
	Whitefish Ling Cod Pike Blackfish	Early in the season whitefish are obtained from tundra lakes and ponds; pike and ling cod are obtained first from neighboring sloughs and after freeze-up from the river. Families which still establish fall camps on the tundra usually get large quantities. Blackfish are available in October.
	Seal and Seal Oil	A few men from the village go sealing at the mouth of the Kuskokwim River, but most Napaskiak families obtain seal meat and oil by purchase from the coastal Eskimos. The usual cost in 1958 was \$5 to \$10 per carcass and \$20 to \$30 per seal poke (50 to 100 pounds) of oil. An estimated 2000 pounds of meat and oil are purchased yearly (Bureau of Indian Affairs Economic Report) (11).
	Berries	Lowbush cranberries and crowberries are usually available in quantity from this area. They are eaten almost daily in season and moderate amounts, much less than in the past, are stored for winter use. Only about $\frac{1}{4}$ to $\frac{1}{5}$ of the families establish fall berry and fish camps; the rest depend on what is available in the local area.

Season	Foods Available	Remarks
WINTER	<p><i>Fish</i> Ling Cod Pike Sheefish Blackfish</p> <p><i>Small Game</i> Mink Rabbit Ptarmigan Muskrats</p>	<p>Through November and December there is sporadic fishing for ling cod and pike and from November through March for sheefish through the river ice. They are not available in large quantities. From mid-March on blackfish are caught in willow root traps in nearby sloughs and other suitable waterways often in goodly amounts.</p> <p>Mink are trapped and rabbits snared from mid-December on. The yearly estimate of rabbit meat consumed is about 200 pounds for the entire village. Some years there are very few available. The meat of the mink is eaten, the skins sold. The year (1956) Oswalt (75) was in residence the average catch per trapper was 10-15 mink. Ptarmigan and rabbits are usually available and obtained by means of snares from about December through April or May. Muskrats are trapped in early April.</p>
SPRING	<p>Blackfish Whitefish Pike Smelts King Salmon Sheefish</p> <p>Muskrats</p>	<p>Early in the season blackfish are still obtained from tundra sloughs and ponds, using willow root traps. Relatively small amounts of pike are obtained from sloughs in the neighborhood of the village, and whitefish from tundra lakes and ponds; the latter fish are more important in the diet of those families establishing spring camps on the tundra. In late May, after the ice has gone from the river, smelts ascend the river and considerable quantities are obtained using dip nets. Any excess to immediate needs is dried for winter use, mostly as dog feed. The smelt run is closely followed by the king salmon run (early June). They are usually available in good amounts and obtained with both set and drift nets. Most of the catch is dried although some families do salt moderate amounts. A few sheefish may also be caught in the nets.</p> <p>This animal is obtained usually in good quantity in early May by trapping in</p>

Season	Foods Available	Remarks
SUMMER	Muskrats, continued	in tundra lakes and sloughs. The meat is eaten fresh and any excess beyond immediate needs is dried; the skins are sold.
	Birds and Eggs	Ptarmigan and wildfowl and wildfowl eggs are obtained out on the tundra but are used in considerably lesser quantities than formerly since very few families now establish traditional spring camps (May), although some muskrats and wildfowl are obtained near the village environs.
	Greens	Sourdock ( <i>Rumex artica</i> ) is the most common wild edible green in this area. While many families still gather this green they do so less assiduously than in the past. Only minimal amounts are stored for winter use.
	Seal	A few men still go down river near Eek to hunt seal but the number obtained is small—about 5 to 6.
	Salmon Dog Red King Silver	Early in the season, both red and dog salmon, but especially the latter, are usually obtained in abundance. Only an occasional king salmon is caught at this time. Later in the season (August) silver salmon are also available in good quantity. All of these fish are used fresh in season but most of them are dried for winter use. A significant portion may also be salted or putrified by burying them in ground pits.
	Pike	Only an occasional pike is taken from the river throughout this season.
	Whitefish	Significant quantities of whitefish are obtained from the Johnson River which enters the Kuskokwim River about 20 miles below the village.
	Greens	Sourdock, willow leaves and other greens are collected in moderate amounts throughout the early part of the season,

Season	Foods Available	Remarks
	Greens, continued	mostly from wet places on the nearby tundra.
	Wildfowl	Ducks and geese are obtainable late in the season, usually in limited quantities and for immediate use only.
	Berries	A number of families still collect moderate quantities of cloudberry, mostly from their spring trapping and camping areas.

**CHART VIII: KASIGLUK**  
**(Southwest Tundra Eskimo)**

Season	Foods Available	Remarks
FALL	Berries	The harvesting of cloudberries and other berries is continuous throughout the fall.
	Ducks Geese	Most of the wildfowl obtained during the fall of the year are used fresh in season and only moderate amounts are preserved by salting.
	Pike Whitefish	Pike, but primarily whitefish, are available in good quantity at this season of the year, the latter being obtained by dip netting. In the fall the men construct a willow fence across the Willidulli Slough. During the fish run they dip from their boats moored at this fence day and night as long as the run lasts. Most of the fish catch is air-dried. The liver, stomach, intestines, roe and visceral fat are highly prized as human food and used in a variety of mixtures.
WINTER	Pike Whitefish Ling cod Blackfish	Sporadic fishing is continuous throughout the winter season. Pike, whitefish, ling cod and blackfish are obtained in moderate amounts usually in quantities sufficient to satisfy day to day needs only.
	Mink	Mink are trapped, mostly in November, in limited numbers. The meat is used for both human and dog food; the furs are sold.
	Rabbits	Rabbits are caught with snares, mostly in November and December. They are rarely available in significant numbers.
	Willow Ptarmigan	Ptarmigan are caught with snares in winter and early spring, but are not usually available in large numbers, except in an occasional year.

Season	Foods Available	Remarks
SPRING	Whitefish Pike	Pike and whitefish, especially the latter, are obtained in good numbers from the Willidulli Slough that flows through the village; and from neighboring lakes and sloughs, after the ice has gone out in May. Fresh fish are used in season, but the bulk of the catch is dried for the next winter's use. A few families usually stay at the village year round and fish almost continuously for whitefish.
	Salmon	Salmon is not available at the village site, but almost the entire population moves to traditional fish camp sites on the banks of the Kuskokwim River near Bethel. The people leave Kasigluk in May, soon after the ice disappears from the rivers, and do not return to their village until late August or early September. The first salmon to appear are the kings. Considerable quantities are dried and stored for use on winter diets.
	Muskrats	To obtain even limited numbers of this small animal requires much travel in the local tundra area. The meat is eaten fresh and when plentiful moderate supplies are dried for future use.
SUMMER	Salmon Dog Red Silver	The biggest salmon run in the Kuskokwim River is that of the dog salmon in July. Large amounts are dried for winter use. They are the most important dietary item for both humans and dogs in the Kuskokwim River basin. Later in the season more limited runs of red and silver salmon occur.
	Wildfowl	Wildfowl are much less important in the late spring and summer diet of these people than they were in the past. Until recent times large numbers were secured by "rounding up" the immature and molting birds. This practice has now been discontinued.

Season	Foods Available	Remarks
	Berries Cloud-berries Low-bush cranberries Crowberries Blueberries	<p>Cloudberries are available in late July. They are not collected in the amounts they formerly were, due chiefly to the fact that few families now establish summer camps for this purpose. The able-bodied men from most families now obtain summer employment at the canneries, at Bethel or wherever they can find it. Their families stay either at the village, or at their fish camps near Bethel or at Bethel itself. Late in the season other berries, particularly crowberries, blueberries and low-bush cranberries are harvested in variable amounts from the tundra in both the Kasigluk and Bethel areas. From 100 to 200 pounds or more are stored for winter use by many families; considerably less by others.</p>

**CHART IX: HOOPER BAY**  
**(Southwest-Coastal Eskimo)**

Season	Foods Available	Remarks
FALL	Berries	Crowberry and low-bush cranberry are collected in considerable quantity by most families.
	Fish	The annual tom cod run occurs in September and they are usually available in sufficient quantities so that sizeable supplies are either dried or prepared as 'pokefish'. Occasionally, as in 1956, there is no tom cod run. Significant amounts of blackfish (from 1000 to 4000 pounds depending on the year) are caught in traps set in the surrounding sloughs or they may be obtained in the Kashunuk area.
	Vegetable	Mouse food or "mousenuts" as they are locally called consisting of the young tender seedlings of native grasses and bits of root from several tundra plants - which the field rodents have stored in underground caches for their own winter use, are often gathered by the women in the late fall. One to two large gunny sacks full per family may be collected and stored. Some years, as in 1957, 1960 and 1961, none were available. "Mousenuts" are most often used as a soup ingredient. A few families still collect moderate amounts of the plant called Tayahuk ( <i>Hippuris vulgaris</i> ) which grows in shallow tundra ponds. The portion gathered is that which protrudes above the ice after freeze-up. They are fairly plentiful in the immediate village environs. They are most commonly used along with dried fish roe as a soup ingredient.
WINTER	Blackfish Needlefish Ling cod Smelts	From November through December the men continue to trap the sloughs for blackfish but usually only enough are taken for a few meals at a time. Also at

Season	Foods Available	Remarks
	Blackfish continued	<p>this time a few of the men may go to the Cottock River, about 20 miles away, for whitefish. These fish obtained by netting under the ice are not always available in significant quantities. From November through March needlefish (sticklebacks and dace) are trapped in certain sloughs in the Hooper Bay—Scammon Bay—Kashunuk area. To obtain them usually necessitates traveling from slough to slough, sometimes considerable distances from the village. One hundred to five hundred pounds per family per year is the usual catch. They are used both as dog and human food. In January and February there is sporadic fishing for ling cod. They are caught with traps under the ice in rivers and lakes, usually at about 20 miles distance from the village. They are not plentiful. Sometimes in April, if shore ice conditions are suitable, there is a tom cod run, sometimes accompanied by smelts. The supply of both varies from year to year.</p>
	Seal	<p>Hunting for seal and ugruk continues intermittently throughout most of the winter. This activity is most productive when it is possible to hunt in open leads between ice floes, from about mid-March until the ice goes out in late May or early June. During the winter of 1956-57, seal hunting was poor due to extremely dangerous shore conditions followed by an unusually early ice "break-up". In 1957-58, however, sealing was considered especially good. The Bureau of Indian Affairs Economic Report (11) listed that year's take for the entire village at 680 seals and 53 ugruk.</p>
	Walrus	<p>A few walrus—only 7 in 1958—are taken each year.</p>
	Mink	<p>Mink are trapped from 'freeze-up' on. The furs are sold and the meat is used mostly for dog food.</p>

Season	Foods Available	Remarks
SPRING	Rabbits	Arctic hare are found in limited numbers in the area, probably furnishing at most a total of 100 to 200 pounds of meat per year.
	Seal	Seal and ugruk hunting continues in the open lanes among the ice floes until the ice goes out of the bay. It may be fairly productive but is totally dependent on shore ice conditions.
	Muskrat Mink	After the ice in the neighboring sloughs and ponds begins to melt muskrat are hunted but they are not always plentiful in the area. A kayak is still needed to get around successfully in this area at this time of the year. The 1958 catch of mink and muskrat was estimated at 2500 animals, or approximately 33 per family.
	Herring	Most years there is a significant herring run in late May or early June; but occasionally there is a year when the run completely bypasses Hooper Bay.
	Salmon King Dog Silver	Next to wildfowl, salmon is the most important food in this area. The kings arrive first, followed by dog salmon and, later in the season by a substantial silver salmon run. Most of the latter are prepared as 'poke fish' and are important on winter diets.
	Clams	Clams are available in June in quantities, up to 20 quarts per family per year, usually sufficient for immediate consumption only.
	Beluga	This animal, called <i>cheetak</i> at Hooper Bay and <i>beluga</i> elsewhere, is available either in late May or early June. Only a few are taken each year. The 1958 estimate was 6.
	Wildfowl and their eggs	From late April until about the first of June, various wildfowl, particularly ducks, geese, cranes and swans, arrive in tremendous numbers. Many are just

Season	Foods Available	Remarks
SUMMER	Wildfowl, continued	<p>passing over on their migration north but large numbers of certain species remain to nest and breed in the area. Brandt (15) lists 54 species of birds nesting in this area with waterfowl the dominant group. Several of these birds and their eggs are important foods in the dietary of the Hooper Bay Eskimo and many families may store moderate amounts for future use—either by salting or drying. The Bureau of Indian Affairs 1958 estimate of the Hooper Bay take was 500 dozen wildfowl eggs and 2310 waterfowl, mostly ducks and geese (11). This amounts to approximately one dozen eggs and 54 birds per person for the entire village.</p>
	Ptarmigan	Ptarmigan also nest in the area and significant numbers are caught.
	Edible greens	Wild edible greens, mostly sourdock but also significant amounts of marsh marigold, are obtained from late May through June. This food is enjoyed fresh in season but a few families still store moderate amounts for winter use.
	Whitefish Salmon Silver Dog	Silver and dog salmon are sometimes available in good quantity the first part of July but only if there are favorable north winds. During August there is sporadic fishing for whitefish. They are not available in significant quantities.
	Wildfowl	In past times, the latter part of July was the best time for "rounding up" immature and moulting ducks and geese but this method of obtaining them is no longer practiced. However, there is continued hunting for wildfowl by individual hunters throughout the summer. According to Petroff (13), "the autumn migration of birds passing south begins the latter part of July and only a few of the hardier waterfowl remain by the end of September."

Season	Foods Available	Remarks
	Berries	During late July and continuing on into September a variety of berries are gathered in quantity; sometimes as much as 100 to 300 pounds per family are stored for winter use. The most important berries are the cloudberry, the crowberry and the low-bush cranberry.

**CHART X: NEWTOK**  
**(Southwest Tundra-Coastal Eskimo)**

Season	Foods Available	Remarks
FALL	Muskrat	Considerable numbers of muskrat are caught by most families. Any meat excess to immediate needs is dried; the skins are either sold or used to make parkas.
	Seal	The large bearded seal, called "mukluk" locally, and the spotted seal are occasionally caught at this time of the year, usually in the bay waters near old Keyaluvik. In some years they are obtainable in goodly numbers.
	Tom cod Blackfish	Moderate amounts of tom cod are available. Most of the catch is dried for winter use except for the livers which are used fresh. Throughout September, moderate quantities of blackfish are caught in willowroot baskets in tundra ponds and small streams.
	Berries	Cloudberries, crowberries, blueberries and especially low-bush cranberries are collected and used, but generally not in sufficient quantities for storage as the numerous quaking bogs in the general area make gathering them difficult.
WINTER	Blackfish Needlefish	Blackfish and needlefish, especially the latter, are usually obtained intermittently throughout the winter season but in especially good quantities in November and December.
	Seals	The serious hunting of seals starts after Christmas when the men make overnight trips to the coast to obtain them. Seals are most plentiful, however, in April and May at which time the entire family may move to traditional camp sites near old Keyaluvik on the mainland and/or on Nelson Island.

Season	Foods Available	Remarks
SPRING	Seal	If shore ice conditions are satisfactory, sealing at the traditional camp sites may continue well into May. Only an occasional seal is caught after the ice goes out of the Bay.
	Herring Smelt Flounder Sculpins	Herring are usually available in good quantity. The dried or 'poke' herring is one of the most important foods found on the winter dietary. Occasionally, as in 1960, excessively wet weather prevents proper drying of the fish and as much as 50% of the catch may be lost through spoilage. A smelt run sometimes follows the herring run but not every year; there was none in 1957. A relatively small species of flounder is caught with nets at sea and in what is called locally the 'big river', a narrow waterway flowing between Baird Inlet and the sea which separates Nelson Island from the mainland. Some of this fish is eaten fresh but most of it is dried for dog feed. Sculpins, locally called devilfish, are also available in limited supply.
	Wildfowl	Wildfowl, mostly ducks and geese, which nest in the fish camp area, and their eggs are available in significant quantities and are important on the spring dietary. They are not stored to any great extent for winter use.
	Sourdock	Sourdock is available in the general area, and is eaten fresh and cooked; usually only enough is available to satisfy immediate needs.
SUMMER	Herring Flounder	The summer fishing season is much like that of late spring with continued supplies of herring and flounder caught and dried. Large quantities of herring eggs are also dried and used primarily for dog feed.
	Seal Wildfowl Greens Muskrats	Only an occasional seal, a few ducks and geese, sourdock in limited amounts and a few muskrat (August) are available at this season.

## THREE FOOD QUEST PATTERNS OF THE PAST

### AKIAK

The mountain Eskimo left the village sometime in April or early May for their campsites at the headwaters of the Kisaralik River. Among the animals hunted in this area were beaver, caribou, brown and black bear, ground squirrel and the hoary marmot. The latter two animals were caught in snares, the noose being made of the soft part of the large vein of bird feathers and the cord from the pliable inner bark of the willow.

Trout, mostly Dolly Varden, were hooked through the ice in the several large lakes in the area.

In early June, after the ice had disappeared from rivers and lakes, fish camps were established and here the people fished throughout the summer and early fall, obtaining good quantities of dog and red salmon mostly by trapping. The trap used was similar in structure to that used for blackfish, but much larger. It was made from the inner bark of the spruce. In addition, a few king salmon were speared, and a few Dolly Varden and other trout were caught.

All of these fish were used fresh-cooked in season, but the bulk of the salmon catch was dried for winter use. The dried fish roe were put in birch baskets and buried in 2 foot deep ground pits which were covered securely, first with grass and then with dirt. They were not opened until the following April when the people returned to the mountain at which time the roe were generally used as a soup ingredient.

Sourdock (*kwakchuck*) was collected and used fresh in season, usually with fish broth to make a soup. Moderate amounts were stored for winter use.

On the way back to the village in the fall of the year, "mouse nuts" and berries were usually collected in quantity; the latter were stored in birch bark-lined ground pits, covered securely and left there until freeze-up when sled travel was practical. They were then dug up and taken to the winter headquarters.

At the village site, from late fall and intermittently throughout the winter, limited supplies of whitefish, sheefish or ling cod were taken in traps set under the river ice; pike by hooking through holes in the ice and blackfish in willow root traps set under ice in nearby tundra sloughs and ponds.

Hunting and fishing during fall and winter were much the same as they are today, but, according to my informant, they were pursued much more industriously in the past.

## NOATAK

According to our information the present day population is made up of two distinct groups of Eskimo—the Napatamiut or timber people and the Noatakmiut, or people of the Noatak River. While they now live together in the same village, in the past these two groups lived and hunted somewhat differently.

In winter the Napatamiut lived in temporary dwellings made of logs covered with a thick layer of sphagnum moss and dirt. A center opening in the roof or a skylight window allowed for the escape of smoke from cooking and heating fires. New houses were built every year. These winter homes were built in areas where it was possible for the family to fish through the ice for trout, grayling and whitefish all winter.

In late winter, about April, the men repaired their sleds or built new ones, using locally available spruce. When repairs were completed, the entire family with most of their worldly possessions travelled to the spring camp site at Sealing Point on Kotzebue Sound. Since the dog teams were small—usually one to five dogs at the most—the women often had to pull the sled with the men pushing from behind.

From their base camp at the Point, the men hunted seals, although occasionally the entire family would camp out on the ice. Their method of preparing a cooking place while at these "ice camps" was to first, lay down a heavy layer of dried sphagnum moss directly on the ice which was then topped with a heavy layer of sand followed by a layer of pebble rock. Sufficient insulation was thus provided to prevent the ice underneath from melting during the cooking period.

After the "ice break-up" in Kotzebue Sound, the families would go by oomaypak (large skin boat) to Sheshaulik—the place for beluga hunting near present day Kotzebue. From this camp the men hunted both ugruk and beluga whale and the women spent long hours drying the meat and preparing the blubber oil and other products for storage.

Wildfowl, rabbits, bird eggs (ducks, geese, gull and murre) and fish were obtained in quantities sufficient for daily use only. Late in the season the women gathered good quantities of berries, mostly cloudberry and blueberries, which they took back to their winter homes.

Near the end of summer or in early fall the people returned to their winter home sites, stored their dried meat, oil and other food supplies in deep, cold ground pits, and then proceeded farther upriver, camping here and there wherever the women could fish for trout, grayling, whitefish and salmon, do some berry picking

and hunt for mice caches from which they often secured good quantities of edible roots. Meanwhile, the men, usually in small groups, proceeded toward the mountains to hunt caribou, bear and mountain sheep. Before "freeze-up" the entire family returned to their winter home.

The people who called themselves the Noatakmiut, on the other hand, lived upriver from the Napatamiut. They did not form a village but lived in scattered campsites along the river or in the surrounding hills where they stayed from before "freeze-up" in the fall until the "ice break-up" the following June. The men hunted in small groups for caribou, bear and mountain sheep or fished through the ice in the numerous lakes and ponds for trout, grayling and whitefish with nets made of caribou or beluga sinew.

After "ice break-up" in June, family groups travelled by skin boats down the Noatak River to Sheshaulik on Kotzebue Sound. Here the men in their kayaks in groups of two or more, hunted the beluga whale. While at their Sheshaulik camp these people also hunted wildfowl and rabbits, gathered the eggs of nesting ducks, geese, gulls and murrees and picked large quantities of berries. They also carried on considerable trade with the Eskimos of Wales, Shishmaref, Diomedea and Kobuk who gathered at Kotzebue annually for that purpose.

The Noatakmiut usually remained in the Kotzebue Sound area until just before "freeze-up" was imminent. Since the river was low at this time of the year the return trip upriver was often very arduous. They sometimes had to harness their dogs, let them run along the shore and help pull the boats over the shallows.

## SHUNGNAK

In late May or early June, as soon as the ice began to move out of the Kobuk River, the people loaded their skin boats with members of the family, supplies of jade and the skins of caribou, lynx, land otter, fox and beaver (obtained during the winter hunting and trapping or by trade with the Koyukuk Indians) and travelled down river to Kotzebue, often right behind the moving river ice. Here they spent part of the summer trading their goods in exchange for seal oil, ugruk hides and rawhide rope, ivory, hunting gear and such other trade goods as were available. Some of the men also hunted ugruk in Kotzebue Sound.

Most of the people returned to the upper Kobuk area by mid-summer, scattering to their family fish camp sites all along the river. Then as now the women had the major responsibility for securing and preparing the dog salmon catch for winter use.

The men, either singly or, preferably, in small groups, hunted the neighboring hills and mountains for a variety of animals, particularly ground squirrels, bears, mountain sheep and marmots. They also hunted in the upper Noatak River drainage area for caribou and marmots (*asiksikpuk*) but on occasion they roamed much farther north to Anaktuvuk Pass and even farther to the east into Canada.

Late in the fall the men returned to the Kobuk area, usually in time to obtain whitefish and sheefish. Netting and spearing were the usual techniques used, the latter method facilitated by damming shallow portions of the river with cottonwood trees.

Ptarmigan, spruce hens, ducks, geese and, in some years, snowy owls were also obtained at this time of the year.

Earlier as well as now these people depended primarily on caribou for their food supply during the winter months. In an open winter with little snow, the caribou herds would wander over large areas in their search for food. The hunter and his family would follow the migration routes changing camp when necessary. When the snowfall was heavy, small herds became stranded or otherwise separated from the main herd and confined to a rather circumscribed feeding area, making it possible for families to establish more permanent camps where they often remained until spring. Sometimes hunting parties, and family groups too, would range over an area of 50 miles or more; frequently they travelled much farther in search of moose and other game. Caribou, however, provided not only their main winter food supply but also the source of material for making tents, sleeping bags and winter clothing.

Present day Kobuk—about five miles upriver from Shungnak—was the traditional winter campsite for many of these people. The population fluctuated considerably during the season; at times it might be as high as 200 or more. Most of the trading with the Koyukuk Indians took place here, although it was by no means unusual for the Kobuk Eskimos to travel north to Anaktuvuk, east to the Yukon Territory, Canada, and southeast to the Koyukuk Indian camps. One of the present day village elders spent several years of his young adulthood among the Koyukuk Indians.

The Kobuk Eskimo was the middleman between the coastal Eskimo and the Indians. The older people of present day Allakaket, an Athapascan Indian village on the Koyukuk River, still remember that seal oil, obtained in these trades, was a regular part of their diet.

Since much of the Kobuk campsite flooded in the spring when the ice went out of the river (May), small groups of related

families established temporary camps on higher ground in the same general area. At this time they subsisted on the remains of their winter food stores supplemented by fresh wildfowl—now on their way north—and muskrat which was plentiful in some locations.

In early June, sheefish and whitefish were available in quantity provided there was enough melt-off from the winter snows to cause the river to rise significantly. If the rise was not sufficient the fish were slow to migrate upriver and by then many families had already left for their summer sojourn at Kotzebue.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1967—O 219-309