INFORMATION
FOR PROSPECTIVE SETTLERS
IN ALASKA

Circular No. 1

COLLEGE, ALASKA
Reissued and Revised June 15, 1937.
G. W. Gasser, Director
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INFORMATION
FOR PROSPECTIVE SETTLERS
IN ALASKA

This circular was originally issued May 11, 1916 by Dr. C. C. Georgeson, Agronomist in charge, Alaska Agricultural Experiment Stations, revised by him in 1917 and 1923. A revision was issued in 1930 by Dr. H. W. Alberts, Director of Alaska Agricultural Experiment Stations at that time.

Due to many changes in the last seven years, a further revision is necessary at this time.

Circular number one is designed to give prospective settlers in Alaska, and particularly homesteaders, information on subjects which will be of more or less vital interest to them. It is designed also to call their attention to many factors about which they should be informed before settling in a new and comparatively little known territory.

Most of Alaska lies between the same parallels of latitude as Norway, Sweden, Finland, and one-third of Russia, which have a population of over ten million. Alaska embraces about 570,000 square miles of territory. It has been demonstrated both at the Experiment Stations and by hundreds of settlers scattered over the country that the Territory has agricultural capabilities of considerable range. Detailed information can be obtained in the annual and progress reports of the Alaska Agricultural Experiment Station, College, Alaska. In recent years considerable publicity has been given to the agricultural possibilities of the Matanuska and Tanana Valleys. These regions have fertile soil and are well suited to the production of certain kinds of foodstuffs. The Government railway traverses both valleys and has made them accessible to settlers.

In this circular an attempt will be made to answer, so far as possible, the questions which prospective settlers in the Territory would naturally ask and which are addressed to the Experiment Station and others in every mail. Since it would be impossible to give comprehensive answers to all of the questions within the limits of this circular, discussions on the subjects covered must be brief.

CLIMATE

From the homesteader's standpoint, information as to climatic conditions is of paramount importance. (Tables 1, 2 and 3.) Speaking generally and briefly, Alaska has three climatic belts, known respectively, as the coast region, the interior, and the Arctic.
### TABLE 1
Average Annual Precipitation$^1$ and Mean and Extremes of Temperature at Various places in the Coast Region of Alaska
(By United States Weather Bureau)

<table>
<thead>
<tr>
<th>Locality</th>
<th>Length of Record Years</th>
<th>Average Annual Precipitation Inches</th>
<th>Average Annual Snowfall Inches</th>
<th>Temperature Mean Maxi- Minu-</th>
<th>Mini-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketchikan</td>
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<td>89</td>
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<td>25.0</td>
<td>84</td>
</tr>
</tbody>
</table>

1Precipitation includes rain and melted snow.
2Minus sign indicates below zero.

### TABLE 2
Average Annual Precipitation$^1$ and Mean and Extremes of Temperature at Various Places in the Interior of Alaska
(By United States Weather Bureau)

<table>
<thead>
<tr>
<th>Locality</th>
<th>Length of Record Years</th>
<th>Average Annual Precipitation Inches</th>
<th>Average Annual Snowfall Inches</th>
<th>Temperature Mean Maxi- Min-</th>
<th>Mini-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allakaket</td>
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</tbody>
</table>

1Precipitation includes rain and melted snow.
2Minus sign indicates below zero.
3Record taken at Experiment Station, four miles westnorthwest of Fairbanks and fifty feet higher elevation.
4No snowfall data available for Sunrise.


**TABLE 3**
Mean Temperature for January and July at Various Places in the Interior and in the Coast Regions of Alaska

<table>
<thead>
<tr>
<th>Locality</th>
<th>Length of Record Years</th>
<th>January Mean Temperature °F</th>
<th>July Mean Temperature °F</th>
</tr>
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<td>59.1</td>
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<td>Rampart</td>
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<td>59.4</td>
</tr>
<tr>
<td>Sunrise</td>
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<td>10.7</td>
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<tr>
<td>Talkeetna</td>
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<td>7.0</td>
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</tr>
<tr>
<td><strong>COAST REGION:</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ketchikan</td>
<td>25</td>
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<td>57.4</td>
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<tr>
<td>Juneau</td>
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<td>Skagway</td>
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<td>Killisnoo</td>
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</tr>
<tr>
<td>Sitka</td>
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<td>32.3</td>
<td>54.9</td>
</tr>
<tr>
<td>Cordova</td>
<td>23</td>
<td>26.5</td>
<td>54.3</td>
</tr>
<tr>
<td>Valdez</td>
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<td>18.9</td>
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<tr>
<td>Seward</td>
<td>23</td>
<td>21.2</td>
<td>55.2</td>
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<td>Homer</td>
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<td>19.7</td>
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</tr>
<tr>
<td>Kenai</td>
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<td>Anchorage</td>
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<td>Kodiak</td>
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<td>Bethel</td>
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<td>St. Paul Island</td>
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<tr>
<td>Nome</td>
<td>29</td>
<td>2.8</td>
<td>49.7</td>
</tr>
</tbody>
</table>

¹Minus sign indicates zero.
³Record taken at Experiment Station, four miles westnorthwest of Fairbanks and fifty feet higher elevation.

**Coast Region**

This belt extends from the southern boundary of Alaska, latitude 54° 40', longitude 131° West, to the Seward Peninsula, which lies at the entrance to the Arctic Ocean. There is great variation in precipitation throughout this belt as is shown by the figures given in the tables. Beginning with the most southern places for which there are records and following the coast line to Nome, the average annual precipitation, including melted snow, and also the mean and extreme temperature from the warmest to the coldest during the same period of years, may be noted.

It is further to be noted that the heavy precipitation of the coast region is conducive to luxuriant vegetation. A heavy growth of grass is found wher-
ever it is not crowded out by tree growth. The heavy rainfall enables spruce, hemlock, and cedar to attain large size and to maintain a foothold on the steep mountain sides where there is but little soil. All forms of hardy vegetables thrive well in this coast belt, but grain growing is not a success. The rains keep grain crops green and growing beyond the period when they ought to mature, except in rare seasons which are drier than normal, and the fall rains usually prevent the farmer from saving his grain after it has matured. Except in a few limited areas, as, for example, in the Haines country, where the rainfall is comparatively light, grain growing cannot be made a success on the coast.

**Interior**

As compared with the coast region the interior has a light precipitation, cold winters, and comparatively warm but short summers.

The noteworthy feature in the interior, as compared with the coast region, is the much lighter precipitation of rain and snow. While a drought is unknown in the coast region, it is not unusual for the interior to suffer from a period of dry weather. The period of least precipitation generally occurs during the late winter and early spring months and extends into June. It is evident that crops are not materially affected by the lack of precipitation during early spring. In fact, it is an advantage from the cropping standpoint because then seeding may progress uninterruptedly. During July and August precipitation is on the increase so that very often when crops are ripening and the time of harvest is at hand, there is considerable rainy, overcast weather which seriously interferes with this work.

In the interior, as compared with the coast region, the growth of native trees and shrubs is not so luxuriant, but more nearly approaches that of normal crops of grass and grain in the States. While the fall rains interfere with the curing of the crops, there is generally sufficient dry weather to harvest them without much loss.

Continued rains in the coast region frequently interfere with farm work. On the other hand, extreme cold weather of the interior, where the temperature sometimes falls to $-66^\circ$ F., or lower, restricts outdoor activities. It is further to be noted that they do not affect farm work to any noticeable extent, because there is no field work that can be done at that time of the year. The summers are sometimes uncomfortably warm in the interior—the temperature at Fairbanks has occasionally reached $96^\circ$ F., but these hot spells are of short duration.

The precipitation above referred to includes both rainfall and melted snow, and both vary greatly from year to year, as well as with the locality. In Prince William Sound, for instance, the snowfall is usually comparatively heavy, reaching at times as much as 20 feet or even more during the winter; but in southeastern Alaska and in the Arctic regions, there is comparatively little snow. The records show several winters at Sitka when there has been less than a foot of snow on the ground at any time.

In the interior the snowfall varies in like manner with local conditions. At Fairbanks the normal snowfall is about four feet. Snow begins to fall in October and gradually accumulates during the entire winter until the total amount measures between three and four feet. However, there is an occasional year with very heavy snowfall as, for example, the winter of 1936-1937 when during January alone the fall of snow amounted to 65.6 inches. The total snowfall for the winter was 133.5 inches, but due to warm spells and
some rain, greatest depth of snow was 62 inches on the level. There is sometimes a thaw during the winter, which never lasts long enough, however, to melt the snow from the ground. A comparatively heavy snowfall is a decided advantage to the farmer because it protects his winter crops from the effects of extremely low temperatures.

The Arctic

The climate of the Arctic region is unfavorable to the growth of farm crops. Although the total annual precipitation is only five to ten inches, the tundra regions are wet throughout the summer. The mosses and lichens abounding in the region form an insulation and keep the ground perpetually frozen, except for some few inches below the surface for several months in summer. Nevertheless, at several points above the Arctic Circle, such as at Shungnak and Wiseman, excellent vegetables are grown.

AGRICULTURAL AREAS

Alaska is estimated to contain approximately 65,000 square miles of tillable land which can be made available for agriculture and an additional 35,000 square miles suitable for grazing. The total agricultural area is, therefore, as large as the combined areas of the States of Pennsylvania, Maryland, Delaware, New Jersey, Connecticut, Massachusetts, Vermont, and New Hampshire, and potentially is believed to be capable of supporting a population nearly equal to that supported by the agricultural products of those States. The principal areas are found in the Matanuska Valley, the Kenai Peninsula, the Tanana Valley, the Kuskokwim Valley, and the Yukon Valley.

There is another considerable body of agricultural land north of the Tanana River, between the Tanana and Fortymile, and more particularly along the South Fork of the Fortymile River. It has been estimated to contain 750,000 acres. This will probably prove to be one of the most productive regions of Alaska when developed. This large area has as yet no transportation facilities worthy of mention. The Bates Rapids in the Tanana River, some distance beyond Fairbanks, are of such a nature that only small and very powerful boats can pass them, and due chiefly to this cause there are very few boats that navigate to the upper Tanana.

Certain areas at the head of bays and in the river valleys in southeastern Alaska produce truck crops, and some of the grassy tide flats are utilized for grazing. The treeless islands of southwestern Alaska and the plateaus in the mountains near Healy give promise of proving to be suitable for range stock.

Alaska is a hilly country, and only the gentler slopes of these hills are arable. It should also be stated that there are no prairies in Alaska such as characterize the middle-western United States. Practically every foot of soil has to be cleared before it can be put under cultivation. In the coast region, as far west as Cook Inlet, there is a heavy growth of timber, and ordinarily it is too expensive to clear at this stage of development. A century hence the settler may encroach upon the forest in this region. West of Cook Inlet there is comparatively little timber, but, on the other hand, there is a wealth of small bushes and grass and this region will, therefore, be chiefly suited to stock raising. The interior valleys are covered with timber, bushes, and moss, but of a much lighter growth than is found in the coast region. Clearing is, therefore, easier. Timber has been heavily drawn upon for fuel, lumber, and mining. Fires have destroyed even larger amounts, particularly on south
slope land. Much desirable homestead land is, therefore, lacking in timber for building purposes and sometimes even for firewood. Such land is easier to clear than where virgin forests maintain but the depletion of organic matter must be taken into account. The settler must fix this fact in his mind, that wherever he goes he must clear the land of more or less heavy growth of timber and bushes before it can be made ready for cultivation. The present use of a heavy breaking plow, tractor drawn, has lessened the manual labor of breaking new land.

![Breaking new land with tractor-drawn breaking plow.](image)

**Matanuska Valley**

**LOCATION**—The Matanuska Valley is located between parallels 61 and 62° North latitude and meridians 149 and 150° West longitude. It is bounded on the north by the Talkeetna Mountains, on the east and south by the Chugach Mountains, and on the west by the vast level plain of the Susitna River. The Matanuska Valley lies at the head of Knik Arm of Cook Inlet about 125 miles in a direct line from the south coast of Alaska, and is traversed by the Alaska Railroad.

**CLIMATE**—The latitude of the Matanuska Valley gives it long winters, short summers, and a great variation in the length of day between winter and summer. About the summer solstice the sun is below the horizon for only a few hours, and during this time there is no real darkness. The climatic conditions in this valley are transitional between those along the coast and those in the interior. Grain can be grown as in the interior, but the winters are much milder and the growing season much longer. The climate is influenced principally by the relatively warm waters of the Pacific Ocean on the south,
the Alaska Range beyond the Susitna Plains on the west, the Talkeetna Mountains on the north, and the Chugach Mountains on the east. The moisture-laden winds from the Pacific Ocean through Cook Inlet sweep against the high mountains, and this, in turn, causes a precipitation of rain and snow over the entire region. The effectiveness of the mountains as barriers to the passage of moisture is indicated by the veil of fog and cloud that hangs so frequently over the southern slopes of the peaks in contrast with the prevailing clear atmosphere and cloudless skies of the northern slopes of the Alaska Range.

Under the modifying influence of the surface features and the warm coastal waters, the region has temperate summers, moderately cold winters, and a moderate rainfall. The climate is lacking in extremes of temperature and the light precipitation that characterizes the great interior valleys of the Yukon and its tributaries. The mountain ranges also protect the region against the fierce blizzards of the Arctic regions. Because of the protection afforded this region by the mountains on all sides except for a narrow strip on the southwest occupied by Cook Inlet, long journeys may be taken at most any time in the Matanuska Valley. The region is free from tornadoes and severe electrical storms. In fact, thunder and lightning occur so rarely as to be almost unknown in the Matanuska Valley.

The spring and early summer months have the lowest average precipitation, and July, August, and September have the heaviest rainfall. The normal low precipitation for the early summer is not usually detrimental to crop growth. Wind storms of sufficient intensity to cut the snow from cleared and exposed places while not common, occur frequently enough to endanger the life of exotic perennials such as ornamentals and bush fruits. During May, as the fields dry and are prepared for seeding, occasional winds cause discomfort by blowing the fine soil from the field, a condition that will be aggravated if and when larger areas are cultivated. Droughts of some severity have occurred in this region since farming was begun, but none of sufficient duration to cause crop failure. The rainfall in the latter part of the summer comes for the most part in light showers with much cloudy weather, often sufficiently so to be unfavorable for curing hay. At such times it is placed on racks or piled in cocks on poles set firmly in the ground.

There are 14 possible hours of sunshine per day beginning April 15. The days gradually increase in length, May 15 having 17 possible hours of sunshine, and June 15 about 20 possible hours. For several weeks after June 15, there is practically no darkness. After June 22 the days begin to shorten, the decrease being at the same rate as was the increase before that date.

The total annual precipitation ranges from 13 to 18 inches. Less than half of this falls during the winter months as snow and rain. Warm spells are of rather frequent occurrence during which snow may be entirely melted or reduced to a sheet of ice. It is due to such periods, as well as to the winds that sweep the ground bare of snow, that many plants of a perennial nature are sometimes killed or weakened. The summer rainfall, while not large (from 8 to 11 inches), is ample to supply crop needs. The rather low summer temperatures and moderate winds are not conducive to rapid drying of the surface or to heavy loss of water by plant transpiration. Also while daylight hours are extensive, much of the time the sky is overcast.

**TOPOGRAPHY AND SOIL**—The topography of the Matanuska Valley consists mostly of benches and lowlands with occasional irregular ridges. These benches and lowlands embrace a variety of soils ranging in composi-
tion from silt loam through fine sand to peat, and in drainage, from well-drained bench land to water-soaked marsh. To be put in readiness for cultivation, the greater part of the land requires to be cleared of timber, undergrowth, moss, and any other thick covering of vegetation that may be present.

Exclusive of muskeg and muck, there are two broad divisions of soil in the Matanuska Valley; the bench-land soils, and the stream-bottom soils. According to Bennett and Rice, the former division comprises mainly the Knik loam series and the soils represent material which evidently has undergone considerable attrition by water or glacial action, of both, mixed, especially in the surface portion, with varying quantities of volcanic matter.

Chemical analyses show that all the soils have a good lime content; in fact, it is higher than that of the average soil in the humid portions of the United States. The lime, however, is evidently present in combinations of low solubility, inasmuch as heavy applications of lime are required to correct acidity.

The region, consisting of bench lands varying in width from a hundred feet to several miles, constitutes a great irregular plain that is continuous except for the interspersion of connecting bodies of water and essentially uniform in its principal topographic characteristics. This plain rises through successively higher benches, step-like, from a few feet above high tide to a maximum elevation averaging probably 1,200 feet above sea level, where it merges with the flanking mountain slopes. The greater part of the bench land is probably about 25 to 200 feet above sea level. In some places the benches attain elevations of 2,000 feet. A common characteristic of the benches of the plain along the stream courses is their arrangement in V-shaped fashion, converging upstream with their escarpment lines spreading out symmetrically from the apex downstream.

DRAINAGE—Owing to the sandy gravelly nature of the soils and subsoils the bottom lands drain quickly. Strips of deep sand and soils are included which are underlain at shallow depths by gravel and have excessive drainage. On these soils crops suffer from lack of moisture in dry seasons. On the other hand, the numerous swales and depressions require ditching to establish such drainage conditions as will be favorable for agricultural use of the land, except for pasturage and hay production. Probably 75 per cent of the bottom land is sufficiently well drained to admit cultivation without ditching.

Large bodies of both extremely poorly drained land and well drained land, also less important areas possessing intermediate drainage, and still others having excessive drainage, occur throughout the main part of the plain, in the non-alluvial portion. These varying moisture conditions are determined very largely by the position and character of soil materials.

The good agricultural lands, such as the benches, hillocks, and ridges, are occupied by the Knik loam soils, which mostly have well-established drainage even in localities far removed from streams. All these soils are gravelly in the substratum, and for this reason possess as nearly perfect internal and downward drainage as is possible.

Ditching is not necessary except when it is desired to give an outlet to the lower depressions. The deeper loams such as the typical Knik loam hold sufficient moisture, especially with proper soil management, to meet the requirements of all crops in ordinary seasons. It is estimated that 75 per cent of the more valuable farming land of this region is well drained and capable of conserving ample moisture for crop needs. Cabbage does very well on this land.

Cabbage grown in the kitchen garden at the Matanuska Substation.

CROPS—Cereal crops such as spring wheat, oats, and barley grow well in the Matanuska Valley. The yield per acre for the past six years has been 22 bushels for wheat, 51 bushels for oats, and 24 bushels for hulless barley. The usual time for seeding grain is about May 15, and the harvesting time is about September 1. The early wheat such as Siberian will ripen in less time and can often be harvested by the twentieth of August. This earliness is a desirable feature of grain growing that applies also to the growing of barley.
and oats since it allows time for the grain to dry and harden before freezing weather.

Oats are usually grown both as a grain and as a hay or silage crop. Varieties that mature early are preferable for grain even if they are not so tall or as high in yielding capacity as other varieties. Owing to the comparative coolness of the summer days the harvest usually begins after the warmest part of the summer has passed. It is sometimes difficult to cure the grain in the shock because the plants are green, and the air is kept cool by frequent light showers. Oats for hay are cut and shocked before they are mature. Experience has shown that the crop cures more readily in bundles of not more than six to each shock than if it is cut with a mower and put up in cocks.

The main hay crop consists of oats and vetch, about 20 pounds of spring vetch mixed with about one hundred pounds of oats making a very desirable mixture for average soil. The crop is cut with a mower and put up in small cocks over double-pointed stakes that are set into the ground for the purpose. A large spike is driven through the stake so as to be about a foot above the ground after the stake is set. This method prevents the cock from setting on the ground and causes the outside to hang so as to shed the rain readily.

Oats and peas constitute the main silage crops. The oat varieties used require a longer number of days to mature than do oats which are grown for seed, the object being to obtain as much forage as possible. Canadian field peas are seeded in the mixture, which yields from 4 to 6 tons of silage material per acre on average soils. This crop is always dependable because it can be harvested in the immature stage and taken from the field regardless of weather conditions. The cost of putting up silage at Matanuska ranges from $2.50 to $4.45 per ton.

Spring wheats of the earliest types can be matured. Difficulty is sometimes experienced in curing the shocks in the field owing to the moist fall climate. There is little demand at present for spring wheat in the immediate
neighborhood other than as feed for poultry, hogs, and part of the grain ration for dairy cows.

Barley has proved to be valuable as grain feed. It grows well on all the upland soils and can be used as a forage and as a grain crop. As a grain crop it takes the place of corn for fattening hogs and cattle.

Winter rye can be grown successfully. It is sown the latter part of July and matures in August of the following year, occupying the field for two seasons. At present this crop is not grown to any great extent.

The potato, from the inception of agriculture in Alaska, has been an important crop. Unfortunately, from the marketing standpoint, due regard has not always been given to the character of the soil or to the variety. On well drained soil, particularly with a southern exposure and properly fertilized, excellent crops are grown. Early varieties are best, such as those belonging to the Irish Cobbler, Early Ohio, and Triumph groups. Yields ranging from 300 to 400 bushels per acre have been harvested of the above varieties. The quality was excellent. Much of the soil in the Matanuska Valley is excellent for potato production. This crop well deserves to be given a prominent place in farm operations here.

Root crops like mangels, carrots, and rutabagas yield abundantly. These crops are used to supplement silage or to take the place of silage where the farmer is not equipped with a silo.

Peas for canning yield heavily. Now that a cannery has been established at Palmer, this crop will undoubtedly be grown extensively since climatic conditions are especially favorable for its growth. Peas are a valuable crop grown in rotation with grain and should become a part of every rotative cropping plan.

Clovers of many kinds have been tried for many years. Results have been inconclusive in regard to over-winter hardiness. In favorable years Alsike, sweet clover (biennial), and a red clover of Russian origin, have survived in good stand and produced excellent yields. At present, hope centers in the Russian variety. Seed, however, is unobtainable commercially. It devolves, therefore, upon the Experiment Station to grow the clover and thus make the
seed available. This is being done, but since the original amount of seed was small, several years will be needed to produce an appreciable supply for distribution.

Alfalfa of the hardiest kinds obtainable have been tried with varying success. The hardier purple flowered sorts, such as Grimm, Cossack, variegated, and Ladak live over under favorable conditions. Snow cover is undoubtedly essential and soil with sufficient available lime contributes to winter survival.

A yellow-flowered, sickle-podded variety is undoubtedly hardy. The seed in small amounts came from Siberia. The plant has a rather spreading growth, which detracts somewhat from its value as a hay crop. It is also slow in establishing itself and does not seed abundantly or with certainty. Once established in a favorable location it is very enduring and will stand considerable pasturing.

![Arctic sweet clover, left, and Russian red clover, right.](image)

The most important legumes grown by the farmers in the Matanuska Valley are field peas and annual vetches.

All trials of fruit trees, such as apples, plums, and cherries, have given decidedly negative results. In favorable locations, Dolga crab apples have lived for a number of years at the Matanuska Station. They have bloomed freely and ripened fruit. Many other kinds of hardest trees obtainable have lived for a few years only. In Anchorage and at points on Kenai Peninsula some very nice appearing but immature apples have been on display at Fairs. At Sitka, where the climate is quite mild, much experimental work was done with a wide assortment of fruit trees. Even there, results were not such as to encourage commercial plantings.

Bush fruits, however, do astonishingly well. Heavy yields of currants, red, black, and white, are grown annually. Gooseberries do almost as well but are subject to occasional winter injury. Raspberries, red varieties, produce splendid crops. They also suffer from cold if planted in an exposed situation. Strawberries are an annual crop. All plants in the valley so far, that have proved hardy, come from hybrid stock that originated at Sitka years ago. Even these hardy plants are occasionally winter-killed when and if the ground is swept bare of snow. Nevertheless, there are beds that have borne fruit for a number of years with and without care.
Exotic ornamental shrubs such as Siberian pea tree, bush honeysuckle, Japanese rose and certain species of cotoneaster are without question hardy and desirable. Less hardy are lilacs, artemisia, golden elder, Mountain ash, and May day tree. Many herbaceous perennials are sufficiently hardy to warrant planting, such as delphinium, columbine, peonies, dicentra and Gyp-
sophylla. Extensive plantings have been made at the Matanuska Station. Often plants that thrive for several years and bloomed profusely, passed out due to unexplainable cause, generally believed to be severe winter weather. But that belief is not always justified. Many plants perish even where conditions are less exacting. Repeated trials are justified.

LIVESTOCK—Dairy cattle are acceptably a part of the farm operation of every good Matanuska Valley rancher. The Guernsey is the principal breed in the Valley. Many of these are either registered or eligible for registration. There are also a few Holsteins and a very few Brown Swiss and mixed breeds. With the plentiful and excellent feed that can be raised, the favorable climate, and an assured market for the butterfat at Palmer, dairying is sure to become a leading industry.

Less generally the production of beef can be made profitable particularly by those ranchers having had experience and whose land is near or adjoins open range for summer use. Grass fattened beef, however, will meet stiff competition from the corn-fed, imported beef.

Hogs properly belong on every farm where cattle are kept, particularly dairy cows. Skim milk, supplemented by home-grown grain, fed to pigs and shoats is a sure, quick way to produce pork. On the well managed farm, various crops can be hogged-off to advantage. Young pigs have been found to develop rapidly on pasture seeded to a mixture of rape (4 pounds), peas (1 bushel), and 1 bushel of oats. This mixture will produce excellent feed for hogs all summer, provided not too many of them are kept in one area on such pasture. The oats that have been pastured will send up new shoots and when the fall rains are frequent, will continue to make vigorous growth, supplying excellent succulent feed until the plants are killed by heavy frosts in September or October. Pork for home consumption and pork for profit might well be a slogan of every farmer in the valley.

A farm flock of chickens of some standard breed, such as Rhode Island
Red, Barred Rock, or White Leghorn, definitely belongs on every farm, the size of the flock to be governed by the ability and liking of the farmer for that phase of diversification. It is well-known that proper housing and careful attention are needed to produce eggs or fryers at a profit. There is nothing in the climatic conditions of this valley to make poultry raising unduly difficult. Also, since grain can be grown in sufficient variety and with certainty most of the feed can and should be home grown. Table 4 indicates the volume of poultry and poultry products shipped annually to interior Alaska.

Excellent results with turkeys both at Matanuska and Anchorage show the possibilities in this phase of poultry farming. The dry weather of spring is favorable to the chicks at a time when they are sensitive to wetness. As with chickens, suitable feed can be raised. In the fall there is ready market for prime birds.

**BEEKEEPING**—The earliest recorded attempt at beekeeping was at Sitka before the establishment of an experiment station when a priest of the Russian Church made the attempt with several stands. In 1905 the Experiment Station made a trial with one stand. Neither of these attempts were successful. It was concluded that the climate was quite unsuited to bees at that place. At Wrangell in 1929 a resident reported that a swarm of bees kept primarily to pollinate fruit trees, produced 210 pounds of honey. At Haines, in southeastern Alaska, bees have been kept for several years and yields of 50 pounds of honey per stand have been reported. Near Anchorage a resident made several attempts to keep bees, but no report as to honey yield has been received. In nearly every case, bees did not winter successfully. Either the colony was completely dead in the spring or so weakened that they were unable to recuperate fully in time to produce much honey.

Stands of bees. One hive on platform scales to check daily increase of honey.

Successful beekeeping has been carried on in the northern states and notably in Canada, by shipping in package bees every spring from a southern point, thus eliminating the over-winter hazard. With this encouragement and example, several packages of bees were shipped in from California to
the Matanuska Substation in the spring of 1936. These four stands produced some very excellent honey, and give reasons to believe that honey can be produced at least during the better seasons, such as 1936 was, with a reasonable amount of certainty. Flowers producing nectar are sufficiently abundant to allow the bees to gather a good supply. This is particularly true where fields of clover are available. One of the drawbacks to beekeeping is the low temperature which often prevails during the working season. The season was considered ended August 24, at which time the average net weight of three stands was 106.5 pounds of comb and honey.

MARKETS—The markets to be supplied are chiefly in Anchorage, a prosperous town about 35 miles distant by rail. There are also a number of mines within easy access by trucks where considerable farm produce is used. When consideration is given to the tremendous volume of foodstuffs that can be produced on Alaskan farms that is shipped annually to Alaska, there is ample reason to believe that the market here is sufficiently large to take all farm produce offered for several years to come.

TRANSPORTATION—The Matanuska Valley is traversed by the Alaska Railroad, which extends from Seward on Resurrection Bay through railroad headquarters at Anchorage and on to Fairbanks, a distance of 470 miles. Within the last two years an extensive road building program has been under way by the Alaska Road Commission. In consequence there is a network of well graded, and in places, gravelled, roads. In the main settled portion every settler has immediate access to a graded road. During the winter drifting snow may stop automobile and truck movement for a short time. Snow plows are operated and roads quickly opened particularly over routes travelled by school buses. In September of 1936 a graded road extending from Anchorage to Palmer was completed sufficiently to permit through travel by automobile.

TABLE 4

This report is over the signature of Colonel O. F. Ohlson, General Manager of the Alaska Railroad, and represents shipments through Seward during 1935.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veal</td>
<td>$13,467.20</td>
</tr>
<tr>
<td>Beef</td>
<td>208,724.12</td>
</tr>
<tr>
<td>Pork</td>
<td>64,237.95</td>
</tr>
<tr>
<td>Mutton</td>
<td>22,756.43</td>
</tr>
<tr>
<td>Poultry</td>
<td>59,624.65</td>
</tr>
<tr>
<td>Butter</td>
<td>189,468.95</td>
</tr>
<tr>
<td>Cheese</td>
<td>22,961.28</td>
</tr>
<tr>
<td>Ice Cream Mix</td>
<td>104,822.62</td>
</tr>
<tr>
<td>Potatoes</td>
<td>37,362.72</td>
</tr>
<tr>
<td>Carrots</td>
<td>3,147.74</td>
</tr>
<tr>
<td>Turnips</td>
<td>874.69</td>
</tr>
<tr>
<td>Cabbage</td>
<td>6,374.35</td>
</tr>
<tr>
<td>Leaf Vegetables</td>
<td>12,807.60</td>
</tr>
<tr>
<td>Eggs</td>
<td>158,428.85</td>
</tr>
</tbody>
</table>

This totals $904,461.15, actual landed value. Milk, probably because of oversight, was omitted from Colonel Ohlson’s report, but the figures for the fiscal year of 1933-34 give the total Alaskan imports of this commodity as $282,269. It is quite an item in itself, bringing the grand total well above a million dollars.
Tanana Valley

LOCATION—The agricultural region known as the Tanana Valley lies 240 miles directly north of Matanuska, the two regions being separated by the rugged Alaska Range. It lies between the parallels of 64° and 66° north latitude and the meridians 146° to 149° west longitude. The area thus enclosed extends approximately from McCarty at the junction of the Goodpaster and Tanana Rivers to the town of Tanana where the Tanana River empties into the Yukon. This gives a length of valley of approximately 205 miles by air line and 317 miles by river. The maximum width of the valley is 70 miles. These 7,000 and more square miles, or 4,480,000 acres, include in their physiography bottom or valley land, bench land, and some terrace land. Naturally, there are many acres not suitable for farming, comprising stream beds, lakes, and swamps. The part of this vast section now being settled extends in a general way from Dunbar north about 10 miles, thence northeasterly to within a few miles of the Chatanika River, then southeasterly, crossing the Little Chena River, to near the junction of the Salcha and Tanana Rivers, thence following about 2 miles south of the left limit of the Tanana River to its junction with the Chena River, crossing the latter and passing Ester Dome to the line of the Alaska Railroad, and thence in a westerly direction to Dunbar. It is the northernmost region available for agricultural settlement in Alaska at present.

CLIMATE—The frost-free period in this region extends from about May 20 to September 5. For the years 1932-1936, inclusive, the highest temperature recorded was 89° F. in June and July, 1932, and the lowest was —66° F.¹ in January, 1935. During the growing months beginning with May, the normal temperature shows a steady rise, reaching its peak in July.

The winters are cold and during the two months of lowest temperature, the normal average for 1932-1936, inclusive, ranges from —4° F. to —18° F. in December, and from —1° to —22.5° F. in January. The winter weather is healthful and invigorating, and the air is crisp and clear. The average annual snowfall for the past five years was 59.39 inches. Owing to lack of winds in this region, snow remains evenly distributed over the ground most of the time. It is usually light and feathery and remains in this condition for a large part of the winter.

During the growing season the days are long. On May 1 the sun rises at about 4 a. m., on June 1 at 2:30 a. m., on July 1 at 1:30 a. m., and on August 1 at 2 a. m. The sun sets on May 1 about 9:30 p. m., on July 1 at 10:30 p. m., and on August 1 at 10 p. m. During June and July and parts of May and August twilight is continuous throughout the short night.

The total precipitation ranges from 8.5 to 16 inches. Approximately one-half of the precipitation comes during the growing season. Since heavy rains rarely occur in this region the harm done by erosion is almost negligible.

All soils have a physical constitution that is well suited to the absorption and retention of rain. Owing to this fact and to the short periods of drought and the low rate of evaporation, cereal crops can be produced with as little as 8 inches of total precipitation.

Dry weather in late spring and early summer sometimes checks plant growth to such an extent as to cause low yields, or subsequent moisture may prolong the growth and thus lessen the chance of maturity and increasing

¹This reading was obtained at Fairbanks. The lowest recorded by the Agricultural Experiment Station at the University was —65° F.
the danger of injury by frosts before cutting and later. Drizzling rains and cloudy weather are common in late summer and may cause difficulty in curing hay. It is believed, however, that freshly cut vegetation does not deteriorate as rapidly in rainy weather here as it does in warmer climes.

**TOPOGRAPHY AND SOIL**—Most of the land in the Tanana region is hillside or old river bottom land. Hillsides with a southern exposure are considered to be the most desirable for farming because crops grown on them mature earlier than do those on river-bottom lands. The lowland soils are productive and yield good crops of forage. They are prevalently sandy, either from the surface downward or in the subsoil and a large proportion has sand over the surface, or from near the surface downward. The soil materials are mixed in varying proportions and the surface soil is intermingled with varying quantities of vegetable matter in different stages of decay. Soils in the Tanana Valley are in general less acid than are those of the Matanuska Valley.

"The Tanana very fine sand is the most extensive soil in the Tanana bottoms. More of it was seen than of all the other bottom soils combined. It occurs through the entire extent of this great lowland area, but is relatively more abundant along the streams, where there are many broad belts which do not include any important bodies of other soils. Spruce attains a surprisingly large size on this soil, showing no more tendency to a scrubbliness over large areas than on the heaviest types, perhaps not so great a tendency. Trees 18 inches or more in diameter near the ground are common in many places. Birch is of some local importance, but it is considerably less abundant over this land as a whole than on the more loamy soils. The Fairbanks silt loam is distinctly a slope soil. In physical characteristics it conforms very closely with the brown loessial soil, Knox silt loam, which is one of the great farming soils in Illinois, Indiana, Iowa, Missouri, Nebraska, and Wisconsin. The Fairbanks silt loam is the best all-around agricultural soil seen in the interior of Alaska. It is well drained, yet retentive of moisture, shows only a moderate degree of acidity in either the surface soil or subsoil, is easy to cultivate, and is productive."1

**CROPS**—The most important farm crops in the Tanana Valley are grain and potatoes. Oats and barley are grown both for grain and for forage. Seeding is usually completed by June 1 and the crop is harvested by September 1. The yield for oats ranges from 36 to 75 bushels per acre, with an average of about 50 bushels. When early varieties are grown for grain and are sown sufficiently early, they may be depended upon to mature every year. Earliness in maturity is not important when the crop is grown for forage.

Wheat gives an average yield of 20 to 25 bushels per acre. Early varieties, such as Siberian, Reward, and Garnet, are matured without difficulty. Only spring wheats are grown in this region.

Barley yields from 20 to 30 bushels per acre with an average of about 25 bushels. It grows well and the grain is an important crop for dairy cows and hogs.

Hay is mainly a mixture of oats and field peas as in the Matanuska Valley. Bottom land is best suited for this crop. Yields up to three tons per acre have been secured. For tonnage seeding is best done during the first ten days in June. A general practice is to cut the crop in September before hard freezing

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Shocks of ripe Chogot wheat in foreground. Hay on south slope in background.

weather either with mower or self-binder. If mowed, the hay is "staked." If cut with a binder, the bundles are placed in small shocks. Drying proceeds slowly, but the cool weather checks mold. Such hay generally has a very high

Three acre field of Irish Cobbler potatoes in bloom at the University Experiment Station.
Irish Cobbler potatoes showing typical shape and desirable table size.

color and is very nutritious. Dairy cows at the University Farm were maintained in good milk flow fed exclusively on such hay.

What has been said concerning alfalfa and clover in the Matanuska Valley applies to this region. The yellow-flowered alfalfa of Siberian origin (Medicago falcata) only, has shown dependable hardiness. As proof, there is a field of several acres at the abandoned Agricultural Experiment Station at Rampart on the Yukon, which has maintained itself for over twenty years during which time several hay crops have been taken by a local resident.

Wherever the timber is destroyed and the surface vegetation uprooted, as in building roads, native grasses come in and flourish.

One of the chief crops of the Tanana Valley is potatoes. From the beginning of agriculture here, potatoes have ranked as the chief cash crop. On the market they have met stiff competition from Washington and other western states. This competition has had a salutary effect since it has emphasized the need of growing potatoes on southern slopes, thus taking advantage of the better drained, warmer soil and longer growing season. Where this has been done and early varieties grown, the quality has met all market requirements.

In the matter of yield, the valley can rightly be proud of one of its farmers who regularly produces from ten to twelve tons of marketable tubers per acre. Average yields run from four to seven tons. The prices obtained range from $2.50 to $5.00 a hundred pounds.

Hardy vegetables for the home can be produced in the family gardens. Both quality and quantity are assured where properly cared for. In a Fairbanks garden, the largest cabbage grown in the Territory was raised, weighing 42 pounds.

Peas are an assured crop. In the sandy bottom land, the vines make a strong growth and produce bountifully. On the stiffer slope soil, earliness is accentuated somewhat at the expense of vine. Seed of many of the early varieties, such as Alaska and Gradus, has been produced regularly over a long term of years.
Currants, either red or white fruited, produce dependable crops, the latter out-yielding the red. Best results have been secured on bottom land. Snow cover is essential. A bank of peat around each bush is helpful and should be left there permanently. The black currant is less hardy than the red or white. Red raspberries have been grown many years commercially. South slope land has produced excellent crops. A good mulch of straw is helpful to prevent too rapid drying out of the soil. Winter protection is usually given, by laying the plants or bending down and covering with coarse litter.

Strawberries of hybrid origin have produced excellent crops. This fruit is...
grown mostly in gardens for home use. One rancher produces on a commer­
cial basis. The fruit sells readily at fair price. Loss of plants due to winter
injury is of infrequent occurrence. At the abandoned Rampart Station a small
field, upcared for, has produced regular crops for over twenty years. Wild
fruit is fairly plentiful, such as high bush and low bush cranberries, red rasp­
berries, red currants, and blueberries.

ORNAMENTALS—The first consideration of a homesteader must be given
to the plants and their products having a direct economic value. But “man
does not live by bread alone.” The homestead must satisfy an aesthetic hun­
ger if it is to become and remain “Home sweet home.”

Flowers, both annual and perennial, together with ornamental shrubs fill
this secondary primitive need. Since the interior of Alaska is reputedly cold,
doubtless the question will arise as to what flowers, if any, can be grown. In
the first place, there are many kinds of native flowers and shrubs worthy of
a place in a house yard. They may be had for the expense of taking from
their natural habitat. The desire to grow the flowers that grew on the “old
place” has exerted and still exerts a powerful incentive to try out exotic
plants.

Mr. T. M. Hunt of Fairbanks has, without pecuniary benefit, endeavored
to provide the answers to some of such questions and has kindly given the
following notes based on his observations:

**Roses:** The Rugosa and its hybrids have given best results. In order
of hardiness they run as follows: Rugosa Red, Rugosa White, (Spe­
cies); Hansa, hybrid Rugosa; Belle Poitevine, hybrid Rugosa; Sir
Thomas Lipton, hybrid Rugosa; Amelie Gravereaux, hybrid Rugosa;
and several others not so promising. Plantings of the above in 1930
are still good.

Hansen Hybrid Species: Tetonkaha, Amdo, Koza, Tegala, Minisa,
and Sioux Beauty are apparently hardy. There are several others
showing up well with a little protection.

Acicularis Carelica and Betty Bland, hybrid species, also Hansen
Thornless and Hansen Hedge are promising.

**Lilacs:** Common Purple, Common White, Villosa, Persian and sev­
eral French hybrids have wintered one to several winters with but
little die back. Some are perfectly hardy and all varieties are worth
trying out.

**Peonies:** All early-blooming sorts are promising. If allowed to
sulk, they quickly deteriorate. Slow to establish.

**Lilies:** Only early-blooming sorts can make it on account of Au­
gust frosts. About a dozen kinds have wintered once to three times
and are pretty strongly established. Some mature seed, others pro­
duce abundant bulbils in the leaf axils and still others develop bulb­
lets on the stems.

Lilies of the Valley pips have established themselves and increased
wonderfully in a bed but are shy on bloom. Planted in 1930, they
prove hardy to date.

**Spirea:** S. sorbaria, S. arguta, and S. salicifolia are hardy.

**Cotoneaster:** var. acutifolia appears to be well established.

**Tartarian:** Bush Honeysuckle, Silverberry, Serviceberry and Si­
berian Flowering Almond have stood several winters without appre­
ciable injury except by August frosts on new growth.

**Fruit hedges:** Western Chokecherry and some Sand Cherry hybrids
have done fairly well the last three years. They were planted in 1930
but were slow to become established. Last season was the first fruit­
ing and was very promising. The Chokecherry hedge is the hardier
and has had but little loss, principally at each end of the hedge rather than in the center, probably indicating some advantage of the hedge system over the individual tree. Sand Cherries are not entirely hardy.

Green Ash, Amur Maple, and Manitoba Maple are hardy below the ground but unable to retain their top growth. Planted in 1929 the seed germinated well but has made but little top growth.

Siberian Pea Tree appears to be reliably hardy but here it has not done so well. Russian Olive is only half hardy or less.

Daphne mezereum, a close relative of the Garland Flowers but not evergreen, has wintered three times and blossomed well.

Giant Hybrid Delphiniums are perfectly hardy and do exceptionally well, both white and black bee, growing 8 to 9 feet tall.

The foregoing is not a complete list of plants which have established themselves with reasonable promise of success but it serves to indicate the range of possibilities along several lines. It has been observed that much of the so-called winter injury has been caused by those dreaded August frosts. It is believed that given a suitable situation on south slope land from 100 to 300 feet above the valley floor many plants not listed above would prove reliably hardy. It is also believed that under the "Russian Dry Cover" winter protection for Roses that about 25 better class Roses, including Rugosa Hybrids, Hansen Species Hybrids, Hybrid Perpetuals, Polyanthas and other hardy strains could be established and maintained. This would include Pillars, Climbers and Shrub Roses as well as Bedding and Trailing Roses of many sorts.

LIVESTOCK—This region is also well suited to dairying. Summer pasture is available for four months of the year, and during the rest of the time livestock must be fed. Oats, barley, peas, vetch, native grasses, and brome grass

The dairy herd at the University Farm.
are all grown for winter feeding. Because of the cold winters all dairy barns should be well-constructed and provided with artificial heat. Three dairy herds are maintained in the valley, two commercially, and one at the University Farm. The prevailing breed at all three is Holstein. Hogs can also be produced profitably in the Tanana Valley. During the summer they may be pastured and in the fall fattened on barley, wheat, and peas. Principally American Hampshire are raised.

MARKET—The thriving town of Fairbanks is in the heart of this agricultural region. From here the mining camps within a radius of several hundred miles are supplied with provisions. Sixty miles from Fairbanks is the town of Nenana where products are sent for shipment by river steamboats down the Tanana and Yukon Rivers. (See Table 4.)

TRANSPORTATION—Fairbanks is the northern terminus of the Alaska Railroad. This railroad, which is owned by the Government, operates trains throughout the year between Fairbanks, the largest town in interior Alaska, and Seward, seaport on the southern coast. Two long automobile highways extend out from Fairbanks. One of them, known as the Richardson Highway, 410 miles long, links Fairbanks with Valdez and Cordova on Prince William Sound. The other, known as the Steese Highway, 160 miles long, connects Fairbanks with Circle on the Yukon River. In addition, a network of good automobile roads traverses the vicinity of Fairbanks and connects with points on the Alaska Railroad. Splendid airplane service is provided the year round. (See map for landing fields and roads.)

Other Regions

SOUTHWESTERN ALASKA—The agricultural regions of southwestern Alaska include the Alaska Peninsula and the treeless islands beginning with the Kodiak-Afognak group, and extending westward to Attu Island.

At the lower elevation on the mountain sides several types of grasses and a dense growth of moss-like plants form a good range for cattle during the summer. Large areas of beach rye and sedge grasses at the heads of bays can be harvested for hay and silage by means of mowing machines where the areas are not cut too deeply by small streams. These grasses make dense growth and attain a height of about four feet.

Numerous attempts have been made to raise livestock on the islands beyond Kodiak Island, but nearly all have failed, principally because of the lack of regular, reliable transportation. The distance from Seattle to Unalaska is more than 1,000 miles and can be covered in six days by direct route or in nearly two weeks via Seward. Freight charges for provisions are almost prohibitive because of the great distance. Mail steamers beyond Kodiak arrive often once a month, and, obviously, fresh meats and vegetables are luxuries to the white persons living in these localities. The last steamship dock to the westward is at Unalaska. Harbors at the settlements are poor, and the sea in this region is heavy nearly every month of the year. Ranchers must provide themselves with small boats for transportation between their ranches and the nearest steamship dock. Traveling in small boats is not practical for more than fifteen miles on the open ocean and should be attempted only on days of fair weather. When storms are too heavy, provisions and mail must remain aboard ship and be delivered a month later. The heavy waves would swamp small boats in their attempt to reach the mail steamer.
The rancher who has only a small herd will, therefore, find it impractical to locate west of Kodiak Island before additional shipping facilities are provided.

Possibilities of livestock raising on a small scale are limited at present to the Kodiak-Afognak Island group. Large ocean-going vessels call at Kodiak on an average of once a week throughout the year. Ranchers go to Kodiak overland or, on days of fair weather, by water in small boats. Beef raising is destined to be a profitable enterprise on the Kodiak-Afognak groups of islands. Some losses of cattle have been reported due to brown bears.

KENAI PENINSULA—The western part of Kenai Peninsula between Cook Inlet and the Kenai Mountains comprises some of the best agricultural land in Alaska. The climate is never severe, being neither extremely cold in winter nor hot in summer. It is tempered by the warm winds from the Pacific Ocean, which is less than a hundred miles to the south in a direct line. The same kind of crops that are being produced in the Matanuska Valley can also be produced here. The area of good agricultural land is more extensive than that of the Matanuska Valley and this region is attracting a large number of settlers.

The region is destined to remain undeveloped until economical transportation facilities can be provided. On account of the shallow waters which border the shores of Cook Inlet, large ocean vessels must anchor from three to five miles out. Small boats go up the Kenai and Kusilof Rivers for short distances on high tides. During the winter when the rivers are frozen over, practically no transportation facilities are available for the larger portion of this valuable agricultural land. With the advent of a wagon road connecting the towns of Homer, Ninilchik, Kusilof, and Kenai with the present railroad, this fertile region will undoubtedly become more settled. A road construction program is now in progress, several miles having been built in 1936.

SOUTHEASTERN ALASKA—Southeastern Alaska is for the most part non-agricultural. It is more densely populated than are other regions, however, and limited areas at the heads of bays and on the tide flats are being utilized for the production of crops and livestock. Most of the small areas of land under cultivation are near towns which can be reached by small boats or from which roads have been built. The principal crops grown for the market are carrots, rutabagas, cabbages, potatoes, strawberries, and raspberries. There are about three hundred head of dairy cattle in southeastern Alaska. The largest herds are located near towns. Milk produced in this region is bottled and supplied to the towns. Practically all feed for the animals is shipped from the States. Farmers who do not live near the towns are dependent upon native tide flat grasses for forage for their live stock. The cost of clearing land in southeastern Alaska is prohibitive, and farming operations are, therefore, limited to home gardening, trucking, and producing hay on isolated grass-covered tide flats.

HEALY—An area of about 200 square miles of land on the north slope of the Alaska Range with Healy as a center is believed to be a potential sheep range country. Owing to its elevation this region is treeless. No snow lies on the ground longer than three to seven days at any time because of the high winds. The native vegetation consists of several types of bunch grass and sedges, native redtop, low bush cranberry, blueberry, dwarf birch, and dwarf willow. Enough native hay can be made to supplement the forage the animals obtain on the open range in winter. It is estimated that the carrying capacity
of this range is 150 sheep per square mile. Range horses have been overwintered for several years.

**KUSKOKWIM AND YUKON VALLEYS**—There are many thousand square miles of potential agricultural lands in the Kuskokwim and Yukon Valleys, but owing to their remoteness and inaccessibility, or because the main lanes of travel have become established elsewhere, they will undoubtedly remain undeveloped for a considerable period. These areas are covered with a mixture of spruce and birch, indicating that they are able to produce crops similar to those now being produced in the Tanana Valley. Such records were secured at the Agricultural Experiment Station at Rampart on the Yukon, now abandoned, which was operated for over twenty years.

**WHERE TO LOCATE**

Prospective settlers naturally desire to locate in a region where they can make a comfortable living and provide a home for themselves and their families. Persons desiring a particular kind of climate or who wish to follow some specific agricultural pursuit should establish themselves in regions best suited to their liking. Climate, transportation, and markets are the main determining factors in the settlement of any region. For the profitable marketing of crops, settlers should locate near a town or at least near some point on a railroad. Any place along the Government railroad will enable settlers to keep in close contact with markets and thereby facilitate the disposal of their produce. The Alaska Steamship Company operates ocean steamships between Seattle, Washington, and Seward, Alaska, making connections with the railroad. The ships run at regular and fairly frequent intervals. If possible, the prospective settler should locate where there are a sufficient number of other families to permit the organization of a school district, churches, and other indispensable features of community life.

**SCHOOLS AND CHURCHES**

The Alaska Territorial school system was established in 1917. It is under the supervision of the Territorial Department of Education with headquarters at Juneau. The Department is composed of a Territorial Board of Education with five members, Office of Commissioner of Education of seven members, and a Territorial Textbook Commission of three members. At the present time, there are 17 city schools and 72 rural schools in Alaska.

Federal schools are maintained by the Federal Government and are for the benefit of the Eskimos and the Indians of Alaska. These schools are largely vocational.

The University of Alaska is a land-grant institution and is supported by the Federal Government supplemented by appropriations made by the Territorial Legislature. The University is exceptionally well-equipped and offers courses leading to degrees in agriculture, arts and letters, business administration, chemistry, civil engineering, education, general science, home economics, mining engineering, geology and mining, and metallurgy. In addition, short courses are offered annually in home economics and mining, and mining extension courses in various towns throughout the Territory. The faculty numbers 23 professors, including the president.
University of Alaska through the birches.

For information concerning the University, address the president, Dr. Charles E. Bunnell, or the Registrar, Mr. Carl M. Franklin, at College, Alaska.

Towns and communities with a population of one thousand or more have churches of the larger denominations.

HOW TO OBTAIN A FARM

Alaska is divided into three land districts with local offices at Anchorage, Fairbanks, and Nome. Surveys of public domain and all details pertaining thereto are in charge of the cadastral engineering service with headquarters in Juneau. The headquarters of the field service and inspection service of the General Land Office are in Anchorage.

Most of the farms in Alaska are acquired in either of two ways; by homesteading or by purchasing. The homestead laws require, among other conditions, the following:

First: That the land desired, be agricultural in character.
Second: That no person who is not a citizen of the United States, or who has not declared his intention to become a citizen of the United States can make entry.

Any person who is qualified to make an ordinary homestead
entry in the United States under section 2289, United States Revised Statutes, is qualified to make homestead entry in Alaska, and a former homestead outside Alaska does not bar the claimant's right to make entry in that Territory for not exceeding 160 acres.

Third: That the homesteader must establish residence within six months of taking up the homestead and must continue it for at least seven months out of each year for three years.

Fourth: That one-sixteenth (1/16) of the area included within the homestead must be cultivated within the first two years after taking the homestead and must be increased to one-eighth (1/8) before the end of the third year. The Secretary of the Interior is authorized to reduce the requirement if a satisfactory showing of the reasons for the homesteader's failure to comply with the law is made to him.

Fifth: That a habitable house must be erected on the land.

Sixth: That a proof must be submitted within five years from the date of entry. At the end of fourteen months continuous residence and cultivation of one-sixteenth (1/16) of the land, the homesteader may commute on his entry by paying $1.25 per acre for it.

Also that at the time the homesteader makes his entry he is to pay:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>Commission at .0375 per acre</td>
<td>6.00</td>
</tr>
</tbody>
</table>

At the time when he makes final proof he is to pay:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testimony fee</td>
<td>$1.80</td>
</tr>
<tr>
<td>Commission at .0375 per acre</td>
<td>6.00</td>
</tr>
<tr>
<td>Advertising notice of final proof</td>
<td>$12.00 to $15.00</td>
</tr>
</tbody>
</table>

Further information may be obtained by writing to the General Land Office at Fairbanks, Anchorage, or Nome, Alaska, for Circular No. 491 entitled "Information, laws, and regulations relating to public lands in the Territory of Alaska."

A colonist's first crop of hay in the Matanuska Valley.
INFORMATION FOR PROSPECTIVE SETTLERS IN ALASKA

Farms are also obtainable through purchase from homesteaders. A number of good farms which were homesteaded as early as 1915 are now being offered for sale at reasonable prices. Farms with some buildings and 160 acres of land, a part of which has been cleared, may be obtained at $1,000 to $2,000 each.

The land that was withdrawn from public domain in the Matanuska Valley in 1935 for the colonization project has not been re-opened for settlement.

THE NATIONAL FORESTS

Alaska has two National Forests, comprised of land that is chiefly non-agricultural in character, covering the heavily timbered coastal sections of the Territory. The Tongass National Forest has an area of 15,500,000 acres and includes nearly all of the land area of Southeastern Alaska. The Chugach National Forest includes the Prince William Sound region and the eastern part of the Kenai Peninsula, and has an area of 5,200,000 acres. The combined area of the two forests—20,700,000 acres—is slightly less than six per cent of the total area of the Territory.

The Alaska National Forests, officially designated as Region 10, are a part of and under the jurisdiction of the Forest Service of the United States Department of Agriculture. The headquarters are in Juneau, the capital of the Territory, with responsibility vested in the Regional Forester. The administration is further localized in five divisions, with Forest officers in each division acting under the authority and supervision of the Regional Forester in Juneau.

These divisions, the administrative officers, and their headquarters are as follows: Southern Division, Regional Forest Inspector, Ketchikan, Alaska; Petersburg Division, District Ranger, Petersburg, Alaska; Admiralty Division, District Ranger, Juneau, Alaska; Prince William Sound Division, District Ranger, Cordova, Alaska; Kenai Division, District Ranger, Seward, Alaska.

Farming on the Alaska National Forests, owing to the non-agricultural character of the land, rough topography, heavy rainfall, isolation by water from markets and school, is very limited in character and extent. Berries and root crops grow well in small, favorable locations. Clearing the land and preparing it for cultivation is extremely expensive.

Recognizing the need for something more practical and applicable for Alaska than the general homestead law, Congress, by a recent act, has made it possible for any citizen of the United States to acquire title to a tract of land not exceeding five acres in extent for a homesite. The requirements are legal residence on the tract in a habitable house for a period of three years. There are no stipulations as to the amount of land to be cleared and cultivated. This law is taken advantage of by fishermen, miners, laborers, and others, regardless of the character of their employment, who wish a home and garden outside of incorporated towns. The law as passed is not applicable to land inside the National Forests, but on certain designated areas, where permanent settlement seems assured, the Forest Service has made tracts available for settlement under special use permits. After complying with residence and improvement requirements for a period of three years on such areas, permittees upon application may have them eliminated from the National Forest and may immediately apply for patent under the Homesite Law referred to above.

Settlers on the National Forests may cut free of charge such timber as is
necessary to clear their land for cultivation and construct the required
improvements.

Bona fide settlers, miners, residents and prospectors for minerals in Alaska,
may take free of charge green or dry timber from the National Forests in
Alaska for personal use but not for sale. Permits will be required for green
sawtimber. Other material may be taken without permit. The amount of ma­
terial granted under free permit to any one person in one year shall not
exceed 10,000 board feet of sawtimber and twenty-five cords of wood, or an
equivalent volume in other forms. Persons obtaining such material should
forward to the local Forest Officer a statement of the quantity taken and the
location from which it was removed.

JUDICIAL DIVISIONS

For judicial purposes the Territory of Alaska is divided into four divisions
known by numbers.

Division No. 1 is all that part of Alaska lying east of longitude 141° west,
comprising all of southeastern Alaska and the coast region as far west as
Cape St. Elias. The headquarters of this division are at Juneau.

Division No. 2 comprises western Alaska north and west of the Kuskokwim
River. The headquarters of this division are at Nome.

Division No. 3 has its headquarters at Valdez, and comprises all of the
region from longitude 141° westward to the Aleutian Islands and as far north
as the Kuskokwim River.

Division No. 4 has its headquarters at Fairbanks, and comprises the greater
portion of the region generally known as the Interior, running north to the
Arctic Ocean.

"Fairbanks from the air."


**TAXATION**

Land or property outside of incorporated towns is at present not subject to taxation in Alaska. All male settlers between the ages of 21 to 50 years are required to pay a school tax of five dollars per annum. The funds of the Territory are raised by licensing certain industries including fisheries, cold-storage plants, and mining. Any resident who owns an automobile which is operated purely for pleasure or for family use is required to pay the Territorial automobile license fee of ten dollars.

**COST OF LIVING**

The cost of living in Alaska is somewhat higher than it is in the States owing to transportation charges. This is offset, however, by the higher prices which the farmers in Alaska receive for their products.

Capital required by the new settler should be sufficient to provide him with living expenses for a year or longer if he settles on new land. The minimum recommended is $2,500 per family.

Settlers who purchase farms containing some cleared land should be able to receive from it an income sufficient to meet their living expenses for the first year. A small amount of working capital is desirable for the purchase of livestock, machinery, and other equipment.

The prices prevailing at Fairbanks in 1937, as shown in Table 5, will give a general idea of the cost of living at rail points in Alaska.

**TABLE 5**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Unit</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td>loaf</td>
<td>$.18 and .25</td>
</tr>
<tr>
<td>Butter</td>
<td>pound</td>
<td>$.50 and .55</td>
</tr>
<tr>
<td>Eggs</td>
<td>dozen</td>
<td>.50</td>
</tr>
<tr>
<td>Coffee, Hills</td>
<td>pound</td>
<td>.37 1/2</td>
</tr>
<tr>
<td>Sugar</td>
<td>pound</td>
<td>.09 1/2</td>
</tr>
<tr>
<td>Flour</td>
<td>100 pounds</td>
<td>7.00</td>
</tr>
<tr>
<td>Milk, fresh</td>
<td>quart</td>
<td>.25</td>
</tr>
<tr>
<td>Milk, evaporated</td>
<td>case</td>
<td>5.20</td>
</tr>
<tr>
<td>Potatoes, native</td>
<td>100 pounds</td>
<td>4.50</td>
</tr>
<tr>
<td>Canned fruits</td>
<td>dozen cans</td>
<td>3.75</td>
</tr>
<tr>
<td>Dried apples</td>
<td>2 pound package</td>
<td>.65</td>
</tr>
<tr>
<td>Dried prunes</td>
<td>2 pound package</td>
<td>.40</td>
</tr>
<tr>
<td>Beans, small white and Lima</td>
<td>6 pounds</td>
<td>1.00</td>
</tr>
<tr>
<td>Beans, Bayo</td>
<td>8 pounds</td>
<td>1.00</td>
</tr>
<tr>
<td>Bacon</td>
<td>pound</td>
<td>.50</td>
</tr>
<tr>
<td>Beef</td>
<td>pound</td>
<td>.35 to .55</td>
</tr>
<tr>
<td>Pork</td>
<td>pound</td>
<td>.40 to .50</td>
</tr>
<tr>
<td>Kerosene, elaine</td>
<td>gallon</td>
<td>.60</td>
</tr>
<tr>
<td>Kerosene, pearl</td>
<td>gallon</td>
<td>.50</td>
</tr>
<tr>
<td>Gasoline in drums</td>
<td>gallon</td>
<td>.28</td>
</tr>
<tr>
<td>Gasoline, at service station</td>
<td>gallon</td>
<td>.35</td>
</tr>
<tr>
<td>Lumber, rough</td>
<td>thousand feet</td>
<td>40.00</td>
</tr>
<tr>
<td>Timothy hay, outside baled</td>
<td>ton</td>
<td>75.00</td>
</tr>
<tr>
<td>Local hay, not baled</td>
<td>ton</td>
<td>30.00 to 40.00</td>
</tr>
<tr>
<td>Oats, outside feed</td>
<td>ton</td>
<td>90.00</td>
</tr>
</tbody>
</table>

Food prices in the coast region are somewhat less than at Fairbanks, particularly the cost of more bulky merchandise is considerably less, like lumber, hay, and feed.
CHANCES FOR WORK AND WAGES PAID

In most places where labor is employed there are more men who want jobs than there are jobs to be had. At the present time most of the labor employed in Alaska is engaged in mining.

Machinery has in many cases displaced hand labor and, therefore, decreased the camp unit number of men engaged in mining. Many men are employed in the Fairbanks, Ruby, Iditarod, Circle, and Livengood districts and other smaller camps scattered throughout the interior, but the influx of labor has more than kept abreast of the demand. There is nowhere any hard and fast scale of wages for all kinds of labor, but in general the wages paid in the interior are higher than the wages on the coast. The wage scale per hour of common labor of one large mining corporation ranges from 71 cents with board and room to 86 cents without board and room.

The Alaska Road Commission and the Alaska Railroad employ workmen in considerable numbers during the summer, but recruit their men mainly from residents.

There are as yet but few laborers employed in agriculture. Few of the homesteaders have money to hire labor and, therefore, have to depend on their own efforts for the clearing of their land and the erection of their buildings.

The foregoing is only a brief general survey of the labor situation. As development progresses there will, of course, be more and more demand for men to do the work. Any young, able-bodied man who is willing to work at anything he can find to do, it is safe to say, can find work somewhere in Alaska so he not only can make a living, and if he is of a saving disposition he can lay something by.

The question is often asked, can the homesteader who locates in Alaska find opportunities to earn enough during the period the law allows him to be absent from his homestead to support him until he can begin to market his crops. This will depend chiefly on the man. Pioneering is always beset with privations and those who come must face that condition. The man who is capable and willing can ordinarily earn enough in wages to get by while proving up on his claim.
AGRICULTURAL EXPERIMENT STATIONS

Agricultural Experiment Stations were established at Sitka, Kenai, Copper Center, Kodiak, Rampart, Fairbanks, and Matanuska but the only two in operation at the present time are at the University and Matanuska. The experiment station at the University is the one formerly known as the Fairbanks Station during the time it was operated by the Federal Department of Agriculture. This station is located one mile west of the University and four miles from Fairbanks. Here is given particular attention to plant breeding, the adaptability of hardy plants, cost of crop production, dairying, and hog raising. Several new varieties of farm crops especially adapted to this northern latitude have been developed. At the Sitka Station, discontinued since 1932, special attention was given to strawberries, potatoes, and bush fruits,
as well as tree fruits. Introductions from this station have been grown in various parts of the territory.

The Matanuska Station is in the heart of the dairy region, two and a half miles from the town of Matanuska, and nine miles from Palmer. One of the major projects at this station is the building up of a dairy herd which is especially adapted to Alaskan conditions. This station is also making investigations on the economic production of cereals, forage, root crops, conducting rotation experiments with crops for the maintenance of soil fertility, and agriculture.

The results of the work done at the two stations is written up in an annual progress report which is distributed free of charge to residents of Alaska upon request.

EXTENSION SERVICE

The Extension office at the University, with Mr. Lorin T. Oldroyd as director, and Miss Ruth Peck as assistant director in charge of home economics, is prepared to send out information regarding all phases of agriculture, home economics, and fur farming pertinent to Alaska. Requests for this service should be sent to the Extension Service, University of Alaska, College, Alaska.

An Extension office for service in the Matanuska Valley project was established in the new community building at Palmer in 1936 with a County Agent in charge. A home demonstration agent has also been placed at Palmer to assist the women of the community and 4-H Club members.

Fur production is an important resource. The Extension Veterinarian, Dr. Jule T. Loftus, visits and assists fur farmers throughout Alaska. His headquarters are at Juneau and he is prepared to furnish information to anyone interested in fur farming.

WILDLIFE

Fishing and hunting in season afford the settlers healthy recreation and considerably reduce the cost of living. Most of the lakes and streams are alive with trout, grayling, and whitefish, and the larger streams supply salmon. Particularly in the Matanuska Valley, settlers put up a large enough supply of salmon to take care of their needs. Moose are often found near settlements, and caribou are plentiful in the Tanana Valley during the migration period. Wild fowl such as ducks and geese are numerous in the early fall, but move south as winter approaches. Ptarmigan, grouse, and rabbits abound only in occasional years appearing in cycles with several years between. In these years of abundance the rabbits are sufficiently numerous to do much injury to both native and other plants.

A number of wild-life reservations have been established in Alaska. These are administered by the United States Department of Agriculture, the United States Department of Commerce, and the United States Department of the Interior.

For information regarding the game laws of the Territory, apply to the Alaska Game Commission, Juneau, Alaska.
FISHERIES

There are numerous salmon canneries along the Alaskan coast, the total output from which amounts annually to about $32,000,000. The agricultural interests are not affected by these canneries, however. The majority of the workers are brought from San Francisco, Portland, and Seattle by the owners of the respective canneries, and they also bring their provisions and stores, so that it scarcely can be said that the canneries afford a market for agricultural products. There are also extensive halibut banks along the coast of Alaska.

REINDEER PRODUCTION IN ALASKA

The history of reindeer in Alaska dates from 1891 when 16 animals were brought in from eastern Siberia and during the next decade additional importations increased the total to 1,280 deer. It is estimated there are 594,000 reindeer in Alaska today, according to a recent count. These animals were imported because it was believed that they would provide a means of livelihood for the Eskimos of Alaska and furnish them with food and clothing. During the last year the natives used more than 6,000,000 pounds of reindeer meat and by-products, and also 32,000 skins.

TELEGRAPH AND CABLE LINES

The telegraph lines in Alaska are owned by the Government. Those along the Alaska Railroad are under the supervision of the Department of the Interior, and others are under the supervision of the War Department. Wireless stations are rapidly replacing the cables which were laid to connect the ports on the coast of southern and southeastern Alaska. Wires are used along the Alaska Railroad but have been discontinued to all other regions in interior Alaska. Wireless stations are in operation at points widely distributed over the Territory. Many of the wireless stations on the coast are under the supervision of the Navy Department.

RAILROADS

The White Pass and Yukon route runs through American territory from Skagway to the summit of White Pass, 20 miles distant, and continues thence through Canadian territory to Whitehorse, head of navigation on the Yukon, 110 miles from Skagway.

A railway known as the Copper River & Northwestern has been built from Cordova on Prince William Sound to the copper mines at Kennecott. It is 197 miles in length.

A short line has been built from Yakutat for a distance of 20 miles, wholly for the purpose of tapping salmon streams and for the conveyance of salmon to the fish cannery at Yakutat.

A railroad extends from Nome into the mining fields for a distance of 90 miles.

The Alaska Railroad from Seward to Fairbanks, completed July 15, 1923, was built by the government at a cost of approximately $56,000,000. It skirts Turnagain Arm and Knik Arm to Anchorage, and thence follows the valley of the Matanuska, the Susitna, the Nenana, and the Tanana Rivers to Fairbanks. A branch line from Matanuska to Premier, Eska, and Jonesville, beyond Palmer, taps the Matanuska coal fields.
River boat on the Yukon.

The Alaska Railroad operates a steamboat on the Tanana River from Nenana, on the Tanana, to Tanana, Ruby, Holy Cross, and Marshall, the principal towns on the middle and lower Yukon.

GENERAL INFORMATION

The Matanuska Valley offers excellent opportunities for dairying, poultry, hog raising, and diversified farming. The land is covered with birch, spruce, and cottonwood in sufficient quantities to permit of logging and sawmilling lumber for consumption. Logs are sent to neighboring sawmills and are cut into lumber for use in farm buildings. Wood for fuel is plentiful on nearly all farms. Those who settle on cut-over land can obtain their wood from the public domain. Local sawmills are in operation in both the Matanuska and Tanana Valleys.

The Tanana Valley is timbered with birch and spruce predominating. On the north slopes the birch is more abundant but on the south slopes spruce predominates. Some excellent lumber can be cut from these trees. At present most of the timber used by the local mills is located out in the upper valleys of the Tanana Valley. In this valley diversified farming is also practiced. Higher summer temperatures and lighter rainfall make this region somewhat better adapted for the raising of grain than the Matanuska Valley. Dairying has also been carried on successfully in the Tanana Valley for a number of years.

Good coal from Suntrana is available at the chutes in Fairbanks at from seven dollars to nine dollars per ton. Nut coal in the Matanuska Valley is $5.50 per ton at the mine in carlots.

The various advantages and conveniences in towns of the same sized population in the States are to be had at Fairbanks, in the Tanana Valley, and at Anchorage, in the Matanuska region. Each town has its high school, daily newspaper, theater, chamber of commerce, hospital, bank, churches, general
merchandise, drug and furniture stores, meat markets, restaurants, and hotels. Doctors, dentists, and lawyers are to be found in each town.

Many of the towns have libraries and reading rooms. Fraternal orders also maintain good buildings and reading rooms.

Settlers should purchase new machinery for shipment to Alaska. The freight rate on second-hand machinery is nearly as high as that on new machinery.

**TABLE 6**

Freight Rates from Tacoma or Seattle to—

<table>
<thead>
<tr>
<th></th>
<th>Matanuska Per 100 pounds</th>
<th>Fairbanks Less Car Load</th>
<th>Fairbanks Less Car Load</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Car Load</td>
<td>Car Load</td>
<td>Car Load</td>
</tr>
<tr>
<td>Meat, fresh</td>
<td>$4.22</td>
<td>$4.93</td>
<td>$5.38</td>
</tr>
<tr>
<td>Canned goods</td>
<td>2.00</td>
<td>2.28</td>
<td>3.16</td>
</tr>
<tr>
<td>Sugar</td>
<td>2.00</td>
<td>2.28</td>
<td>3.16</td>
</tr>
<tr>
<td>Cement</td>
<td>1.04</td>
<td>2.28</td>
<td>1.51</td>
</tr>
<tr>
<td>Lumber</td>
<td>.97</td>
<td>2.28</td>
<td>1.34</td>
</tr>
<tr>
<td>Grain</td>
<td>1.21</td>
<td>2.28</td>
<td>1.73</td>
</tr>
<tr>
<td>Hay, DC</td>
<td>1.31</td>
<td>2.61</td>
<td>1.83</td>
</tr>
<tr>
<td>Mining machinery</td>
<td>1.57</td>
<td>1.57</td>
<td>2.00</td>
</tr>
<tr>
<td>Farm machinery</td>
<td>.98</td>
<td>.98</td>
<td>1.00</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Eggs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household goods</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rel. $10.00 per cwt.</td>
<td>2.00</td>
<td>3.65</td>
<td>3.16</td>
</tr>
</tbody>
</table>

At present there is very little livestock for sale in the farming communities. It is advisable for the prospective settler to bring his dairy cows and horses with him. In a few years, farm animals of various kinds will likely be sufficiently numerous to be offered for sale within the Territory to supply new comers.

Cars carrying livestock in Alaska should be provided with water barrels so that the animals can be watered en route. Cattle must be inspected for tuberculosis and horses for glanders before they are placed on board ship at Seattle. During some of the summer months livestock suffer considerably from mosquitoes, especially when pastured on the lowlands. Sheds with burlap curtains and the use of liquid fly repellent afford relief. As the land is cleared mosquitoes become less troublesome, and it is thought that as soon as large areas of land are brought under cultivation, the mosquito will cease to be a problem.

For information about the farm colony in the Matanuska Valley, address General Manager, Alaska Rural Rehabilitation Corporation, Palmer, Alaska.

For information as to homeseekers’ Rates and passenger rates from Seattle to Alaska points, apply to:
