AR-1937

TERRITORY OF ALASKA

# REPORT

OF THE

# COMMISSIONER OF MINES

TO THE GOVERNOR

FOR THE

BIENNIUM ENDED DECEMBER 31, 1936

To the
Honorable John W. Troy,
Governor of Alaska

Juneau, Alaska,
March 31, 1937.

Sir:

I have the honor to submit herewith the Report of the Commissioner of Mines for the biennium ended 31 December, 1936.

Respectfully yours,

B. D. STEWART,

Commissioner of Mines.

CONTENTS

# INTRODUCTION

The contents of this report have been limited to a general outline of conditions existing in various phases of the mining industry during the past biennium and to summarized statements and statistical data with reference to such matters as production, operations, employment and accidents in the industry. Administrative data and an outline of the activities carried on during the biennium by the Department of Mines and by Federal agencies with which the Department has cooperated are also included.

The lists of mining operators and properties of various types that appear at the end of the report, accompanied by brief statements as to the status of the properties with reference to current activity, have been prepared for the purpose of meeting widespread requests for such data. It is realized that some of these lists, especially those of small placer operations, are incomplete, but they have been made as full and accurate as information in hand permits.

Descriptions of individual mineral properties and detailed reports of mining activity in the various precincts of the Territory, such as have been included in previous annual and biennial reports of this Department, have been omitted from the present report. It is the intention of the Commissioner of Mines to issue hereafter a series of such reports in the form of bulletins.

## ADMINISTRATIVE DATA

The funds available for conducting the field and office work of the Department of Mines during the past biennium amounted to but $11,400 per year. It is obvious that such a sum is wholly inadequate to cover the cost of properly performing the duties assigned to this department, which is charged with the responsibility of administering all laws and disseminating all official information relating to the Territory's principal industry. The neighboring Province of British Columbia, the area of which is but little more than half that of Alaska, engages in its Department of Mines the services of 23 engineers, examiners, assayers and inspectors, in addition to their clerical assistants, in rendering to its prosperous mining industry services of a similar type. During the first year of the past biennium the personnel of the department in Alaska was limited to the Commissioner of Mines and one clerk. During the latter half of the year 1936 it became possible, as a result of preceding economies in expenditures, to engage the services of one associate mining engineer.

During each year of the biennium as many of the principal mining centers of the Territory were visited by the Commissioner of Mines as the time feasible to spend away from duties at the headquarters office permitted. Incidental to these trips, which were primarily for the purpose of acquiring authentic information on the progress of mining operations, development, and exploration, a total of about 70 mining properties were visited by the Commissioner. Under a cooperative agreement entered into with the Director of the U. S. Geological Survey the Commissioner also supervised throughout the biennium all coal mining operations in the Territory, which are carried on under the Federal leasing act. By this arrangement duplication of supervision is avoided and substantial economies in administration are effected.

During the year 1936 the associate mining engineer made field examinations of 70 mining properties, 55 of which were lode properties and the remainder were placers, in 11 separate districts of the Territory, which included the following: Ketchikan,

Juneau, Sitka, Nizina, Bremner, Nabesna, Tiekel, Chisana, Slana, Kodiak Island, and Prince William Sound. In the course of these examinations a total of 127 prospectors were contacted, and such technical advice and assistance was given them as was possible and requested. A total of 118 samples were taken by the associate engineer at 36 separate properties, assays of which samples were made at the University of Alaska.

Safety examinations were also made by either the Commissioner of Mines or the associate engineer at nearly all of the principal operating lode mines in the Territory, and at numerous dredging and other types of placer operations. Similar examinations were also made by the safety engineer of the U. S. Bureau of Mines, incidental to his work of training miners in safe practices.

During the biennium the headquarters office at Juneau received 3,419 visitors on mining matters, a large percentage of whom were prospectors whose inquiries were answered and needs cared for. The incoming and outgoing first class mail totalled approximately 3,000 pieces and about 600 publications of various types relating to the mineral industry were distributed.

## MINE SAFETY TRAINING

At the commencement of the current biennium arrangements were made in Washington, D. C., by the Territorial Commissioner of Mines for the resumption in Alaska of the safety training among miners that had been discontinued on July 15, 1933.

In accordance with these arrangements the U. S. Bureau of Mines detailed for duty in Alaska a competent instructor in first aid to the injured, mine rescue work, and safe practices in mining operations, who arrived in the Territory in August, 1935. Since that date a continuous course of training in safety work has been conducted among mine employees at numerous centers of mining activity. During the year 1935 first aid instruction was given to 590 persons and during 1936 similar training had been received by 576 persons in 12 different localities. During the latter year training in mine rescue work and the use of oxygen breathing apparatus was also given to 7 miners.

This program of instruction will be continued uninterruptedly and persons in all sections of the Territory where mining operations are being conducted will be given an opportunity to receive the benefit of the training.

The Territorial Commissioner of Mines has cooperated in this work to the extent of supplying office quarters and clerical assistance to the Bureau of Mines safety engineer, and in preparing for him itineraries, and making arrangements with operators for carrying on the safety programs at their properties.

## MINING LOANS

Active interest has been displayed by owners of mining properties in many sections of the Territory in the mining loans that have been made available by the Federal Government through the Reconstruction Finance Corporation.

During the current biennium there were received from Alaska 48 applications for loans, of which number 32 have been studied by the R. F. C. officials at Washington, D. C. These studies have resulted in field examinations being made by an engineer representing the R. F. C. at five properties in the Territory, the owners of which had made applications for development loans. Following these field examinations two such loans in the sum of $20,000 each were approved. Field examinations were authorized at four other properties, covering which applications had been made for this type of loan, but the examinations were not made for the reason that the applicants could not be contacted by the field engineer.

In addition to the two development, or Class B, loans that have been approved as above stated, three general, or Class A, loans have also received approval. The sums granted in these three loans amount to a total of $860,000.

The Territorial Commissioner of Mines has cooperated with the R. F. C. in this work by distributing application forms and pamphlets issued by the R. F. C. that contain instructions regarding terms upon which loans are made and regarding procedure in making applications, and by furnishing office quarters to the examining engineer who represents the R. F. C. in Alaska.

## LABOR CONDITIONS

On the whole labor conditions in the mining industry throughout the Territory have been better during the past biennium than they have been for a number of years. Unemployment has been lessened materially by the expanded scale of operations in the gold mining industry, especially in the field of placer mining, that has resulted from the increased price of gold.

A material increase in the crews employed by the Alaska Juneau Gold Mining Company, where more than one-half the lode miners of the Territory are employed, was effected in the adoption by that company of the six-day week for each employee. Nearly 200 men were added to the company's pay roll through that arrangement, and the number of shift bosses employed was approximately doubled. Another very material factor in lessening unemployment among lode miners was the resumption of operations at the mines of the Kennecott Copper Corporation early in the biennium.

Wage scales in the mining industry have been maintained at very satisfactory levels throughout the Territory. Generally speaking, rates of pay have been well adjusted to the varying costs of living that prevail among the many sections of the Territory where mining operations are being conducted.

Living conditions provided by employers to their workmen at mining camps in Alaska are, with few exceptions, above reproach. The food served in the average mine camp mess hall is excellent both as to quantity and quality and as to preparation and service. Living quarters at some remote camps are occasionally crude, but they are usually comfortable and satisfactorily adapted to conditions that obtain. A general tendency among mine operators to improve living quarters for their workmen in accordance with the prosperity of the enterprise has been noted. During the past two years several new modernly equipped bunk houses, mess halls and change rooms have been erected at old mining camps where augmented prosperity has been enjoyed.

For many years Alaska has been surpassing free from any serious disturbance in the harmonious relationships existing between employers and employees in the mining industry. The

only major labor trouble in that industry within the past biennium occurred when a strike was called at the plant of the Alaska Juneau Gold Mining Company on May 22, 1935. All operations in connection with the mine temporarily ceased on that date when approximately 700 men left their jobs. The plant was effectively picketed by the striking miners for a period of several weeks. In the meantime a substantial percentage of the former company employees indicated their desire to return to work, and on July 5 part-time operations were resumed. This was accomplished in the face of active opposition on the part of the picketing strikers and their sympathizers that almost reached the proportions of a riot. Picketing of the plant continued for a considerable period following the resumption of operations, but no further violence occurred and full operations at the mine were again in progress at the end of July with a crew of 728 men employed. Since that date the crews have been gradually increased until a total of approximately 950 men were engaged, which was about the average number employed at the end of the biennium.

The employees of the Copper River and Northwestern Railway, which serves the mines of the Kennecott Copper Corporation at Kennecott, went on strike and traffic ceased on the railway August 7, 1936. This action followed a marine strike that had tied up shipping at the port of Cordova, the ocean terminus of the railway, on August 1. Mining operations at Kennecott continued, however, until September 15, when the mine was ordered closed on account of the absence of transportation facilities to handle the ore being mined. Transportation of the mine crew from Kennecott to Cordova by airplane had been commenced when Governor Troy intervened and a settlement of the railway strike was effected on September 19. Mining operations at Kennecott have continued steadily on an undiminished scale since that date.

Throughout the biennium intermittent labor disturbances in connection with Pacific Coast maritime operations have seriously affected shipments of mining equipment and supplies to Alaska and have thus hampered the progress of mining operations and development.

## THE MINING INDUSTRY

It is a pleasure to record the prosperity that has been enjoyed by the mining industry of Alaska during the past two years. As compared with the next preceding biennium the value of minerals produced increased approximately 54 per cent, and employment in the industry was over 20 per cent greater.

The major factors in the great increase in value of the mineral output have been: The higher price received for the gold produced; the resumption of operations at the mines of the Kennecott Copper Corporation; and the expanded scale of productive operations in the placer platinum field of the Goodnews Bay section. To the resumption of mining at Kennecott early in 1935 is attributable not only all of the great increase in the value of copper produced, which amounted to nearly five million dollars, but also practically all of the increased output of silver, amounting in value to almost one-half million dollars.

Substantial percentages of the increased mineral yield are also to be credited to the revival of placer tin operations in the Cape York section of Seward Peninsula and to the increased output of coal, especially from the Nenana field.

The new high price of gold accounts for 80 per cent of the increase in the value of the gold output and the remaining 20 per cent represents the value of the actual increase in the quantity of gold mined, as compared with the next preceding biennium.

The relatively greater growth of the placer as compared with the lode branch of the gold mining industry during the past biennium is evidenced by the fact that nearly 80 per cent of the increased value of the gold output was derived from placers. As compared with the next preceding biennium the actual value of the output of gold from placers increased by $6,689,000, while that derived from lodes increased by $1,689,000.

This rapid advance in placer gold production has been due to the installation of new modern dredges at several localities where exceptionally rich ground exists; to the rebuilding and modernization of other dredges, including improved power units; and to the extensive introduction of improved types of mechanical equipment such as dragline scrapers, which are operated in

conjunction with movable washing plants and with pumping units that are employed in returning water used for sluicing; together with caterpillar tractors, bulldozers and modern power scrapers.

The effectiveness of mechanical operations of these types is emphasized by the observation that while the value of the yield from placers increased by 47 per cent within the biennium, the number of men engaged in placer operations was but 16 per cent greater than in the next preceding biennium. Within this same period employment at lode mines increased more than 31 per cent, but the value of the yield from gold lodes increased less than 15 per cent. In this connection it should be stated, however, that lode gold production would have been substantially greater with the same number of men employed had not operations been suspended for a period of several weeks at the plant of the Alaska Juneau Gold Mining Company, the principal producer, by reason of a strike.

Although there is cause for much gratification in contemplating the production and employment records of the past biennium, it is well to consider also some elements of the situation that should serve to quell over enthusiasm as to the outlook for the near future. With the price of gold stabilized at the existing figure no further increase in the value of production may be definitely anticipated from that source. It is indeed altogether possible that it may be diminished. Also, announcement has been made by the Kennecott Copper Corporation that the ore reserves at its Alaska properties are barely sufficient in amount to enable productive mining to continue there for a period of more than two years.

It thus appears that of the three principal factors responsible for the increase in value of the mineral production within the past biennium that have been cited above the most important namely, an increased price for gold, will probably not apply again in the near future; and the second most important; that is, the production of copper, will manifestly be applicable for a period of scarcely two years.

Continued increases in production and indeed its maintenance at the present level will therefore have to be derived from the actual expansion of existing units of operation or from the development of new enterprises. Fortunately, the outlook for both

of these means of maintaining and even increasing production levels is encouraging. In the field of placer mining definite plans appear to have been completed for the installation of several new dredges in various districts and a number of new lode mining enterprises of major importance have already been commenced.

Emphasis should be placed on the fact that intensified production from existing known mineral deposits, brought about by the application of improved facilities for rapid extraction, inevitably means a correspondingly rapid depletion of the mineral reserves of the Territory. Every possible encouragement should therefore be given and assistance rendered in expanding exploratory activity and prospecting. These constitute the very foundation upon which rests the structure of continuing prosperity in the mining industry.

## PRODUCTION

Progress in production from the mineral deposits of Alaska during the biennium ending December 31, 1936, was very pronounced.

*According to the most reliable records at present available the increase in the value of mineral products mined during this biennium over that of the output during the preceding biennium amounted to the impressive sum of $14,476,000. The increase in value of each mineral commodity during this period is shown in the subjoined table:

TABLE I

Summary of increases in the value of minerals produced in Alaska during the biennium ended December 31, 1936, as compared with the preceding biennium:

| Commodity | Amount of Increase in Value |
|---|---|
| Gold | $ 8,378,000 |
| Silver | 411,000 |
| Copper | 4,944,000 |
| Lead | 2,500 |
| Tin | 136,000 |
| Platinum metals | 473,000 |
| Coal | 132,000 |
| Total increase in value | $14,476,500 |

* Statistics on production used in this report were obtained from published reports issued by the U. S. Geological Survey and U. S. Bureau of Mines and from data obtained from original sources by the Territorial Department of Mines.

The recorded production of each individual mineral commodity for each year of the past two biennia is shown in Table II:

## TABLE II

Value of minerals produced in Alaska during the bienna ending December 31, 1934, and December 31, 1936, respectively:

| Year | Value of All Minerals Produced | |
|---|---|---|
| 1933 | $10,366,000 | |
| 1934 | 16,721,000 | |
| Total for biennium | | $27,070,000 |
| 1935 | $18,312,000 | |
| 1936 | 23,399,000 | |
| Total for biennium | 41,546,000 | |
| Increase in value | | $14,476,000 |

**Amount and Value of Gold Produced**

| | Fine Ounces | | |
|---|---|---|---|
| 1933 | 469,286 | $ 9,701,000 | (At 20.67 per oz.) |
| 1934 | 457,343 | 16,007,000 | (At $35 per oz.) |
| Total for biennium | | | $25,708,000 |
| 1935 | 455,430 | $15,940,000 | |
| 1936 | 518,457 | 18,146,000 | |
| Total for biennium | | | $34,086,000 |
| Increase in value | | | $8,378,000 |

**Amount and Value of Silver Produced**

| | Fine Ounces | | |
|---|---|---|---|
| 1933 | 157,150 | $ 55,000 | |
| 1934 | 154,700 | 100,000 | |
| Total for biennium | | | $155,000 |
| 1935 | 286,600 | $206,000 | |
| 1936 | 468,000 | 360,000 | |
| Total for biennium | | | $566,000 |
| Increase in value | | | $411,000 |

### Amount and Value of Copper Produced

| | Pounds | | |
|---|---|---|---|
| 1933 | 29,000 | $ 1,900 | |
| 1934 | 121,000 | 9,700 | |
| Total for biennium | | | $ 11,600 |
| 1935 | 15,056,000 | $ 1,249,700 | |
| 1936 | 39,740,000 | 3,696,000 | |
| Total for biennium | | | $4,955,700 |
| Increase in value | | | $4,944,100 |

### Amount and Value of Lead Produced

| | Tons | | |
|---|---|---|---|
| 1933 | 1,157 | $ 85,600 | |
| 1934 | 840 | 62,000 | |
| Total for biennium | | | $147,700 |
| 1935 | 815 | $ 65,200 | |
| 1936 | 935 | 85,000 | |
| Total for biennium | | | $150,200 |
| Increase in value | | | $2.500 |

### Amount and Value of Tin Produced

| | Tons | | |
|---|---|---|---|
| 1933 | 2.9 | $ 2,300 | |
| 1934 | 8.0 | 9,600 | |
| Total for biennium | | | $11,900 |
| 1935 | 40.1 | $ 45,300 | |
| 1936 | 100.0 | 103,000 | |
| Total for biennium | | | $148,300 |
| Increase in value | | | $136,400 |

### Amount and Value of Platinum Metals Produced

| | Fine Ounces | | |
|---|---|---|---|
| 1933 | 605 | $ 18,600 | |
| 1934 | 2,555 | 85,600 | |
| Total for biennium | | | $104,200 |
| 1935 | 8,685 | $265,000 | |
| 1936 | | 312,000 | |
| Total for biennium | | | $577,000 |
| Increase in value | | | $472,800 |

**Amount and Value of Coal Produced**

| | Short Tons | | |
|---|---|---|---|
| 1933 | 96,200 | $481,000 | |
| 1934 | 107,500 | 450,500 | |
| Total for biennium | | | $ 931,500 |
| 1935 | 122,000 | $501,600 | |
| 1936 | 137,000 | 562,000 | |
| Total for biennium | | | $1,063,000 |
| Increase in value | | | $132,100 |

## MINING OPERATIONS

The consistent increase in production of all types of mineral commodities above recorded was attended by a corresponding expansion of mining operations throughout the Territory. This was especially true in the field of placer mining.

### LODE MINING

During the past biennium productive mining was carried on at 41 lode properties and the number of men in the crews employed totalled 1,643. These productive properties were distributed as follows:

| | Mines | Men |
|---|---|---|
| First judicial division | 12 | 1,122 |
| Second judicial division | None | None |
| Third judicial division | 14 | 436 |
| Fourth judicial division | 15 | 85 |

In connection with these productive properties there were in operation a total of 25 milling plants; of which 23 were operating on gold ores; one on copper-silver ore; and one on palladium-copper ore.

In addition to the productive operations above listed active development work was being conducted at 17 other lode properties with a total of 164 men employed as follows:

| | Properties | Men |
|---|---|---|
| First judicial division | 5 | 60 |
| Second judicial division | None | None |
| Third judicial division | 10 | 87 |
| Fourth judicial division | 2 | 17 |

The only quarry in operation during the biennium was that of the Superior Portland Cement, Inc., at View Cove on Dall Island, where a crew of approximately 24 men is employed seasonally.

The quarry of the Vermont Marble Company at Tokeen has remained idle. When in operation this quarry employs from 40 to 70 men.

Three producing coal mines, at which the normal crews aggregate 105 men, were in practically continuous operation throughout the biennium.

Operations in oil were confined to the drilling of an exploratory well near Iniskin Bay by the Iniskin Drilling Company of California. It is estimated that an average crew of 35 men was employed in this work during 1936. Work on the project is reported to have ceased temporarily in October on account of inclement weather.

## PLACER MINING

*Dredges*:

Dredging operations in the Territory have been steadily expanded during the past two years, and an increasingly high percentage of the placer gold output is being made by this method. The number of dredges in active operation increased from 30 in the year 1934 to 37 in 1935. During the year 1936 there were 41 active dredges and at least two others were under construction. A total of approximately 1,070 men were employed in dredging operations during the latter year. The distribution of the active dredging plants was as follows:

| | Dredges | Crews |
|---|---|---|
| Second judicial division | 21 | 332 |
| Fourth judicial division | 20 | 738 |

*Mechanical Operations*:

The use of mechanical equipment in placer mining operations of small to medium size, and where the use of dredges is not feasible, is steadily increasing, and excellent results are being achieved by that method of operation. The most favored type of mechanical equipment is the dragline scraper employed in conjunction with a movable gravel-washing plant, and, in many instances, supplemented by caterpillar bulldozers. During the year 1936 there were 22 such plants in operation in various sections of the Territory with crews aggregating 340 men employed. These plants were distributed as follows:

| | Plants | Men |
|---|---|---|
| Second judicial division | 4 | 91 |
| Third judicial division | 1 | 20 |
| Fourth judicial division | 17 | 229 |

*Hydraulic and Miscellaneous Other Types of Operations*:

Hydraulic plants at which crews of 5 or more men each were employed that were in operation during the year 1936 numbered 95 and the crews employed aggregated 610 men. These plants were distributed as follows:

| | Plants | Men |
|---|---|---|
| Second judicial division | 21 | 136 |
| Third judicial division | 25 | 207 |
| Fourth judicial division | 49 | 267 |

Small operations conducted with crews of less than 5 men each by means of hydraulic and miscellaneous hand methods are estimated to have numbered 330 with a total of approximately 600 men engaged.

## EMPLOYMENT AT MINES

Within the 25-year period just ended employment in the mining industry reached its lowest ebb during the year 1933, when the number of men in the crews engaged at mines of all types aggregated 3,377. Since that year there has been a steady increase in employment and during the past year the men engaged in the industry numbered 4,577. Of this number placer mining operations engaged the services of 57 per cent; lode

mines (including one quarry) engaged 41 per cent: and coal mines 2 per cent.

The importance of the major operating companies in the matter of employment is evident from the fact that of the total number of men employed at lode mines the crew of the Alaska Juneau Gold Mining Company represents slightly more than one-half, and of the total number of men engaged in placer operations the crews of the two subsidiaries of the U. S. Smelting, Refining and Mining Company at Fairbanks and Nome represent approximately one-fifth.

The trend of employment in the mining industry during the past 25 years is exhibited fully in Table III below.

More complete details regarding the distribution of employment at mines will be found in the sections of this report that deal with mining operations and accidents at mines, respectively; and in the lists of mining operations of various types that are appended hereto.

## TABLE III

**Employment at Mines, 1912 to 1936, Inclusive**

| Year | Number of Men Employed at: Placers | Lode Mines and Milling Plants | Coal and Other Mines | Totals |
|---|---|---|---|---|
| 1912 | 4,500 | 2,500 | 150 | 7,150 |
| 1913 | 4,500 | 3,450 | 140 | 8,090 |
| 1914 | 4,400 | 3,500 | 140 | 8,040 |
| 1915 | 4,400 | 3,850 | 160 | 8,410 |
| 1916 | 4,050 | 4,200 | 340 | 8,590 |
| 1917 | 3,550 | 3,220 | 270 | 7,040 |
| 1918 | 3,000 | 1,897 | 400 | 5,297 |
| 1919 | 2,180 | 1,757 | 310 | 4,247 |
| 1920 | 1,990 | 1,880 | 360 | 4,230 |
| 1921 | 2,150 | 1,681 | 400 | 4,231 |
| 1922 | 2,198 | 1,623 | 280 | 4,101 |
| 1923 | 2,080 | 1,500 | 270 | 3,851 |
| 1924 | 2,500 | 1,978 | 175 | 4,653 |
| 1925 | 2,700 | 1,745 | 116 | 4,561 |
| 1926 | 2,332 | 1,663 | 108 | 4,103 |
| 1927 | 2,325 | 1,930 | 114 | 4,141 |
| 1928 | 2,234 | 1,668 | 109 | 4,011 |
| 1929 | 2,354 | 1,605 | 89 | 4,048 |
| 1930 | 2,220 | 1,502 | 98 | 3,820 |
| 1931 | 2,163 | 1,323 | 78 | 3,564 |
| 1932 | 2,180 | 1,496 | 78 | 3,754 |
| 1933 | 2,063 | 1,246 | 68 | 3,377 |
| 1934 | 2,195 | 1,451 | 79 | 3,725 |
| 1935 | 2,323 | 1,665 | 89 | 4,077 |
| 1936 | 2,605 | 1,867 | 105 | 4,577 |

# ACCIDENTS AT MINES

The method that has been adopted by the U. S. Bureau of Mines in preparing statistics of accidents which will afford a true comparison of the frequency of accident occurrences at various mines and at groups of mines in various regions is by use of the accident frequency rate. This is the rate at which fatal and non-fatal accidents are determined to have occurred per million "man-hours" of employment.

In Table IV, below, the accident frequency rate for all metal mines in Alaska (including placers) is exhibited for each year of the 4-year period just past. There is also inserted for comparison the corresponding rates and accompanying data for all similar mines in the United States for the years 1933 and 1934, which are based on the most recent figures available, as published by the U. S. Bureau of Mines.

In Table V similar data for the same period are presented covering the accident record of lode gold mines only in Alaska.

The existence of pronounced hazards in operations at gold lode mines in comparison with those at mines of other types is clearly revealed by a study of the data recorded in Tables IV and V. These tables show that although employment at lode gold mines in terms of man-hours worked during the period covered by them constituted only 36.3 per cent of the total for all mines in the Territory, approximately 83 per cent of the fatalities and over 60 per cent of the non-fatal injuries occurred in operations conducted at lode gold properties.

Table VI displays for each year during which records have been kept the extent of employment, in terms of man-shifts worked; the number of fatal and non-fatal accidents; and the results of non-fatal accidents in terms of days of time lost from their occupations by the injured persons; at placer, lode and coal mines, respectively.

It will be noted that records of employment, and those covering the occurrence of non-fatal accidents and time lost are incomplete for the earlier years included in the table. This table affords, however, a good basis for the study of the relative frequency and the severity of accidents in the several types of mining that are conducted in Alaska.

Attention is drawn especially to the splendid record made by the coal mine operators of Alaska in the matter of accident prevention. The coal mines of the Territory have been operated for 22 years, within which period over half a million man-shifts have been worked with only two fatalities and 138 lost-time accidents. Within the past 9 years there has been no fatality (see Table VI). When the hazards inherent in the mining of coal are considered this record is remarkable. In fact comparison with the records prepared by the U. S. Bureau of Mines covering accidents in all coal mining operations shows that no other coal mining region in the United States approaches Alaska in its freedom from mine accidents.

# TABLE IV

**Summary of Accidents at Metal Mines (Including Placer, But Not Ore Mills) During the Period January 1, 1933, to September 30, 1936**

| Year | Men Employed | Man-shifts Worked | Man-hours Worked | Accidents Fatal | Accidents Non-fatal | Accident Frequency Rates Fatalities | Accident Frequency Rates Non-fatal Injuries | Time Lost (Days) |
|---|---|---|---|---|---|---|---|---|
| 1933: **Alaska** | | | | | | | | |
| Placers | 2,063 | 437,267 | 3,498,136 | 1 | 90 | 0.29 | 25.71 | |
| Lodes | 1,011 | 323,594 | 2,588,752 | 7 | 156 | 2.70 | 60.23 | |
| Total | 3,074 | 760,861 | 6,086,888 | 8 | 246 | 1.31 | 40.40 | 3,467 |
| 1933: **United States** (All metal mines, not including ore mills) | | | | | | | | |
| | 57,016 | 11,642,113 | 94,139,386 | 95 | 5,925 | 1.01 | 62.94 | |
| 1934: **Alaska** | | | | | | | | |
| Placers | 2,195 | 478,908 | 3,831,264 | 0 | 95 | 0.00 | 24.80 | |
| Lodes | 1,203 | 363,478 | 2,907,824 | 6 | 204 | 2.06 | 70.10 | |
| Total | 3,398 | 842,386 | 6,739,088 | 6 | 299 | 0.89 | 44.37 | 5,293 |
| 1934: **United States** | | | | | | | | |
| | 66,645 | 14,723,215 | 116,146,400 | 116 | 7,892 | 1.00 | 67.95 | |
| 1935: **Alaska** | | | | | | | | |
| Placers | 2,323 | 499,765 | 3,998,120 | 2 | 116 | 0.50 | 29.00 | |
| Lodes | 1,306 | 366,453 | 2,931,624 | 6 | 249 | 2.05 | 85.00 | |
| Total | 3,629 | 866,218 | 6,929,744 | 8 | 365 | 1.15 | 52.67 | 5,918 |
| 1936: **Alaska** (For period January 1 to September 30, only) | | | | | | | | |
| Placers | 2,605 | 417,003 | 3,336,024 | 2 | 71 | 0.60 | 21.22 | |
| Lodes | 1,461 | 303,687 | 2,429,496 | 5 | 186 | 2.06 | 76.54 | |
| | 4,066 | 820,690 | 5,765,520 | 7 | 257 | 1.21 | 44.54 | 3,408 |

## TABLE V

**Summary of Accidents at Lode-Gold Mines During the Period January 1, 1933, to September 30, 1936**

| Year | Men Employed | Man-shifts Worked | Accidents | | Accident Frequency Rates | | Time Lost (Days) |
|---|---|---|---|---|---|---|---|
| | | | Fatal | Non-fatal | Fatalities | Non-fatal Injuries | |
| 1933 | 1,011 | 323,594 | 7 | 156 | 2.70 | 60.23 | 2,170 |
| 1934 | 1,203 | 363,478 | 6 | 207 | 2.06 | 71.13 | 3,621 |
| 1935 | 1,222 | 348,723 | 6 | 233 | 2.15 | 83.51 | 3,870 |
| 1936* | 1,362 | 280,922 | 5 | 169 | 2.22 | 75.11 | 2,506 |

*For period January 1 to September 30 only.

# TABLE VI

**Summary of Man-shifts Worked, Fatal and Non-fatal Accidents, and Time Lost at All Mines in Alaska**

| | Man-shifts Worked at | | | Fatalities | | | Non-fatal Accidents | | | Time Lost (Days) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Placer Mines | Lode Mines | Coal Mines | Placer Mines | Lode Mines | Coal Mines | Placer Mines | Lode Mines | Coal Mines | Placer Mines | Lode Mines | Coal Mines |
| 1912 | | | | 6 | 6 | | | | | | | |
| 1913 | | | | 10 | 15 | | | | | | | |
| 1914 | | | | 5 | 14 | | | | | | | |
| 1915 | | | | 4 | 19 | | | | | | | |
| 1916 | | | | 7 | 22 | | 27 | 736 | | | | |
| 1917 | | | | 9 | 24 | | 11 | 705 | | | | |
| 1918 | | | | 1 | 12 | | 0 | 199 | | | | |
| 1919 | | | | 0 | 13 | | 5 | 350 | 5 | | | |
| 1920 | | | | 0 | 9 | | 0 | 302 | | | 2,831 | |
| 1921 | | 568,615 | 103,389 | 0 | 12 | | 0 | 249 | | | 3,519 | 471 |
| 1922 | | 537,180 | 55,309 | 0 | 5 | 0 | 0 | 252 | | | 4,344 | 250 |
| 1923 | 84,948 | 618,359 | 66,927 | 2 | 9 | 0 | 7 | 230 | 42 | 394 | 3,991 | 673 |
| 1924 | 117,545 | 468,890 | 51,398 | 0 | 16 | 0 | 30 | 327 | 6 | 560 | 4,882 | 75 |
| 1925 | 405,000 | 592,326 | 34,353 | 0 | 6 | 0 | 0 | 303 | 5 | No report | 5,639 | 109 |
| 1926 | 418,744 | 563,992 | 51,398 | 1 | 6 | 1 | 90 | 365 | 10 | 1,042 | 5,308 | 75 |
| 1927 | 418,235 | 555,155 | 34,915 | 2 | 7 | 1 | 178 | 259 | 13 | 3,267 | 4,819 | 445 |
| 1928 | 445,707 | 559,081 | 32,766 | 3 | 6 | 0 | 152 | 302 | 2 | 2,048 | 5,981 | 19 |
| 1929 | 420,249 | 524,836 | 25,525 | 5 | 9 | 0 | 142 | 255 | 6 | 1,657 | 4,301 | 197 |
| 1930 | 484,301 | 486,515 | 30,101 | 0 | 7 | 0 | 123 | 271 | 7 | 1,096 | 3,979 | 221 |
| 1931 | 437,573 | 425,201 | 22,129 | 0 | 6 | 0 | 92 | 167 | 5 | 1,251 | 2,668 | 101 |
| 1932 | 441,335 | 445,876 | 22,267 | 0 | 5 | 0 | 67 | 163 | 14 | 765 | 2,630 | 250 |
| 1933 | 437,267 | 403,021 | 19,805 | 1 | 7 | 0 | 90 | 177 | 2 | 1,077 | 2,381 | 9 |
| 1934 | 478,908 | 443,265 | 20,514 | 0 | 6 | 0 | 95 | 220 | 7 | 1,313 | 3,784 | 201 |
| 1935 | 499,765 | 458,440 | 23,571 | 2 | 6 | 0 | 116 | 266 | 12 | 1,250 | 4,372 | 291 |
| 1936* | 417,003 | 397,128 | 20,396 | 2 | 5 | 0 | 71 | 203 | 7 | 432 | 2,863 | 113 |

*For period January 1 to September 30 only.

The details concerning employment and accidents at mines of all types during each of the years of the past two biennia are contained in the summarized statements and tables that follow herewith:

## SUMMARY OF MINE ACCIDENTS THAT OCCURRED DURING 1933

| Number of Mines | Group | Number of Men Employed | Number Shifts Worked | Results of Accidents: Fatal | Serious | Slight | Total Time Lost (Days) |
|---|---|---|---|---|---|---|---|
| | **Placer Mines:** | | | | | | |
| 28 | Dredges | 838 | 216,767 | 0 | 27 | 53 | 1,015 |
| 105 | Hydraulic | 500 | 90,000 | 0 | 0 | 10 | 62 |
| 335 | Others | 725 | 130,500 | 1 | 0 | 0 | 0 |
| 468 | Sub-total | 2,063 | 437,267 | 1 | 27 | 63 | 1,077 |
| 5 | **Coal Mines:** | | | | | | |
| | Underground | 41 | 11,724 | 0 | 0 | 1 | 4 |
| | Surface | 27 | 8,081 | 0 | 0 | 1 | 5 |
| 5 | | 68 | 19,305 | 0 | 0 | 2 | 9 |
| | **Lode Mines:** | | | | | | |
| 39 | Gold | 1,011 | 323,594 | 7 | 44 | 112 | 2,170 |
| | **Mills:** | | | | | | |
| 23 | Gold | 235 | 79,427 | 0 | 6 | 15 | 211 |
| 535 | **Grand Total** | 3,377 | 860,093 | 8 | 77 | 192 | 3,467 |

## SUMMARY OF MINE ACCIDENTS THAT OCCURRED DURING 1934

| Number of Mines | Group | Number of Men Employed | Number Shifts Worked | Results of Accidents: Fatal | Serious | Slight | Total Time Lost (Days) |
|---|---|---|---|---|---|---|---|
| | **Placer Mines:** | | | | | | |
| 27 | Dredges | 895 | 244,908 | 0 | 30 | 56 | 1,191 |
| 108 | Hydraulic | 550 | 99,000 | 0 | 3 | 6 | 122 |
| 340 | Others | 750 | 135,000 | 0 | 0 | 0 | 0 |
| 475 | | 2,195 | 478,908 | 0 | 33 | 62 | 1,313 |
| 3 | **Coal Mines:** | | | | | | |
| | Underground | 49 | 12,570 | 0 | 6 | 0 | 183 |
| | Surface | 30 | 7,944 | 0 | 1 | 0 | 18 |
| 3 | | 79 | 20,514 | 0 | 7 | 0 | 201 |
| | **Lode Mines:** | | | | | | |
| 44 | Gold | 1,203 | 363,478 | 6 | 63 | 141 | 3,621 |
| | **Mills:** | | | | | | |
| 22 | Gold | 248 | 79,787 | 0 | 5 | 11 | 163 |
| 544 | **Grand Total** | 3,725 | 942,687 | 6 | 108 | 214 | 5,298 |

## SUMMARY OF MINE ACCIDENTS THAT OCCURRED DURING 1935

| Number of Mines | Group | Number of Men Employed | Number Shifts Worked | Results of Accidents: Fatal | Serious | Slight | Total Time Lost (Days) |
|---|---|---|---|---|---|---|---|
| | **Placer Mines:** | | | | | | |
| 32 | Dredges | 948 | 252,265 | 1 | 25 | 78 | 1,027 |
| 113 | Hydraulic | 575 | 103,500 | 0 | 2 | 10 | 163 |
| 350 | Others | 800 | 144,000 | 1 | 1 | 0 | 60 |
| 495 | | 2,323 | 499,765 | 2 | 28 | 88 | 1,250 |
| 3 | **Coal Mines:** | | | | | | |
| | Underground | 57 | 14,726 | 0 | 7 | 3 | 255 |
| | Surface | 32 | 8,845 | 0 | 2 | 0 | 36 |
| 3 | | 89 | 23,571 | 0 | 9 | 3 | 291 |
| | **Lode Mines:** | | | | | | |
| 43 | Gold | 1,222 | 348,723 | 6 | 73 | 160 | 3,870 |
| 1 | Copper | 58 | 13,175 | 0 | 8 | 8 | 291 |
| 1 | Non-metal | 26 | 4,555 | 0 | 0 | 0 | 0 |
| 45 | | 1,306 | 366,453 | 6 | 81 | 168 | 4,161 |
| | **Mills:** | | | | | | |
| 23 | Gold | 255 | 70,988 | 0 | 4 | 12 | 205 |
| 1 | Copper | 104 | 20,999 | 0 | 0 | 1 | 6 |
| 24 | | 359 | 91,987 | 0 | 4 | 13 | 211 |
| 567 | **Grand Total** | 4,077 | 981,776 | 8 | 122 | 272 | 5,913 |

## SUMMARY OF MINE ACCIDENTS THAT OCCURRED DURING 1936

| Number of Mines | Group | Number of Men Employed | Number Shifts Worked | Results of Accidents: Fatal | Serious | Slight | Total Time Lost (Days) |
|---|---|---|---|---|---|---|---|
| | **Placer Mines:** | | | | | | |
| 41 | Dredges | 1,105 | 272,420 | 0 | 14 | 75 | 1,014 |
| 100 | Hydraulic | 575 | 92,700 | 1 | 0 | 0 | 0 |
| 350 | Others | 925 | 131,250 | 1 | 0 | 0 | 0 |
| 491 | | 2,605 | 496,370 | 2 | 14 | 75 | 1,014 |
| 3 | **Coal Mines:** | | | | | | |
| | Underground | 65 | 16,592 | 0 | 3 | 2 | 85 |
| | Surface | 40 | 10,693 | 0 | 2 | 1 | 64 |
| 3 | | 105 | 27,285 | 0 | 5 | 3 | 149 |
| | **Lode Mines:** | | | | | | |
| 46 | Gold | 1,362 | 367,411 | 8 | 75 | 157 | 3,192 |
| 1 | Copper | 75 | 21,677 | 0 | 8 | 17 | 316 |
| 1 | Non-metal | 24 | 2,353 | 0 | 2 | 0 | 51 |
| 48 | | 1,461 | 391,441 | 8 | 85 | 174 | 3,559 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Mills: | | | | | | |
| 23 | Gold | 303 | 85,247 | 0 | 5 | 19 | 217 |
| 1 | Copper | 103 | 38,417 | 0 | 0 | 1 | 4 |
| 24 | | 406 | 123,664 | 0 | 5 | 20 | 221 |
| 566 | | 4,577 | 1,038,760 | 10 | 109 | 272 | 4,943 |

## FATALITIES AT MINES

YEAR 1933:

During the year 1933 a total of eight fatalities occurred in and about the mines of Alaska. Of these fatalities seven occurred at gold lode mines and one at a placer operation.

The causes that led to the fatalities and the mining properties at which they occurred are as follows:

1. Struck by rock from stope—Alaska Juneau Mine ..... 1
2. Returned too soon to delayed blast—Alaska Juneau Mine 1
3. Knocked over cliff by falling rocks—Individual prospect 1
4. Caught by caving ground in bottom of placer shaft when timbering failed—Individual operation ..... 1
5. Carried into oreway by slide of rock from stope—Alaska Juneau Mine ..... 1
6. Fall upon rock followed by infection of injured part—Bremner Mine ..... 1
7. Fall into oreway—Alaska Juneau Mine ..... 1
8. Electrocuted by trolley wire—Alaska Juneau Mine ..... 1

Total ..... 8

YEAR 1934:

During the year 1934 a total of six fatalities occurred in and about the mines of Alaska, all of which resulted from accidents at gold lode mines.

The fatalities were due to the following causes:

1. Falls of persons into chutes and oreways—Alaska Juneau Mine ..... 2
2. Fall of rock from side, back or face of working place—
   Alaska Juneau Mine ..... 2
   Lucky Shot Mine ..... 1

3. Struck on head by some unidentified object—Alaska Juneau Mine ..... 1

Total ..... 6

YEAR 1935:

Fatalities at mines in Alaska during the year 1935 numbered eight, of which six were due to accidents at gold lode mines and two to accidents at placer operations.

The following causes led to these fatalities:

1. Falls of persons into oreways—Alaska Juneau Mine ..... 2
2. Struck by rock falling from stope through draw-hole of bulldoze chamber—Alaska Juneau mine ..... 1
3. Falls of persons in shafts—Hirst Chichagof Mine ..... 2
4. Caught by run of muck from roof of tunnel when removing old timbers in placer drifting operation—Partnership operation ..... 1
5. Caught between wall of haulage drift and car of moving ore train where clearance was insufficient—Alaska Juneau Mine ..... 1
6. Carried by caving bank into dredge pond and drowned when approaching gangplank of dredge—Chatanika dredge of Fairbanks Exploration Company ..... 1

Total ..... 8

YEAR 1936:

During the year 1936 there were ten fatalities that resulted from accidents at mines in Alaska, eight of which occurred at lode gold mines and two at placer operations.

The causes of these fatalities and the properties at which they occurred are as follows:

1. Fall from a sling when being lowered in a shaft—Partnership operation on Happy Creek, Fairbanks district 1
2. Fall into shaft when hoisting cable broke—Partnership placer operation at Tenderfoot ..... 1
3. Asphyxiated by powder fumes—Nabesna Mine ..... 1
4. Fall into oreway through grizzly in bulldoze chamber

probably occasioned by air blast from heavy fall of rock in communicating stope—Alaska Juneau Mine ..... 1

5. Fall down raise when cables were severed that held ladders—Alaska Juneau Mine ..... 1
6. Caught between wall of drift and moving ore train where clearance was insufficient—Alaska Juneau Mine ..... 1
7. Struck by nozzle of hydraulic giant that was out of control—Woodchopper Creek stripping operations of Alluvial Golds, Inc. ..... 1
8. Caught beneath heavy fall of rock from roof of stope cutout temporarily used as manway—Alaska Juneau Mine ..... 2
9. Fall into oreway when drilling large boulder at throat of bulldoze chamber. Accident probably due to miner using too short drill steel and standing on grizzly instead of behind safety wall—Alaska Juneau Mine..... 1

Total ..... 10

## DESCRIPTIONS OF FATAL ACCIDENTS THAT OCCURRED DURING 1933

January 14, Nick Hodoff, Russian, bulldozer, age 40, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when struck by rocks that rolled from the stope. At the time of injury Hodoff was drilling a rock on the grizzly and rocks came down from the collar of the stope and struck him before he could get into the clear. His right leg was crushed below the knee, left leg broken at the hip and one of his pelvic bones crushed, with probable internal injuries from which he died soon after the accident.

February 18, Eli Erickson, Swede, mine contractor, age 36, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he returned to one of his blasts just as it exploded. He had loaded three plug holes and was able to ignite only two of them before going to the station for lunch. When only two shots were heard he returned immediately to the third charge and was near it when it exploded, causing many perforated wounds, blowing off his left arm between wrist and elbow and perforating abdomen and both ear drums.

June 15, Mike Monich, Austrian, bulldozer, age 47, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when carried into the chute by a mass of rock, snow and ice. Monich was placing a blast under a hang-up in the collar of the stope when part of the hang-up, consisting of rock, snow and ice, broke loose carrying him through the grizzly into the chute. His chest and ribs were crushed and spine broken.

July 26, Delate Cook, American, miner and prospector, age 50, was killed when struck by falling rocks and knocked over a cliff. While removing surface rock from a quartz ledge rocks began falling from above, some of which struck Cook carrying him over a cliff and causing him to fall a distance of about 400 feet. This accident occurred on the Mike Barrett property, Valdez district.

August 19, Gus Seaberg, Swede, independent placer operator in the Valdez Creek district, age 48, was killed when caught by a cave of the side of a shaft in which he was working. While working in the bottom of a shaft a post gave way, striking Seaberg behind the ear and rendering him unconscious. Before he regained consciousness the shaft caved in from above, burying Seaberg and causing his death.

September 14, Fred Togstad, Norwegian, miner, age 58, employed by the Bremner Gold Mining Company (gold lode), died from the effects of a lacerated thumb received when he fell on a rock. Togstad was returning from the tunnel where he had been working and slipped and fell, striking his hand on a sharp rock. About five days after the accident his hand began to swell and he was sent to the hospital for treatment, but blood poisoning had set in and he died on September 23.

November 15, Victor V. Griffiths, Welsh, bulldozer, age 26, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he fell through the grizzly into the oreway. He was breaking rock on the grizzly with a sledge and in some manner fell through into the oreway where his body was found partially covered with muck about 10 feet below the grizzly when a man was lowered on a rope a short time after Griffiths was missed. He sustained severe cuts on his head, a broken nose, broken left ankle, and severe bruises on various parts of the body.

November 18. Tom Pacator, Turkish, laborer and nipper, age 43, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when a piece of steel he was carrying came in contact with the trolley wire. He was passing a mine car with a load of steel when a nearby miner saw a flash and immediately went to Pacator, but found him lying unconscious on the ground. Artificial respiration was started at once and kept up for one hour and forty-five minutes, but he failed to revive.

## DESCRIPTIONS OF FATAL ACCIDENTS THAT OCCURRED DURING 1934

January 1, Garold R. Shipley, American, bulldozer, age 27, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he fell through the grizzly into the oreway. Shipley was working alone on the grizzly at the time of accident, and when it was discovered by the bulldoze boss that he was missing a search was made and it was decided that he must have fallen through the grizzly. As the muck was running in the oreway, it was evident that Shipley would be covered with it if he had fallen through the grizzly. About an hour after this man was first missed his body was drawn from the chute. The chest was badly crushed and the head and body badly bruised.

January 2, John Hansen, Norwegian, miner, age 29, employed by the Willow Creek Mines Company (gold lode), was killed by a large slab of rock which fell from the face of the stope. The back and face of the stope where Hansen and another man were working had been barred down and Hansen was preparing to drill when a large slab of rock fell, crushing and killing him instantly. Immediately after the accident a number of men were called and the rock broken and the body removed.

May 31, Carl Egge, Norwegian, contractor's helper, age 41, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed by a blow on the head from some unknown object. Egge had been sent by a contractor to a lower level to send up the skip to be loaded with dull steel. After loading the steel the contractor signaled for the skip to be lowered. It started with a jerk and then slowed down, and the contractor, thinking

something must be wrong, stepped off the skip and went down a ladder to the lower level and found Egge lying near the hoist with his skull fractured and a pool of blood near his head that had issued from his mouth and nose. A careful examination of the premises showed nothing out of order or any object that could have fallen on the man.

September 30, John Demiroff, Bulgarian, bulldozer, age 40, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he fell into the manway. There were no witnesses to the accident, but when the bulldoze boss visited the working place of Demiroff he was missing and a search was immediately started and his body found about 200 feet below his working place. The right side of skull was badly crushed and there were many bruises on various parts of the body.

November 5, Victor Rigos, Italian, miner, age 45, employed by Lynch Brothers at the Goo-Goo Mine near Ketchikan (gold lode), was killed by a slide of rock from the side of the tunnel. While picking down preparatory to placing a timber Rigos was caught by a slide of loose rock from the side of the tunnel. Both legs and pelvis were broken in addition to a scalp wound.

November 8, John E. Lappin, American, machine man and contractor, age 27, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed by a fall of rock and muck. The injured and another man were barring down loose rock in a drill station when a boulder weighing approximately 100 pounds and about a quarter of a ton of fine muck fell from the roof on Pappin. His partner immediately rolled the rocks off his head and shoulders and then obtained assistance to remove the body from the muck pile. The neck was broken, left femur fractured and numerous other fractures, cuts and bruises.

## DESCRIPTIONS OF FATAL ACCIDENTS THAT OCCURRED DURING 1935

March 7, Kosta Lazaroff, Bulgarian, bulldozer, age 43, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he fell through the grizzly into the oreway. Lazaroff was digging and hooking rocks on the grizzly when visited by the bulldoze boss and when he returned some ten minutes later

he found Lazaroff's hat and lamp alongside the grizzly. The grizzly was nearly covered with muck and it was evident that the deceased was struck by this muck or a rock that came from the stope and knocked through the grizzly into the oreway. Other bulldozers working in the vicinity were immediately notified to let no more muck into the oreway and a search was started. After drawing about 40 cars from the chute Lazaroff's body came out with the muck. His skull and face were crushed, his neck, back and shoulder broken, and his chest crushed.

March 27, George Dackovich, Servian, bulldozer, age 43, employed by the Alaska Juneau Gold Mining Company (gold lode), was injured by a rock about the size of a powder box which came from the draw hole. Dackovich was making a hole in some frozen muck in the draw hole preparatory to blasting it loose when the muck suddenly came down, breaking his left leg about midway between the knee and ankle. The injured man was taken to the hospital, where his leg was set and he was put to bed. He seemed to be in good condition and feeling cheerful and fell asleep about midnight. At six o'clock next morning the nurse tried to arouse him, but could not and called the doctor, who found the man to be in a state of coma from which he never recovered. He died on March 29, probably from hemorrhage caused by the injury.

May 5, Harold Johnson, American, pump repairman and pipe man, age 22, employed by the Hirst-Chichagof Mining Company (gold lode), was killed when he fell down the shaft manway. Johnson was working with the mine foreman installing a pump on the 1,000-foot level. The foreman told the deceased to wait for him while he went to the 700-foot level for some fittings. Upon his return the foreman did not see Johnson and went to a drift a short distance away where he inquired of the men working there as to whether any of them had seen his helper. As none of the men had seen Johnson, the foreman and one of the workmen returned to the shaft and found the body of the deceased lying close to the floor of the 1,000-foot level, under the shaft manway, wedged between a ladder and a post. The body was wedged very tightly and the head completely crushed, indicating a fall from a considerable height. There were no witnesses to the accident, but it is supposed that for some un-

known reason the deceased was climbing either up or down the shaft manway and lost his footing or hold on the ladder.

May 17, Patrick J. McDonald, American, miner, age 60, employed as one of three partners in an underground placer tunnel, was killed when caught by timber and gravel from the roof of the tunnel. McDonald and his two partners were recovering timber from an abandoned tunnel. One of the partners would knock out the posts and let the timber fall, and the other two men would remove it from the tunnel. At the time of the accident McDonald and one of the other men were standing some distance back from where the posts were being knocked out when four sets of timber and about six feet of gravel fell, killing the deceased instantly.

August 12, Tony Tezak, Jugo-Slav, mine foreman, age 52, employed by the Hirst-Chichagof Mining Company (gold lode), was killed when he was struck by the bucket and fell down the shaft. On the morning of the accident Tezak had made his round of inspection of development headings and stopes and for some unknown reason, and against his own safety rules, started to climb down the ladder to inspect the shaft work without first notifying the hoistman. The hoistman loaded a ladder in the bucket and started lowering it down to the men at the bottom of the shaft when he felt the bucket strike something and he immediately stopped the hoist. The two men at the bottom of the shaft heard the bucket coming down, strike something, and the foreman fell at their feet. His head was crushed and his neck apparently broken.

September 27, Evan Selness, Norwegian, trackman, age 38, employed by the Alaska Juneau Gold Mining Company (gold lode), received injuries when crushed between an ore car and the side of the drift from which he died on September 29. Selness and another man were tightening joints on the rails when a loaded ore train approached and they both stepped aside to let the cars pass. The place where the deceased stepped aside was narrow and the last car apparently caught him and squeezed him against the side of the drift, causing a crushed chest, broken left collar bone, double dislocation of right collar bone and two broken ribs. On either side of the place where the accident occurred the drift is said to be wider and the injured could have

chosen a safe place to stand if he had shown good judgment.

October 30, Eugene Quackenbush, American, bulldozer, age 28, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he fell through the grizzly into the oreway. This man was drilling a boulder on the grizzly when last visited by the bulldoze boss. On his round about half an hour later the bulldoze boss did not see Quackenbush and inquired of other men working in the vicinity as to whether they knew where he was, but received a negative answer and immediately notified the mine office to stop the drawing of the chute, and also notified the other bulldozers to let no more muck into the oreway. By this time the assistant mine foreman had arrived and was lowered on a rope through the grizzly and found the body of the deceased about 100 feet below the grizzly partially covered with muck. The neck and left shoulder were broken and the chest badly crushed.

November 12, Joseph Darcy, American, shoreman, age 40, employed by the Fairbanks Exploration Department, U. S. S. R. & M. Company (gold placer), was drowned in the dredge pond. Darcy was waiting on the bank for the gangplank to swing over so he could get aboard the dredge and when the plank was only a few feet away the bank caved causing him to fall into the pond. The man had been warned by the winchman that the bank was caving, but did not heed the warning. There was considerable ice floating in the pond at the time and, although several men were waiting to rescue him, he did not come to the surface after falling into the pond.

## DESCRIPTIONS OF FATAL ACCIDENTS THAT OCCURRED DURING 1936

January 7, Alex Gruback, Czechoslovakian, miner, age 61, one of three partners engaged in sinking a prospect shaft for lode on Happy Creek in the Fairbanks district, was instantly killed when he fell out of the sling and to the bottom of the shaft. He was suspended in the shaft without a safety belt and it is believed by his partners that he suffered a heart attack which caused him to fall a distance of 64 feet to his death.

May 3, Lars Haugse, Norwegian, miner, age 30, employed

by the Nabesna Mining Corp. (gold lode), was gassed by powder fumes. When the day shift was leaving the mine Haugse was missed and a search started for him. He was found sitting on a sprag near the face and when called he did not answer or show signs of life when one of the search party shook him. He was moved to the drift and artificial respiration begun, but he could not be revived.

May 12, Stanley Joseph Savisky, American, bulldozer, age 33, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he fell through the grizzly into the oreway. There were no eye witnesses to the accident, but the bulldozer working in an adjacent bulldozing chamber felt a puff of air, as though there had been a cave in the stope, and he immediately went to the working place of Savisky. A hat was lying on the muck which partially covered the grizzly, but Savisky was nowhere to be seen. Bulldozers working in the vicinity were immediately notified to let no more muck into the oreway, and a search was started for the missing man. He was found on the muck approximately 400 feet below the grizzly and immediately taken to the hospital where he died two and a half hours after the accident occurred. His right leg was broken, extensive lacerations on the head and the skull was fractured near the right temple.

May 17, Lawrence McCarthy, American, prospector, age 23, one of three partners sinking a prospect shaft for placer in the Tenderfoot area near Richardson, was instantly killed when the cable broke and he fell to the bottom of the shaft. On the morning of the accident one of the partners suggested that they change the cable, but McCarthy objected and said that the cable would hold for a long time and that he wished to get some more work done underground as soon as possible. He was lowered to the bottom of the shaft, where he turned on the steam points, then hoisted to the surface, and was just stepping from the bucket when the cable parted, dashing him to the bottom of the 136-foot shaft. The body was badly contused and many bones were broken.

June 27, Joseph J. Wilson, Canadian, timberman, age 49, employed by the Alaska Juneau Gold Mining Company (gold lode), was killed when he fell down the raise. Wilson and his

helper were repairing ladders that were used for driving a raise. The top ladder was fastened to a stull with cable and Wilson was standing on this section of the ladder while cutting the cable which held the ladders, depending on the stulls below to hold the ladder up. When the cable was cut the ladders dropped down the raise carrying Wilson with them a distance of 115 feet. Ladders were immediately placed in the raise, but the injured man was already dead when reached. He had been warned by the mine superintendent not to go in or over the raise without a safety rope attached to him.

June 30, Albert Edward Schuerman, American, loader, age 37, employed by the Alaska Juneau Gold Mining Company (gold lode), was crushed between an ore car and the wall of the drift. Schuerman and another man were riding on the rear end of a motor and as they approached a loading chute they noticed water running from it and Schuerman moved over so that his companion might escape a wetting when they passed the chute. He moved too far and his shoulder grazed the side of the drift, causing him to become overbalanced and fall off the motor. He was caught and crushed between the ore car next to the motor and the wall of the drift. His companion immediately called to the motorman to stop, but when they reached Schuerman he was already dead. His skull was badly crushed and his left arm broken.

September 20, Sigurd Skjold, American, nozzleman, age 39, employed by the Alluvial Golds, Inc. (gold placer), was killed when he was either struck by the nozzle or the stream of water therefrom. It was near the end of his shift that Skjold approached the nozzle and probably took hold of the deflector and at the same time slipped, jerking the deflector to one side, which caused the nozzle to spin. It is thought by his fellow workmen that he tried to run from the nozzle and was struck by it or the stream of water. The hydraulic foreman noticed the giant running wild and immediately ran to cut the water off. Skjold was in a dazed condition and was taken to the bunk house and treated for shock and exposure. He was taken by plane to the hospital at Fairbanks during the evening of the day of the accident, but died at 4 o'clock next morning.

October 18, Henry Richard Halvorsen, aged 29, and Harold Sadler, aged 24, both Americans, and employed by the Alaska

Juneau Gold Mining Company as contractor's nippers, were instantly killed when ascending with drill steel a ladderway that was being used temporarily as an entrance way to No. 446 cutout stope in lieu of a permanent manway that was in course of construction. The men were close together and had almost reached the top of the ladderway at the upper rim of the cutout area where drilling operations were in progress when the back of the cutout stope caved without warning over an area of approximately 30 x 20 feet. Both men were buried beneath huge slabs of rock by which they were crushed. The caving of the roof was undoubtedly due to a heavy sag in the contour of its surface, which was entirely unsupported, and to the unusual tensile weakness of the rocks in which the chamber had been excavated.

December 29. Edward A. Moody, Swede, bulldozer, aged 52 years, employed by the Alaska Juneau Gold Mining Company, was killed by slipping or being knocked between the grizzly bars of No. G bulldoze chamber, No. 452 stope, into the oreway beneath and falling a vertical distance of about 300 feet. There was no eye witness to the accident, but testimony of fellow employees, and an examination of the working place, indicate that it was due to lack of precautions on the part of Moody and laxity of supervision on the part of the company officials. The evidence shows that Moody was drilling into a large elongated boulder that was standing upright in the throat of the bulldoze chamber. Instead of using long steel and standing behind the safety wall as company regulations require, he was using short steel and was standing on the grizzly, with only an 8-foot length of ladder covering the same instead of the substantial platform required by regulations. The boulder that was being drilled either tipped, or was knocked forward by muck from behind it, the ladder that spanned the grizzly bars was broken, and Moody, together with his drilling machine, fell or was knocked into the ore pass between the grizzly bars.

## PERMANENT INJURIES AT MINES

YEAR 1933:

During the year 1933 accidents at mines resulted in either the total or partial permanent disability of twelve injured persons as follows:

1. Andrew Tweiten, boilermaker at the Alaska Juneau Mine, on June 17, 1933, lost the first joint of the little finger of the right hand when it was caught between a steel plate that was being straightened and the roll that was being used in the operation.

2. Tom Datoff, bulldozer at the Alaska Juneau Mine, on June 24, 1933, lost the sight of both eyes as the result of a premature blast. The accident was caused by Datoff cutting too short the fuse he employed and delaying too long in placing the charge after the fuse had been spitted.

3. J. Arthur White, loader at the Alaska Juneau Mine, on June 27, 1933, lost the third and fourth fingers of the right hand when the hand was caught between the shaft of a pneumatic air-gate and a rock that was being dislodged from the loading chute.

4. Leonard Peterson, pole tender on a motor at the Alaska Juneau Mine, on July 17, 1933, lost four toes of the left foot when the foot was caught between two haulage motors that collided during switching operations underground. The accident was reported to have been due to the carelessness of the injured in standing on the step-board of the motor when it was in motion and that of motormen Peter Polyk and Lars Utgard in failing to turn the lights of their motors in the proper direction during switching operations.

5. Edward A. Johnson, repairman at the Alaska Juneau Mine, on October 30, 1933, lost the index and middle fingers of the left hand which was caught in the gear of a roll being greased while in motion by the injured.

6. John Eikevik, loader at the Alaska Juneau Mine, on December 8, 1933, lost the first joint of the left thumb when it was caught between a rock and a piece of rail that was being used in prying the rock from a loading chute.

7. Alfred C. Johnson, skiptender at the Alaska Juneau Mine, on September 17, 1933, suffered permanent impairment of hearing through the rupture of the right ear drum; and also suffered permanent head injuries as the result of the explosion near him of a charge of dynamite which had been placed by a fellow workman at a hangup in an oreway and which was carried by a run of muck to the gate of the skip pocket near which Johnson was standing.

8. Chris Nerland, carpenter in the employ of the Fairbanks Exploration Company, on June 4, 1933, lost the first joints of the second and third fingers of the left hand which were caught in the revolving tool of a jointer machine when a board that was being fed into it by the injured man broke.

9. John Bergland, helper in the employ of the Fairbanks Exploration Company, on April 3, 1933, lost the left middle finger when it was caught between a dredge bucket and a dolly that was being used by the injured man in driving out a bucket pin.

10. John Grosse, laborer in the employ of the Fairbanks Exploration Company, on September 20, 1933, lost part of the middle finger of the left hand when it was caught between the top of a pile that was being driven and the pile-driver hammer.

11. Ingwald Hanson, miner at the Hi Yu Mine, on August 24, 1933, when severing fuse sustained a cut finger which later became infected and had to be amputated.

12. Matt Maki, miner at the Chichagoff Mine, on October 30, 1933, suffered partial impairment of vision in the left eye which was struck by a piece of rock in the course of work in a shaft.

YEAR 1934:

During the year 1934 accidents at mines resulted in either the total or partial permanent disability of nine injured persons as follows:

1. Alex Sabinoff, bulldozer at the Alaska Juneau Mine, on January 13, 1934, broke his back while lifting heavy rock on grizzly in bulldoze chamber, causing permanent total disability.

2. Leo Kareen, skiptender at the Alaska Juneau Mine, on July 28, 1934, lost two-thirds of index finger of left hand when

struck by hammer wielded by fellow workman while attempting to free a rock that clogged the chute opening at skip pocket.

3. Clifford Mason, electrician at the Alaska Juneau Mine, on September 1, 1934, lost part of great toe when casing of motor that was being removed slipped from hook and dropped on the toe.

4. John G. Johnson, carpenter at the Alaska Juneau Mine, on February 15, 1934, lost the index finger of left hand when same came in contact with circular saw while ladder rungs were being sawed.

5. Sam Konoff, bulldozer at the Alaska Juneau Mine, on September 22, 1934, sustained permanent total disability when his back was broken by a fall into an oreway through the grizzly of a bulldoze chamber that was caused by his being struck on the head by a small rock that fell from the stope above.

6. Robert Heath, employed by the Fairbanks Exploration Company, on June 6, 1934, lost his right fore finger when it was caught between driving hammer and pipe of thawing point.

7. Ove Kilgren, laborer in the employ of the Fairbanks Exploration Company, on June 15, 1934, lost his right little finger when driving weight on thawing point slipped and hit finger.

8. John Eikevik, chute blaster at the Alaska Juneau Mine, on September 15, 1934, lost the index finger of the left hand when the finger was caught between the check gate of a chute and a piece of rail which he was using to pry a rock loose.

9. Mike Bozich, trammer at the Alaska Juneau Mine, on April 24, 1934, sustained a broken thigh which resulted in a permanent partial disability in the use of the leg. The injured fell between the motor on which he was riding and the following ore car, and was dragged about 25 feet, upon his receiving an electric shock when his head touched a defective span-wire that was dangling from the trolley wire on the No. 10 level.

YEAR 1935:

During the year 1935 accidents at mines resulted in either the total or partial permanent disability of eight injured persons as follows:

1. Henry W. Anderson, timberman at the Alaska Juneau Mine, on December 27, 1935, lost one-half of the right thumb when it was caught between the side rod of a stoping machine and an eye-bolt that was being driven by it.

2. Robert S. Bryant, laborer at the Alaska Juneau Mine, on November 10, 1935, lost the index, middle and third fingers of the left hand which were cut off when his hand was caught between an overhead cable and sheave wheel used in scraper operation underground.

3. Emil T. Foxhill, chute puncher at the Alaska Juneau Mine, on October 10, 1935, lost a portion of his left thumb when it was caught between plate of trolley board and piece of rail he was using to pry a large rock in an ore car.

4. John A. Kerschen, bulldozer at the Alaska Juneau Mine, on July 11, 1935, lost sight of right eye when it was struck by flying piece of rock while sledging boulders on grizzly of bulldoze chamber.

5. Fred E. Nelson, chute blaster at the Alaska Juneau Mine, on November 18, 1935, lost the index finger of the right hand when it was caught between a short piece of rail and the check gate while he was prying a large rock loose.

6. Edwin W. Larson, bulldozer at the Alaska Juneau Mine, on July 19, 1935, lost vision in the left eye when he returned too soon to a charge he had placed in the bulldozing chamber. He mistook the blast in a neighboring chamber for his own.

7. Tony Hempel, deckhand on dredge No. 8 for the Fairbanks Exploration Company, on December 24, 1935, lost a portion of the left thumb when it was caught by the spud or spud keeper.

8. Hiram E. Jacobson, tram operator at the Kennecott Mines, on September 9, 1935, received a fractured right ankle when he was thrown by a flying cable while splicing the tram cable. A growth later developed which caused a one-third permanent disability to the ankle joint.

YEAR 1936:

During the year 1936 accidents at mines resulted in either

the total or partial permanent disability of three injured persons as follows:

1. George R. Douglas, loader at the Alaska Juneau Mine, on March 25, 1936, lost half of his right thumb when it was caught between gate of chute and piece of rail that was being used to pry a rock loose.

2. Roy Nelson, tram operator at the Kennecott Mines, on October 17, 1936, lost the left index finger which was caught between tram bucket and guard when injured attempted to prevent bucket from getting away.

3. Wilbur Baslington, skiptender for the Chichagoff Mine, on November 15, 1936, lost his left eye when he stepped on a primer with hob-nailed shoes, causing the primer to explode.

## LIST OF LODE MINING OPERATORS AND PROPERTIES

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Admiralty Alaska Gold Mining Co., Funter | Peckovich property, Funter Bay | Juneau | Intermittent development work, with milling equipment | Idle |
| Adler & Creavy, Fairbanks | Royal Flush property, Ester Dome | Fairbanks | Gold lode development | 3 |
| Alaska British Columbia Gold Mines, Ltd., Inc., Ketchikan | Valparaiso mine, Dolomi | Ketchikan | Development work in 1935 | Idle |
| Alaska Chichagof Mining Co., Chichagof | Nick Bez property, Klag Bay | Sitka | Temporary operation by Chichagoff Mining Co. 1936 | 5 |
| Alaska Consolidated Mining and Smelting Co., Sulzer | Jumbo Mine, Sulzer | Ketchikan | Formerly producer of copper | Idle |
| Alaska Dano Mines Co., Funter | Alaska Dano property, Admiralty Island | Juneau | Intermittent development of gold lodes | |
| Alaska Empire Gold Mining Co., Juneau | Chas. Williams property, Hawk Inlet, Admiralty Island | Juneau | Gold quartz, with milling equipment | 17 |
| Alaska Exploration and Mining Co., Inc., Talkeetna | Denali and Timberline prospects, Valdez Creek | Chitina | Development work on gold lodes | 15 |
| Alaska Finley Co., Valdez | Ramsey-Rutherford Mine, Valdez Glacier | Valdez | Gold lode, with mill | 6 |
| Alaska Gold and Metals Co., Ketchikan | Salt Chuck or Goodro Mine, Kasaan Bay | Ketchikan | Palladium and copper lode, with mill | 12 |
| Alaska Gold King Mines, Ltd., McCarthy | Williams Peak property, Dan Creek | McCarthy | Intermittent development on antimony-gold lode | |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Alaska Gold Mountain Mines, Ltd., Ketchikan | Smuggler Cove property, Cleveland Peninsula | Ketchikan | Intermittent development on gold lode | Idle |
| Alaska Handy Gold Mining Co., Juneau | Alaska Handy property, Chichagof Island, Klag Bay | Sitka | Intermittent development on gold lode | |
| Alaska Hills Mines, Corp., Seward | Nuka Bay | Kenai | Gold lode, with mill | 2 |
| Alaska Homestake Mining Co., (J. G. Galvin & Associates), Nome | Megan and Sommerville property, Bluff | Cape Nome | Intermittent development of gold lodes | Idle |
| Alaska Juneau Gold Mining Co., Juneau | Alaska Juneau Mine, Juneau | Juneau | Gold lode, with milling plant | 950 |
| Alaska-Kensington Gold Mines, Inc., Juneau | Kensington and Comet mines, Lynn Canal | Juneau | Construction and reopening old workings on gold lodes | 40 |
| Alaska Mayfield Mines, Inc., Cordova | Mayfield property, Columbia Glacier, Shoup Bay | Valdez | Development on gold lode | 6 |
| Alaska Mining & Development Co., Inc., Fairbanks | Wyoming Mine, Cleary Creek | Fairbanks | Gold lode with mill | 5 |
| Alaska Oracle Corp., Seward | Oracle Mine, Moose Pass | Kenai | Intermittent development on gold lode, with mill | Idle |
| Alaska Windham Gold Mining Co., Windham Bay | Windham Bay properties | Juneau | Intermittent development on gold lodes, with mill | Idle |
| American Gold Mining Co., Juneau | McKallick properties, Klag Bay, Chichagof Island | Sitka | Intermittent development work on gold lodes | 4 |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| American Smelting and Refining Co., Fairbanks | Goodpaster properties, Goodpaster district | Fairbanks | Development of gold lodes and road construction | 15 |
| Apex-El Nido Mining Co., Juneau | Apex-El Nido Mine, Lisianski Inlet, Chichagof Island | Sitka | Gold lode with mill | Idle |
| Arndt & Co. (Otto Arndt, Alex Gruback and John Estleman), Fairbanks | Last Chance Mine, Ester Dome | Fairbanks | Gold lode | 5 |
| Aurora Nickel Co., (S. P. Vevelstad & Associates), Juneau | Various nickel properties, Chichagof, Yakobi and Baranof Islands | Sitka | Intermittent development of nickeliferous lodes | Idle |
| Alaska Pacific Mines, Wasilla | Independence and Free Gold mines, Fishook Creek | Knik | Development of gold lodes, with mill | 14 |
| Babcock & Downey, Seward | Sonny Fox Mine, Nuka Bay | Kenai | Gold lode, with mill | 2 |
| Boe, Homer, Hope | Hirshey Mine, Palmer Creek | Kenai | Gold lode, with mill | 5 |
| Bolyan & Cox, Chichagof | Slocum Grunter and Pinta River properties, Slocum Arm and Goulding Harbor | Sitka | Gold lodes, with small mill | 2 |
| Bolland & Hank, Fairbanks | Happy Creek, Ester Dome | Fairbanks | Gold lode | 2 |
| Borden, Wm., Fairbanks | Ester Dome | Fairbanks | Gold lode, with small mill | 3 |
| Eralaska Mining Corp., Wasilla | (Alaska Pacific Mines, successor, which see) | | | |
| Bremner Gold Mining Co., McCarthy | Bremner Mine, Bremner district | McCarthy | Gold lode, with mill | 24 |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Century Mines, Inc., Hyder | Daly Alaska property, Salmon River | Hyder | Development of gold lode | Idle |
| Chandalar Gold Mines, Inc., Chandalar | Sulzer properties, Chandalar district | Chandalar | Intermittent development of gold lodes | Idle |
| Chatham Mining Co., Fairbanks | Burns property, Chatham Creek | Fairbanks | Development of antimony gold lode, with mill | 5 |
| Chichagoff Mining Co., Chichagof | Chichagoff Mine, Klag Bay, Chichagof Island | Sitka | Gold lode, with milling plant | 73 |
| Cliff Gold Mines, Inc., Valdez | Cliff Mine, Valdez Bay | Valdez | Gold lode, with milling plant | 17 |
| Cleary Hill Mines Co., Fairbanks | Rhoads-Hall or Free Gold Mine, Cleary Creek | Fairbanks | Gold lode, with milling plant | 16 |
| Crow Creek Gold Corporation, Anchorage | Monarch Mine, Crow Creek | Knik | Operation under lease of gold lode, with mill | 11 |
| Culross Island Mining and Milling Co., The, Valdez | Culross Island property, Prince William Sound | Valdez | Intermittent development of gold lode | Idle |
| Crown Mines Syndicate, Seward | Primrose Mine, near Seward | Kenai | Temporary new development on old property | Idle |
| Crown Point Mining Co., (Cal Brosius & Associates), Seward | Kenai-Alaska property, Kenai Lake | Kenai | Development of gold lode, with mill | 8 |
| Dunkle, W. E. and Associates, Luckyshot | Golden Zone Mine, Broad Pass | Talkeetna | Development of gold lode and construction work | 15 |
| Ebner Gold Mining Co., Juneau | Ebner property, Gold Creek | Juneau | Intermittent development on gold lodes | Idle |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| El Primero Mining and Milling Co., Valdez | Granite Mine, Port Wells | Valdez | Gold lode, with mill | 18 |
| Eva Creek Mining Co., Ferry | Liberty Bell Mine, Eva Creek (Bonnifield Dist.) | Nenana | Gold lode, with mill | Idle |
| Evis Mining Co., Ketchikan | Goo Goo property, Thorne Arm | Ketchikan | Development of gold lode | 12 |
| Fern Gold Mining Co., Wasilla | Fern Mine, Willow Creek district | Knik | Mine under lease to Fern Gold Leasing Co. | |
| Fern Gold Leasing Co., Wasilla | Fern Mine, Willow Creek district | Knik | Gold lode, with milling plant | 19 |
| Frank Short Mine, Ferry | Eva Creek or Liberty Bell Mine, Eva Creek (Bonnifield Dist.) | Nenana | Gold lode, with mill | Idle |
| Freeburn Development Co., Ketchikan | Bugge-Rogers property, Helm Bay | Ketchikan | Temporary development of gold lode under lease | Idle |
| Gold Cord Development Corp., Wasilla | Gold Cord Mine, Fishook Creek, (Willow Creek Dist.) | Knik | Gold lode, with mill | 7 |
| Gold Cord Mining, Milling & Power Co., Wasilla | Gold Cord Mine, Fishook Creek, (Willow Creek Dist.) | Knik | Property under lease to Gold Cord Development Corp. | |
| Gold Helm Mining Co., (Lessees), Ketchikan | Gold Standard Mine, Helm Bay | Ketchikan | Gold lode, with mill | 10 |
| Grant & Mutchler, Fairbanks | Happy Creek Mine, Ester Dome | Fairbanks | Gold lode | Idle |
| Hightower & Hawkins, (Lessees) Fairbanks | Spaulding, or Soo Mine, Dome Creek | Fairbanks | Gold lodes, with mill | 5 |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Hirst Chichagof Mining Co., Kimshan Cove | Hirst Chichagof Mine, Kimshan Cove, Chichagof Island | Sitka | Gold lode, with milling plant | 33 |
| Hi Yu Mining Co., Fairbanks | Hi Yu Mine, Fairbanks Creek | Fairbanks | Gold lode, with milling plant | 16 |
| Iditarod Mining Co., Flat | Golden Horn Mine, Flat Creek | Otter | Temporary development work on gold lode | Idle |
| Inspiration Point Mining Co., Skagway | Inspiration Point property, White Pass | Skagway | Intermittent development of galena lode | Idle |
| Kasaan Gold Co., Ketchikan | Julia, Dunton or Harris Creek Mine, Harris Creek, Prince of Wales Island | Ketchikan | Gold lode, under lease to individuals | 3 |
| Kennecott Copper Corp., Kennecott | Kennecott, Mother Lode and Jumbo mines, Kennecott | McCarthy | Copper lodes, with milling plant | 178 |
| Knights Island Copper Mining Co., Valdez | Knight Island | Valdez | Intermittent development of copper lode | Idle |
| Lane Investment Co., Nome | Big Hurrah Mine, Solomon River | Cape Nome | Intermittent operation of gold lode, with mill | Idle |
| Mabel Mining, Milling and Power Co., Wasilla | Mabel Mine, Reed Creek (Willow Creek Dist.) | Knik | Gold lode, with mill | Idle |
| McCann, John & Associates, Fairbanks | St. Paul, etc., Ester Dome | Fairbanks | Gold lode development, intermittent | |
| McDonald, Joe & Associates, Fairbanks | Wandering Jew, etc., Ester Dome | Fairbanks | Gold lode development, intermittent | |
| McCarthy, F. J., Fairbanks | Henry Ford Mine, Pedro Dome | Fairbanks | Intermittent operation of gold lode | Idle |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| McDonald & Morton, Fairbanks | Combination, Bluebird, etc., Ester Dome | Fairbanks | Intermittent operation of gold lode | Idle |
| Marion Twin Gold Mining Co., Anchorage | Marion Twin property, Little Susitna River and Craigie Creek | Knik | Intermittent operation of gold lode, with mill | 5 |
| Merrill, R. J., Valdez | Merrill property, Bettles Bay, Port Wells | Valdez | Development of gold lode, with mill | 2 |
| Mespelt & Co., Medfra | Nixon Fork Mine, Nixon Fork of Kuskokwim River | Mt McKinley | Gold lode, with mill | 5 |
| Mohawk Mining Co., Fairbanks | Henderson Mine, Ester Dome | Fairbanks | Gold lode, with mill | 9 |
| Monarch Mining Co., Inc., Anchorage | Monarch Mine, Crow Creek, Girdwood | Knik | Gold lode, with mill, leased to Crow Creek Gold Corporation, which see | |
| Moira Copper Co., Ketchikan | Moira Sound, Prince of Wales Island | Ketchikan | Copper lode | Idle |
| Mother Lode Coalition Mines Co., Kennecott | Mother Lode Mine, Kennecott | McCarthy | Copper lode, operated by Kennecott Copper Corp., which see | |
| Mount Andrew Mining Co., Ketchikan | Mount Andrew Mine, Kasaan Peninsula, Prince of Wales Island | Ketchikan | Copper lode (formerly productive) | Idle |
| Mountain View Gold Mining Co., Ketchikan | Mountain View property, Fish Creek | Hyder | Intermittent development of gold lode | Idle |
| Nabesna Mining Corp., Chitina | Nabesna Mine, Nabesna River | Chitina | Gold lode, with mill | 38 |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| National Nickel Corp., (S. H. Vevelstad & Associates), Juneau | Various Nickel properties on Chichagof, Yakobi and Baranof Islands | Sitka | Intermittent development of nickeliferous lodes | Idle |
| Nelson & Tift, Ketchikan | McLean Arm, Prince of Wales Island | Ketchikan | Gold lode development | 6 |
| Newsboy Development Corp., Fairbanks | Newsboy Mine, Pedro Dome | Fairbanks | Gold lode, with mill | Idle |
| New Chichagof Mining Syndicate, Juneau | New Chichagof property, Pinta Bay | Sitka | Gold lode development | 2 |
| Nickaloff Mines, Inc., Fairbanks | Elmes, or Nickaloff property, Happy Creek, Ester Dome | Fairbanks | Gold lode, with mill | 3 |
| Nukalaska Mining Co., Seward | Nukalaska Mine, Nuka Bay | Kenai | Gold lode, with mill | 19 |
| Peterson, Wixon & Arwick, Ketchikan | Bear Lake, Union Bay | Ketchikan | Gold lode development with small mill | 3 |
| Point Astley Mining Corp., Snettisham | Ahrensted property, Point Astley, Snettisham | Juneau | Intermittent development of copper, silver, gold lodes | Idle |
| Portage Gold Mines, Ltd., (Non-Personal Liability) Valdez | Poe Bay, Passage Canal, Port Wells | Valdez | Gold lode, with mill | 11 |
| Prospect Mining Co., Ferry | California Creek, Bonnifield district | Nenana | Silver, gold, copper lode development | Idle |
| Quigley, Joseph, Kantishna | Friday Creek | Fairbanks | Silver, lead, gold lodes | 2 |
| Rae Wallace Mining Co., Wasilla | Rae-Wallace property, Fishook Creek, Willow Creek district | Knik | Gold lode development | Idle |

district

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Rapp & Till, Luckyshot | Craigie Creek, Willow Creek District | Knik | Cyanide plant, tailing from Willow Creek Mines | |
| Ready Bullion Mining Corp., Fairbanks | Eva Quartz, Hudson, or Borovich & Stevens Mine, Ester Dome | Fairbanks | Gold lode, with mill | 3 |
| Reliance Mining Co., Fairbanks | Spaulding, or Soo Mine | Fairbanks | Leased to Hightower & Hawkins | |
| Ruff & Tuff Gold Mining Co., Valdez | Columbia Glacier, Shoup Bay | Valdez | Gold lode with mill | 5 |
| San Antonio Metals Co., Wrangell | Galvin property, Baker Island | Ketchikan | Molybdenum and gold lode development | Idle |
| Schotter, Mork and Ronning Juneau | Paramount property, Lisianski Inlet | Sitka | Gold lode development, with small mill | 3 |
| Sanford, Jess, Fairbanks | Ester Dome | Fairbanks | Gold lode development | |
| Smith, E. M. & Associates, Fairbanks | Billy Sunday and Fair Chance properties, Ester Dome | Fairbanks | Gold lode development | Idle |
| Solar Development Co., Ltd., Juneau | None at present | | (Operating subsidiary of Consolidated Mining & Smelting Company of Canada) | |
| Southeastern Alaska Mining Corp., Juneau | Jualin Mine | Juneau | Gold lode (formerly productive) | Idle |
| Superior Mine, Inc., The, Valdez | Little Giant, Rose and Star Groups, Mineral Creek | Valdez | Gold lode development | Idle |
| Stay, Sam, Fairbanks | Little Eva, First Chance, etc., Ester Dome | Fairbanks | Gold lodes, intermittent | |

| Name and Address of Operator | Name and Location of Mine | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Strong & Black, Hyder | Riverside Mine, Salmon River (7-Mile) | Hyder | Lead, silver, gold lode, with mill | Idle |
| Texas Creek Gold Mining Co., Hyder | Texas Creek | Hyder | Silver, lead lode | Idle |
| Titan Gold Mining Co., Hyder | Fish Creek | Hyder | Silver, lead, gold lode | Idle |
| Thane, Arthur, & Associates, Juneau | Eagle River-Yankee Basin properties | Juneau | Gold lodes (formerly productive) | Intermitten' |
| Three Man Mining Co., Valdez | Rua Cove, or Dickey property, Knight Island | Valdez | Intermittent development of copper lode | Idle |
| Tolovana Mining & Milling Co., (Martin Pinska & Associates) Fairbanks | Tolovana Mine, Pedro Dome | Fairbanks | Gold lode, with mill | Intermittent |
| Treadwell Yukon Co., Ltd., Juneau | None at present | | | |
| Valdez Gold Consolidated, Valdez | Cameron-Johnson Mine, Columbia Glacier via Shoup Bay | Valdez | Gold lode, with mill | 6 |
| Willow Creek Mines, Luckyshot | Lucky Shot and War Baby mines, Craigie Creek | Knik | Gold lodes, with milling plant | 90 |
| Winan & McGowan, Medfra | Nixon Fork of Kuskokwim River | Mt. McKinley | Gold lode, with mill | 3 |

## LIST OF NON-METALLIC MINERAL OPERATIONS

| Name and Address of Operator | Name & Location of Property | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| | **QUARRIES** | | | |
| Superior Portland Cement, Inc., View Cove | View Cove quarry, Dall Island | Ketchikan | Limestone quarry, supplying cement plant in Seattle (Seasonal) | 24 |
| Vermont Marble Co., Tokeen | Tokeen Quarry, Prince of Wales Island | Ketchikan | Marble quarry (operations intermittent) (Seasonal) | 40 to 70 |
| | **COAL MINES** | | | |
| Evan Jones Coal Co., Anchorage | Evan Jones Mine, Jonesville | Knik | Bituminous coal, with washery | 42 |
| Healy River Coal Corp., Healy Fork | Suntrana Mine, Healy River | Nenana | Sub-bituminous coal, with screening plant | 42 |
| New Black Diamond Coal Co., Anchorage | Rawson, or Wishbone Hill property, Moose Creek | Knik | Bituminous coal, with washery | 21 |
| | **OIL OPERATIONS** | | | |
| Chilkat Oil Co., Cordova | Chilkat oil properties, Katalla | Kayak | Oil wells and refinery, formerly productive | Idle |
| Iniskin Drilling Co., Anchorage | Iniskin Bay, Cook Inlet | Iliamna | Drilling, construction work, etc. | 35 |

## LIST OF ACTIVE DREDGING OPERATIONS

| Name and Address of Operator | Location of Operation | Precinct | Number of Operations | Approx. Crew |
|---|---|---|---|---|
| Alaska Gold Dredging Corp., Fortymile | Mosquito Fork of Fortymile River | Fortymile | 1 | 15 |
| Alaska Sunset Mines, Inc., Nome | Sunset Creek | Cape Nome | 1 | 14 |
| Alluvial Golds, Inc., Fairbanks | Woodchopper Creek | Circle | Dredge under construction | 25 |
| American Creek Operating Co., Fairbanks | American Creek (Tofty) | Hot Springs | 1 | 25 |
| Arctic Circle Exploration, Inc., Nome | Kiwalik River (Candle) | Fairhaven | 1 | 25 |
| Bartholomae Oil Corp., Nome | Gold Run Creek (Teller Dist.) | Port Clarence | 1 | 21 |
| Berry, C. J. Dredging Co., Circle Springs | Mastodon Creek | Circle | 1 | 55 |
| Council Dredging Co., Inc., Nome | Niukluk River | Cape Nome | 1 | 11 |
| Dime Creek Dredging Co., (Valentine & Porter), Haycock | Dime Creek | Koyuk | 1 | 6 |
| Dry Creek Dredging Co., Nome | Dry Creek | Cape Nome | 1 | 7 |
| Fairbanks Exploration Co., Fairbanks | Vicinity of Fairbanks | Fairbanks | 5 | 400 |
| Fairbanks Gold Dredging Corp. (J. R. Murphy, Lessee), Fairbanks | Fairbanks Creek | Fairbanks | 1 | 25 |
| Felder-Gale, Inc., Tacotna | Yankee Creek | Innoko | 1 | 12 |
| Forsgren Dredging Co., Deering | Inmachuk River | Fairhaven | 1 | 9 |

| Name and Address of Operator | Location of Operation | Precinct | Number of Operations | Approx. Crew |
|---|---|---|---|---|
| Fox Bay Dredging Company, Nome | Upper Kougarok River | Cape Nome | 1 | 18 |
| Ganes Creek Dredging Co., Tacotna | Ganes Creek | Innoko | 1 | 20 |
| Gold Placers, Inc., Fairbanks | Coal Creek | Circle | 1 | 42 |
| Greenstone Mines, Inc., Nome | Osborn Creek | Cape Nome | 1 | 11 |
| Hammon Consolidated Gold Fields, Nome | Vicinity of Nome | Cape Nome | 3 | 100 |
| Jack Wade Dredging Co., Jack Wade | Wade Creek | Fortymile | 1 | 20 |
| Kimball, Chas. E., Council | Melsing Creek | Cape Nome | 1 | 11 |
| Kougarok Consolidated Gold Placers, Inc., Nome | Taylor Creek | Cape Nome | 1 | 29 |
| Lee Brothers, Nome | Solomon River | Cape Nome | 1 | 18 |
| New York-Alaska Gold Dredging Co., Nyac | Bear Creek | Bethel | 2 | 50 |
| North American Gold Dredging Co., Flat | Flat Creek | Otter | 1 | 18 |
| Northern Star Dredging Co, (Gumm, Mebes & Steiner), Council | Niukluk River below Ophir Creek | Cape Nome | 1 | 9 |
| Ophir Gold Dredging Company, (Hans Hanson & Associates), Council | Ophir Creek | Cape Nome | 1 | 7 |

| Name and Address of Operator | Location of Operation | Precinct | Number of Operations | Approx. Crew |
|---|---|---|---|---|
| Puntilla, Waino F., Tacotna | Upper Ganes Creek | Innoko | 1 | 12 |
| | Little Creek | Innoko | 1 | 14 |
| Rice, Chas., & Partners, Nome | Allene Creek (Teller Dist.) | Port Clarence | 1 | 6 |
| Riley Investment Co., Flat | Otter Creek | Otter | 1 | 15 |
| Spruce Creek Dredging Co., (Scott & Jones Bros.), Nome | Spruce Creek | Cape Nome | 1 | 12 |
| Stewart, A. C. & Associates, Nome | Casadepaga River | Cape Nome | 1 | 11 |
| Tweet, N. B. & Son, Teller | Dese Creek | Port Clarence | 1 | 6 |
| Walkers Fork Gold Corp., Steel Creek P. O. | Walker Fork | Fortymile | 1 | 15 |

## LIST OF ACTIVE PLACER OPERATIONS, OTHER THAN DREDGES, WITH CREWS OF FIVE OR MORE MEN

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Ahrense and Devane, Ruby | Birch Creek | Otter | | |
| Ahtell Mining Co., Slana Roadhouse | Grubstake and Ahtell Creeks | Chitina | Hydraulic | 4 |
| Alaska Continental Gold Mining Co., Talkeetna | Bird Creek | Talkeetna | Hydraulic preceded by coyoting | 6 |
| Alaska Middle Fork Mining Co., Chistochina | Middle Fork of Chistochina River | Chitina | Prospecting with drill | 5 |
| American Tin Fields, Inc., Tin City | Cape Creek | Port Clarence | Gas shovel and trucks | 29 |
| Arctic Circle Exploration, Inc., Candle | Candle Creek | Fairhaven | Hydraulic with dragline for tailing | 7 |
| Arctic Mines, Inc., Teller | Sunset Creek | Port Clarence | Dragline scraper, with tractors | 10 |
| Arthurs, Wm., Ferry | Eva Creek | Nenana | Hydraulic | 6 |
| Bartlett Estate, Circle Springs | Independence Creek | Circle | Hydraulic with bulldozer | 7 |
| Berry Holding Company, Circle Springs | Eagle Creek | Circle | Hydraulic with highline stacker | 7 |
| Bauer, Richard, Nation | | Eagle | | 5 |
| Bodic, George, Nome | Dick Creek | Cape Nome (Kougarok) | Hydraulic | 6 |
| Bostrom & Company, Livengood | Tolovana | Tolovana | | 4 |
| Buck & Sjoberg, Cantwell | Valdez Creek | Chitina | Hydraulic | 7 |

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Burk, Al, Ruby | Long Creek | Ruby | | |
| Calkins & Gillette, Nome | | Cape Nome | | |
| Carey, Al., Taylor | Dahl Creek (Kougarok) | Cape Nome | Hydraulic | 6 |
| Carlson, Fairfield & Ohman, Cantwell | Dry Creek (Valdez Creek) | Chitina | Hydraulic | 9 |
| Carstens & Taylor, Circle Springs | Ketchum Creek | Circle | Steam shovel | 2 |
| Circle Dollar Mining Co., Circle Springs | Half Dollar Creek | Circle | Drilling and prospecting | 3 |
| Chititu Mines, McCarthy | Rex and Chititu Creeks | McCarthy | Hydraulic | 16 |
| Clara Creek Mining Co., Goodnews | Clara Creek | Bethel | Dragline scraper, washing plant and bulldozer | 20 |
| Cleary Hills Mines Co., Fairbanks | Sullivan Creek (Tofty) | Hot Springs | Dragline scraper with washing plant | 15 |
| Collins & Hard, Ophir | Ophir Creek | Innoko | Dragline scraper | 8 |
| Coyle, Dennis, Ruby | Poorman Creek | Nulato | | |
| Cordovado Gold Dredging Co., Nome | | Fairhaven | | |
| Cripple Creek Mining Co., Folger | Cripple Creek | Innoko | Dragline scraper with washing plant | 25 |
| Dahl Creek Mining Co., Nome | Kougarok | Cape Nome | | |
| Deadwood Mining Co., Circle Springs | Deadwood Creek | Circle | Dragline scraper with bulldozers and washing plant | 17 |

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Drange, Knute, Nome | | | | 10 |
| Duffy, W. T., Flat | Chicken Creek | Otter | Hydraulic with bulldozer | 12 |
| Dunkle, W. E., Luckyshot | Dutch Creek | Talkeetna | Hydraulic | 8 |
| Erickson, A. S., Girdwood | Crow Creek | Knik | Hydraulic | 9 |
| Faith Creek Mining Co., Fairbanks | Faith Creek | Fairbanks | Hydraulic | 5 |
| Frank & Co., Hot Springs | | Hot Springs | | |
| French, Wm., Candle | | Fairhaven | Hydraulic | 5 |
| Gilmore Mining Co., Inc., Fairbanks | Gilmore Creek | Fairbanks | Hydraulic with scraper | 7 |
| Glen Gulch Mines, Livengood | | Tolovana | | |
| Godfrey, Cooper & Clough, Nome | Henry Creek (Kougarok) | Cape Nome | Hydraulic and drilling | 7 |
| Gold King Mining Co., Fairbanks | Gold King Creek, Bonnifield District | Nenana | Hydraulic | 5 |
| Goodnews Bay Mining Co., Goodnews | Platinum Creek etc. | Bethel | Dragline scraper with washing plant and drilling on platinum placer | 22 |
| Grant, Harvey, Taylor | Coffee Creek (Kougarok) | Cape Nome | Hydraulic | 7 |
| Hanson, Albrecht & Hedlund, Tofty | | Hot Springs | | |
| Hard & Wilson, Ophir | Cripple Creek | Innoko | Hydraulic | 6 |
| Harper & Murray, Talkeetna | Cache Creek | Talkeetna | Hydraulic | 8 |

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Highland Creek Mines, Inc., Hope | Resurrection Creek | Kenai | Hydraulic | 9 |
| Hope Mining Co., Hope | Resurrection Creek | Kenai | Hydraulic | 7 |
| Hudson, N. R., Livengood | | Tolovana | | |
| Iditarod Mining Co., Flat | Willow Creek | Otter | Dragline scraper with washing plant | 20 |
| Independence Mining Company, Circle Springs | Independence Creek | Circle | Hydraulic with skyline scraper | 7 |
| Jaeger, Pete, Taylor | Quartz Creek (Kougarok) | Cape Nome | Hydraulic | 5 |
| Jensen, Harry, Poorman | Poorman Creek | Nulato | | |
| Jensen & Loranger, Flat | | Otter | | |
| Johnson & Toftaker, Hot Springs | | Hot Springs | | |
| Johnson, Helmer, Fairbanks | | Fairbanks | | |
| Johnston & Ostness, Fortuna | | Wade-Hampton | | |
| Kanari, Laurin & Carey, Nome | | | | |
| Kaskainen, Waino, Flat | | Otter | | 6 |
| Kelleher, Joseph, Taylor | Head of Kougarok River | Cape Nome | | 6 |
| Kelly, Jay F., Miller House | Miller Creek | Circle | Hydraulic with bulldozer | 5 |
| Klery Placers, Inc., Kiana | Klery Creek | Noatak-Kobuk | Dragline scraper with washing plant | 23 |
| Knudson, Nicholas, Central | | Circle | | |

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Kramme & Co., Akiak | | Bethel | | |
| Lachance, Thibault & Belanger, Flat | Willow Creek | Otter | Hydraulic | 10 |
| Larson & Larson, Ophir | Little Creek | Innoko | Hydraulic | 5 |
| Laurin Brothers, Taylor | Macklin Creek (Kougarok) | Cape Nome | Hydraulic | 12 |
| Luckman & Co., Livengood | | Tolovana | | |
| Lynx Creek Mines, Moose Pass | Lynx Creek | Kenai | Hydraulic with power shovel | 20 |
| Mahon, W. G., Livengood | | Tolovana | | 5 |
| Manley, Mrs. Lucile, Flat and Fairbanks | | | | 12 |
| Meier, Frank, Ophir | | Innoko | | |
| Mines Development Corp., Livengood | | Tolovana | | |
| Miscovich & Roslund, Flat | Otter Creek | Otter | Hydraulic | 8 |
| Moose Pass Mining Corp., Sunrise | Sixmile Creek | Kenai | Prospecting and drilling | 3 |
| Morgan & Curtice, Talkeetna | Lower Cache Creek | Talkeetna | Hydraulic | 8 |
| Mussana, Frank, Fairbanks (Vault) | Treasure Creek | Fairbanks | | |
| Nassenwing, Louis, Taylor | Dahl Creek (Kougarok) | Cape Nome | Hydraulic | 5 |
| Nelson & Whaley, Nome | Goose Creek (Kougarok) | Cape Nome | Hydraulic | 6 |

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Nelson Mining Company, Chisana | Bonanza Creek | White River | Hydraulic | 5 |
| Nicolai Placer Mines, McCarthy | Dan Creek | McCarthy | (Property leased to Pardners Mines, which see) | |
| Northland Development Co., Flat | Flat Creek | Otter | Dragline scraper | 15 |
| Olson Brothers, Flat | Happy Creek | Otter | (2) Dragline scrapers with bulldozers | 20 |
| Olsen, Ed. & Co., Flat | Willow Creek | Otter | Dragline scraper | 15 |
| Ophir Gold Co., Council | Ophir Creek | Cape Nome | Hydraulic | 7 |
| Option Placers Corp., Moose Pass | Quartz Creek | Kenai | Hydraulic | 10 |
| Ostness, Lars, Marshall | Willow Creek | Wade-Hampton | Dragline scraper | 14 |
| Palmer Creek Mining Co., Hope | Resurrection Creek | Kenai | Hydraulic | 10 |
| Pardners Mines Corp., McCarthy | Dan Creek (Nizina) | McCarthy | Hydraulic | 21 |
| Parker Brothers, Fairbanks | | | | |
| Pat McDonald, Inc., Anchorage | | | | |
| Peters Creek Mining Co., Talkeetna | Peters Creek | Talkeetna | Dragline scraper with washing plant and bulldozer | 20 |
| Polson, Alvin, Nome | On tundra near Nome | Cape Nome | Drifting from shaft | 10 |

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Porcupine Mining Co. (Alvin Martin & Associates), Circle Springs | Porcupine Creek | Circle | Hydraulic plant and dragline scraper | 6 |
| Powers, John B., Fortymile | Dome Creek | Fortymile | Hydraulic | 5 |
| Schropshire, John, Poorman | Moose Creek | Nulato | | 5 |
| Seward Mining Co., Hope | Resurrection Creek | Kenai | Hydraulic | 5 |
| Seward Placer Corp., Seward | Canyon Creek | Kenai | Hydraulic | 7 |
| Sholin, Geo., Solomon | Solomon River | Cape Nome | Hydraulic (2 plants) | 6 |
| Slate Creek Mining Co., Inc. Chistochina | Slate Creek | Chitina | Hydraulic | 9 |
| Spall and Livengood, Livengood | | Tolovana | | |
| Speljack, Frank, Ophir | Little Creek | Innoko | Hydraulic | 5 |
| Stadelman, Chris, Livengood | | Tolovana | | |
| Sundt & Paulson, Chistochina | Slate Creek | Chitina | Hydraulic | 14 |
| Sundquist, L. A., Candle | Candle Creek | Fairhaven | Hydraulic | 5 |
| Swanberg, Nels, Nome | Osborn Creek | Cape Nome | Hydraulic | 5 |
| Stewart, A. C., Nome | Monument Creek | Cape Nome | Hydraulic | 14 |
| Topkok Chief Mines Co., Bluff | Daniels Creek | Cape Nome | Highline scraper | 30 |
| Triple X Mining Co., Ferry | Moose Creek (Bonnifield) | Nenana | Hydraulic | 7 |
| Tunnel Mining Co., Cantwell | Valdez Creek | Chitina | | |
| Utilla & Ogris, Flat | Slate Creek | Otter | Dragline and bulldozers (2 plants) | 15 |

| Name and Address of Operator | Location of Plant | Precinct | Type of Operation | Approx. Crew |
|---|---|---|---|---|
| Vibe & Schwaesdall, Ophir | Spaulding Creek (Trib. Ganes) | Innoko | Dragline scraper with washing plant | 15 |
| Vic, John, Poorman | | Nulato | | |
| Wagner, Talkeetna | Dutch Creek | Talkeetna | Hydraulic | 6 |
| Ward, Hanson & Keating, Chatanika | | Fairbanks | | |
| Westonvick Brothers, Circle Springs | Bonanza Creek | Circle | Hydraulic | 5 |
| Wickersham Brothers, Cantwell | Valdez Creek | Chitina | Hydraulic | 5 |
| Wilson & Dahl, Napaimute | | Kuskokwim | | |
| Yost, Chas., Flat | | Otter | | |
| Zimmerman & Co., A. A., Fairbanks | Kokomo Creek<br>Twin Creek | Fairbanks<br>Fairbanks | Hydraulic with highline scraper | 5<br>7 |
| Zimmerman, Antone A., Fairbanks | Sourdough Creek | Fairbanks | Hydraulic with highline scraper (2 plants) | 16 |

## SMALL PLACER OPERATIONS

Miscellaneous unlisted placer operations of various types, with crews of less than 5 men; including small hydraulic, shoveling-in, drifting, groundsluicing plants, prospect drilling, etc.:

| District | Approximate Number of Men Engaged |
|---|---|
| Bonnifield | 20 |
| Chandalar | 10 |
| Chisana | 25 |
| Chistochina-Slana | 3 |
| Circle | 30 |
| Eagle-Circle (Seventymile, Charley R. etc.) | 50 |
| Eureka (Hot Springs) | 25 |
| Fortymile | 30 |
| Goodnews Bay-Arolic River | 15 |
| Kodiak beaches | 5 |
| Koyukuk-Wild River, etc. | 95 |
| Marshall and lower Yukon | 15 |
| Moose Pass-Sunrise | 45 |
| Nome (beaches) | 30 |
| Port Clarence (Teller and vicinity) | 10 |
| Rampart | 30 |
| Ruby-Poorman | 75 |
| Salcha etc. (Richardson) | 10 |
| Tiekel (Valdez) | 5 |
| Tofty | 10 |
| Tolovana | 25 |
| Valdez Creek | 20 |
| Yakataga (beaches) | 5 |
| Yentna (Cache Creek, etc.) | 20 |
| Total | 608 |