TERRITORY OF ALASKA
DEPARTMENT OF MINES

Report

of the

Commissioner of Mines

for the

BIENNIUM ENDED DECEMBER 31, 1950

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Honorable Ernest Gruening

Governor of Alaska

Juneau, Alaska

Sir:

I have the honor to submit to you, and through you to the Twentieth Session of the Territorial Legislature, in accordance with Section 47-3-119, ACLA, 1949, the report of the Commissioner of Mines for the biennium ended December 31, 1950.

Respectfully yours,

LEO H. SAARELA,

Commissioner of Mines.

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THE DEPARTMENT OF MINES

Administrative and General Information

The Territorial Department of Mines, with headquarters at Juneau, operates four public assay offices and field stations in the Territory. The activities of the Department are directed by the Commissioner of Mines whose staff during the biennium consisted of an associate mining engineer at Juneau, an associate mining engineer at College on the University of Alaska campus, one associate coal mining engineer at Anchorage, three assayers located at Ketchikan, Anchorage and College, an assayer-engineer at Nome, and an administrative assistant and a clerk-stenographer at Juneau headquarters. The Commissioner also acts as District Mining Supervisor, under cooperative arrangement with the Department of the Interior, in the supervision of operations on coal leases and permits.

Commissioner of Mines B. D. Stewart, who had long served in that capacity with distinction, retired on January 1, 1950 in accordance with the Public Employees Retirement Act of 1949, and Leo H. Saarela was appointed as his successor on the same date.

Funds were made available during the 1949 legislative session for operating the Nome office and it was reopened in June of that year. Several shifts of personnel took place, and repairs and other improvements were made in facilities at the Ketchikan and College offices. Funds appropriated by the 1949 Legislature for construction of offices at Anchorage, Fairbanks and Nome were frozen by the Board of Administration and no new facilities became available during the biennium, although the need, especially at Anchorage, was great.

Information on mining matters and mineral resources was furnished to those interested at the field and assay offices and at Juneau headquarters. Much information has been amassed in the Juneau files on various properties in the Territory by engineers of the Department. Libraries of Alaskan publications issued by the U. S. Geological Survey and the U. S. Bureau of Mines are also available for consultation at the various offices. The pamphlet on prospecting in Alaska that was originally issued in 1944 was revised and reprinted for the second time in November, 1949 due to the demand for this type of information. Several thousand inquiries with regard to the mining industry by visitors and by correspondence were answered during the

biennum. More than 4,000 publications were distributed during the same period.

Consulting service is offered to prospectors, miners, and Territorial and Federal agencies by engineers of the Department. The service is offered to those who cannot afford technical assistance and is therefore non-competitive to the practice of local professional engineers. Many requests for this type of service were received during the biennium, and many properties were examined and reports and maps made.

Collections of classified rocks and minerals, and rocks and minerals of Alaskan origin, are maintained at each field office for reference by the prospector and miner. As new minerals advance to economic importance, with changing conditions of demand and use, the Alaskan prospector has ready reference to these collections for study.

A close cooperative exchange of information was carried out between the Department of Mines and the Atomic Energy Commission on radioactive samples originating in Alaska. Radioactivity detectors of latest types, and standards for quantitative determinations, were installed at all offices. The headquarters office at Juneau recently installed a completely automatic detector of latest design for delicate determination of low-grade samples.

Field Investigations

Field examinations and technical assistance were given by the Department staff to those requesting such services. Properties were examined in the following localities during the biennium: Hyder, Ketchikan, Petersburg, Skagway, Haines, Valdez, McCarthy, Chisana, White River, Willow Creek, Matanuska Valley, Kenai Peninsula, Talkeetna, Nenana, Fairbanks, Livengood, Fortymile, Circle, Koyukuk, Ruby, Ophir, McGrath, Flat, Bethel, Goodnews Bay, Nome, Kougarok, York, Sinuk River, Klery Creek and Shungnak in the Kobuk River region.

Placer occurrences under investigation were for the most part gold, but those containing platinum, tin and copper were also visited by field engineers. Investigations were conducted on lode deposits containing gold, silver, copper, lead, zinc, iron, bismuth and various non-metallic minerals for possible use in the manufacture of building materials. Several coal beds were investigated to determine quality and suitability for mining.

Safety Inspections

Safety inspections were made at properties visited by Department engineers. Unsafe conditions were brought to the attention of operating officials and in all cases rectified.

Monthly inspections of the coal mines in the Healy and Matanuska fields were made by the associate coal mining engineer stationed at Anchorage. Smaller operations, such as the coal mine at Homer, were inspected at less frequent intervals as required. Due to the hazardous nature of coal mining, constant supervision of safety at the mines is absolutely essential if a low accident rate is to be maintained. The otherwise excellent safety record at the coal mines during the biennium was marred by the one surface fatality on the Alaska Railroad tracks, near the tipple of the Healy River Coal Corporation, in July 1950.

At the close of the biennium, both major underground coal producers—Evan Jones Coal Company in the Matanuska field, and Healy River Coal Corporation in the Healy field—had union-sponsored safety committees functioning, which were consulting and working with the Department and the managements of the two companies. This development should do much to keep the accident rate at a low level, as the men are thus encouraged to contribute to their own safety.

A considerable proportion of the time of the coal engineer was devoted to supervising control and extinguishment of the fire that broke into the workings of the Healy River Coal Corporation. The Commissioner of Mines also spent some time on this phase of the safety work.

Assay and Field Offices

The assay and field offices of the Department at Ketchikan, Anchorage, College and Nome performed the following analyses and identifications during the biennium, with similar determinations for the preceding biennium being listed for comparison:

	1947	1948	1949	1950
Gold-silver	1506	1016	949	1080
Chemical determinations	428	373	258	292
Identifications	437	679	585	506
Totals	2371	2068	1792	1878

This service is free of charge to bona fide prospectors and miners and serves to encourage the search for minerals in the Territory. Due to the interest in radioactive minerals, a con-

siderable number of uranium determinations were made, as well as numerous geiger counter tests and demonstrations. The latest radioactive detectors were installed and samples submitted to the laboratories from three areas in Alaska were found to be uranium-bearing. It is now evident that Alaska contains radioactive materials in geologic conditions that are similar to those in other uranium-bearing parts of the world, but much more intelligent prospecting is necessary before their economic importance will become known.

Steadily increasing base-metal prices resulted in increased interest in base and stragetic minerals, as indicated by a higher proportion of requests for determinations of this nature toward the end of the biennium.

The assay office at Ketchikan was completely renovated during the biennium to provide improved services to prospectors and miners in Southeast Alaska. Improvements were also made in facilities at the assay office that is located on the University campus at College.

A minor part of the time of the assayer-engineer who is stationed at Nome was devoted to mineral identification and a few gold assays. His principal duties were field examinations in northwestern Alaska, in the course of which technical assistance was given with mining and development problems, safety examinations were conducted at operating mines, sampling and mapping accomplished. and reports prepared. The assayer-engineer stationed at College also did some field work of a similar nature.

THE MINING INDUSTRY

During the biennium of 1949-50, Alaskan mineral production increased from the post-war slump of 1948. The production of gold increased by about 50,000 ounces in 1950 over the preceding year. There was a flurry of gold speculation in 1949 due to a rumored increase in the price of gold, but this was suppressed by the U. S. Treasury announcement in the fall of that year that there would be no increase. Production of coal decreased from 435,000 tons in 1949 to a little over 400,000 in 1950 due to one of the defense establishments converting to oil. The mining of platinum metals continued at a high rate, with an increase in production reported for 1950 over the previous year. Adverse economic conditions still plagued the industry, and the high wages offered on defense projects made it extremely difficult for mining companies to compete in the labor market.

The surprising increase in the production of gold was not indicative of true conditions, as fewer men and companies were engaged in this phase of the industry. The increase was due in part to greater efficiency in labor and equipment that has made it possible for the industry to survive in any degree. The gold-mining industry is now caught between the rising costs of labor, material and supplies, and the established Treasury price of $35 per fine ounce for the product.

A deplorable aspect of this condition is that the best parts of pay limits are being mined in order to stay in business, and marginal areas are left behind and probably will never be worked. Stripping and thawing were neglected by many operators who were faced with the difficulty of holding crews to operate dredges and other heavy equipment, and lack of such preparatory work will eventually result in delays and in some instances closing down. Small operators have improved their efficiency to a high degree by replacing men with machines and adopting latest mining methods utilizing sluice plates, automatic giants, washing plants, and systems of great versatility.

Some attempt at a comeback in lode mining was made during the biennium when two of Alaska's former important gold producers, the Alaska-Pacific Consolidated in the Willow Creek district, and the Hirst-Chichagof in the Chichagof district of southeastern Alaska, commenced operations. However, on the whole, lode activity and production from that source were slight. The mining industry would undoubtedly have been able to increase substantially the present critically short supply of base metals, had conditions been such that gold-lode mines could continue to operate, as one or more of the base metals are usually recovered as by-products to such mining. For instance, the Alaska Juneau Mine produced about 1,000 tons of lead annually while in normal operation. The ore at this mine also contains zinc that could probably be recovered if an incentive were offered.

During 1950 the Territorial Department of Mines received permission from the U. S. Atomic Energy Commission to release information in its files, and the announcement that there were three and possibly more areas of radioactivity in Alaska, created considerable interest in these minerals. Uraninite has been recognized in samples submitted to the Territorial Assay Offices from the Hyder district in southeastern Alaska, from Medfra in the Kuskokwim district, and from the Haycock area on Seward Peninsula.

In southeastern Alaska uranium minerals have been identified in the dikes of the Hyder area, which are genetically related to the igneous rocks of the Coast Range Batholith. A great deal of prospecting is necessary here before the true economic value of the discovery can be estimated. In the Kuskokwim district near Medfra, uranium minerals have been identified in a lode adjacent to an area of intrusive rocks. The importance of this occurrence is yet to be determined. North of Haycock on the Seward Peninsula, placer concentrates have been found to contain uranium minerals. For some time uranium-bearing concentrates have been recovered in the sluice boxes of the placer miners in that area, indicating a probable lode source nearby. Radioactive minerals in significant quantity are also known to occur at other localities in the Territory.

From what is now known, it is certain that Alaska contains uranium in geologic setting similar to that elsewhere in the world in which such minerals occur. Information on the geology of radioactive minerals, and a recapitulation of the work done by the Department on such materials, will be published in pamphlet form in the near future. The Department of Mines and the Atomic Energy Commission have been working in close cooperation in exchanging information, and in an effort to interest as many prospectors and mining companies as possible in the exploration for radioactive minerals.

The search for and interest in radioactive ores should increase with the stimulation of the Atomic Energy Commission bonus offer of $10,000 for the discovery and production of the first 20 tons of acceptable ore, in addition to the purchase of this material at a guaranteed price.

Rising prices for the base metals—copper, lead, zinc, and tin, and the strategic and critical minerals—antimony, mercury, and tungsten, led to increased interest in the production of these minerals the latter part of the biennium.

Annual assessment requirements on mining claims held by location again became effective in 1950, although date for completion of such work was advanced from July 1 to October 1. These requirements had been suspended from year to year during and after the war period, from July 1, 1941 through the assessment year ended July 1, 1949.

Prospectors and small mine operators were somewhat perturbed the latter part of 1950 by publicity given to rumor that from time to time has accused the Department of the Interior

of plans toward amending the mining laws to provide for leasing of all mineral lands.

Future and Needs of the Industry

The future for the mining industry in the Territory depends upon several factors. As long as there is no change in the U. S. Treasury price of gold or change of policy to permit selling gold in the open markets of the world, there cannot be any improvement in the gold mining industry under present adverse conditions.

Coal mining, second only to gold in importance to the mining industry, where costs are passed to the consumer, is at present in good condition, and the demand for coal will increase with the completion of steam plants now under construction or planned.

Base metals, and minerals that are classed as strategic and critical, offer the greatest challenge to the mining industry of Alaska today. With exceptionally high metal prices, efforts should be made to prospect and develop the known occurrences of these minerals. The Territorial and the Federal governments should help the industry by exploration and venture capital where necessary.

The Federal government, through its Defense Minerals Administration, created in 1950 to expand the base and critical metal industry during the period of emergency, should commence a mineral buying program in the Territory. There are in Alaska many small deposits of antimony, mercury, tungsten, tin, etc. where a few tons of easily minable ore could be extracted; but since there is at present no market, no effort is made to mine such deposits. A buying program along the lines worked out by Metals Reserve Company during World War II, and carried out by the Territorial Department of Mines, would tend to activate the base-metal mining industry.

Provisions of the Defense Minerals Act will have to be greatly liberalized to afford benefit to the small mine operator, who most needs assistance. Experience in the past with similar agencies proved that the complexities of rules and regulations governing grants of loans or other assistance were far beyond the average small mine operator to understand unless he also was a lawyer or accountant.

It can reasonably be expected that with radioactive minerals now known to occur in certain sections of the Territory, prospecting for this type of mineral will accelerate.

There is but little official information available on the results of the Navy's oil drilling project on Naval Petroleum Reserve No. 4 north of the Brooks Range. During 1949 and 1950 unconfirmed reports indicated gas had been obtained in the wells in sufficient quantity for camp use and that the outlook was optimistic.

Interest in the manufacture of building materials continued, and future plans are expected to include development of the light-weight, bloated, haydite-type materials.

Considerable interest developed during the biennium in iron ore deposits of southeast Alaska. Claims were staked on two of the more promising occurrences and investigations were conducted by private engineers for steel companies and representatives of Japanese purchasing agencies. The immediate demand is for shipping ore, although consideration is also being turned toward producing a marketable iron concentrate.

Plans were announced at the end of the biennium for test-well drilling of a large acreage, said by promoters of the project to be under lease from the Department of the Interior in the Katalla field, from which has come the only commercial production of petroleum in Alaska.

Placer Mining

Placer mining remains the mainstay of the Alaskan mining industry. Production declined in 1949 and increased to about its 1948 level in 1950. There were 1,838 men employed in 264 placer operations in 1949 and 1,722 men in 265 operations in 1950. In 1949 placer gold production was 221,089 ounces and in 1950 about 268,700 ounces. The increased production was due in part to the reopening of one of the formerly idle U. S. Smelting, Refining and Mining Company dredges in the Nome district and also to increased efficiency of the smaller operations.

Because of the government defense projects, which pay much higher wages than the mining operators can afford, efficient labor and equipment operators became more difficult to obtain. The supply of labor available to the mining industry in 1949 was fair and in 1950 it was good until about the middle of July when a large number of construction projects were started and the men began leaving the mining camps for the better-paid employment. Under the present national emergency, with defense projects again starting, crews for the mining industry will be difficult to obtain, and mines will have to operate on a restricted basis. Accompanying difficulties that will cause curtailment will be increased prices and scarcity of equipment and supplies.

The larger dredging concerns have been able to continue operations in spite of rising costs by holding crews sufficient to operate the dredges and by neglecting stripping and thawing. Neglect of this preparatory work will, of course, eventually close down the operations that have only limited areas prepared.

The smaller placer operators improved efficiency further by replacing older methods and large crews with bulldozers, draglines, washing plants, sluice plates, automatic giants, and other modernized aids to mining. The bulldozer-dragline combination has been used for years and in addition, washing plants, which are actually mobile dryland washers, have recently become increasingly popular. The washing plant is especially useful when insufficient volumes of gravel are available for dredging, and operations must be moved from place to place as pay gravels become exhausted.

Intelligiant developed by John Miscovich, stacking tailings at lower end of sluices. Tony Zimmerman operation on Independence Creek, Circle district.

Development of the "Intelligiant" opens to the placer miner a cheap method of moving gravel and muck where hydraulic water is plentiful. Water - activated cylinders automatically control the horizontal and vertical direction, as well as the speed and width of the sweep of the hydraulic stream. This machine was first used during 1950 in the Circle district for automatically stacking tailings.

Another recent development is the sluice plate, which has met with success wherever it has been used. The system was first developed in the Fortymile district and has been adapted to other districts where the presence of clay is not a serious problem. This system utilizes a large dump box or plate at the head of the sluices, onto which the gravels are pushed from the side by bulldozers. Water is introduced from the upper end and carries the gravel off the plate through the sluice boxes. It has many advantages in that it eliminates the need for bedrock drains and giants and speeds moving and set-up.

Placer operators in the Yukon basin were during 1950 seriously hampered by lack of sluicing water because of an exceedingly dry season, in view of which increased production is surprising. Brief and general information on placer mining in the various districts follows, and all active mining operations in 1950 are listed at the back of the report.

First Division:

There were two placer operations active in the First Division during the biennium. One was the unique operation of Hayes and Whiteley of Juneau. This company recovered substantial quantities of gold from the mill tailings at Thane and Alaska Juneau Gold Mining Company. The operation consisted of hauling old mill tailings to a sluice box where concentrates were collected and later amalgamated to recover the gold content. At Windham Bay, Stanton Price sluiced some gold-bearing gravel at the mouth of Spruce Creek, using a bulldozer set-up.

Second Division:

Cape Nome District: During 1950 the Koyuk precinct was combined with the Cape Nome precinct and the operation of both are included here. Nine dredges were operating in this district during 1950, compared to eight in 1949, and one dredge was under construction. The largest producer during both years was the Nome Department of the U. S. Smelting, Refining and Mining Company, which had two boats in operation in 1949 and three in 1950. Reopening of the third dredge by this company increased the placer production of the Territory considerably. There were twenty-one bulldozer-hydraulic operations active in 1950, four bulldozer-dragline, two straight hydraulic, and twelve prospecting and hand-mining operations.

Production of placer tin by a dragline and jig set-up on Buck Creek, east of York, continued during 1949 and 1950, and a substantial quantity of tin was recovered.

Fairhaven District: In the Fairhaven district, in the northeast section of Seward Peninsula, there were three dredges operating in both years of the biennium. The largest dredging operations were those of the Casa de Paga Gold Company, which had two dredges on Inmachuk River. There were four bulldozer-hydraulic operations and three bulldozer-dragline combinations. Also, one straight hydraulic operation and one prospecting company were active.

Largest employer in the district was the Havenstrite Mining Company with four operations—a dredge on Mud Creek, tributary of Minnehaha Creek, and smaller operations on Bull Hill, Jump Creek and Camp 19 on Candle Creek.

Noatak-Kobuk District: Mining operations continued at an even rate in this district during the two years of the biennium. In 1949 the Lammers Exploration Company dredge on Klery Creek was purchased by Helcolicon Mines, Inc., and the dredge was operated by the new owners in 1950. Helcolicon Mines also did considerable placer drilling on Salmon River during 1949 and 1950. There were also three hydraulic operations and one prospecting party active in the district.

St. Michael District: The dredge of the Ungalik Syndicate was idle in 1949, although the company crew conducted drilling during that year. No mining activity was reported in the district in 1950.

Wade-Hampton District: Operations continued at a uniform rate in this district during the biennium. They were a bulldozer-hydraulic, one bulldozer-dragline, one dragline, and one hand operation.

Third Division:

Chitina District: Placer activity in the Copper River area was almost at a standstill in 1949 and 1950. Only one each hydraulic operation, hand placer, and drift placer were active. A unique mechanized operation was that of C. J. McMahan on Albert Creek in the Nelchina area who used a carryall and bulldozer to move gravel to the sluice boxes.

Iliamna District: Harry Bowman mined by bulldozer-hydraulic methods on Portage Creek near Lake Clark. A small amount of pumice was mined by placer methods on Augustine Island during 1949 by Alaska Katmalite Corporation of Anchorage, but the project was abandoned in 1950. In 1950 Stock and Grove mined some pumice on Geographic Bay off Shelikof Strait for building use in the Anchorage area.

Moose Pass District: Placer mining in the area was practically dormant during the biennium, and only the drift mine of Jim O'Brien and Jim Dunsmuir on Surprise Creek near Skilak Lake was active.

Talkeetna District: This district was by far the most important placer gold producer in the third division, the dry-land washing plant of Collinsville Mines of Anchorage being the largest. This operation, on Twin and Mills creeks in the Yentna area, is an outstanding example of the successful use of mobile washing equipment. Elsewhere in the Cache Creek-Peters Creek area there were three bulldozer-hydraulic, eleven hydraulic, and three hand operations.

Fourth Division:

Bethel District: There were four operations active in this district during 1949 and 1950. The largest operator, the New York-Alaska Gold Dredging Corp., mined with two dredges and a dragline during both years. In the spring of 1950 the 6½-foot dredge of the company was moved from the Tuluksak River to the junction of California and Rock Creeks and operated during the balance of the season. Elsewhere in the district, there were a bulldozer-hydraulic and a dragline-bulldozer operation active.

Chandalar District: This district had an increase in activity and during 1950 there were three operators—a bulldozer, a hand and a drift. A new mining operation, that of R. W. Sellars on Big Creek, got under way in time for only one cleanup, but results indicated a good future might be expected for this operation.

Circle District: Fifteen companies were active in this area during 1950. Two dredges were operated each of the two years of the biennium—Berry Dredging Company operated on Mammoth Creek both years, and in 1949 Alluvial Golds, Inc. operated its boat on Woodchopper Creek, but closed it down in 1950. In 1950 the formerly idle boat of Gold Placers, Inc. on Coal Creek was put into operation. In addition to the dredge operations, there were two bulldozer-dragline, four bulldozer-hydraulic, four hydraulic and two hand operations. The district was hard hit in 1950 by one of the driest seasons on record. Few operators were able to sluice more than a few hours per day. The miners of this district are a progressive group and have, with few exceptions, completely mechanized their plants.

Eagle District: Two bulldozer-hydraulic operations and two hydraulic operations were active in this district both years of the biennium.

Fairbanks District: Thirteen mining companies, operating seventeen placer units, were active during 1950 in this district. The district was by far the most important producer of placer gold in the Territory. Of the total number of operations, six were dredges, two were bulldozer-dragline, five were bulldozer-hydraulic, one hydraulic, two were stripping, and one was hand mining. U. S. Smelting, Refining and Mining Company operated five of its eight dredges in 1949 and 1950. The Goldstream dredge was moved to Fairbanks Creek during the winter of 1949-50 and operated at the new location during 1950. This company also had stripping operations at Cripple, Gold Hill, Sheep Creek, Engineer Creek, Dome and Fairbanks Creeks; and thawing operations at Cripple Creek, Engineer Creek, Fairbanks Creek and Chatanika. Operations of the company were closed down in May of 1950 for three weeks by a strike of the local miners union. In the Salcha district the Brinker-Johnson Mining Company continued dredging during 1949 and 1950 with very good results. An interesting development in the old Tenderfoot camp south of Fairbanks during 1950 attracted attention when G. B. Martin started a bulldozer operation on a residual placer at the ridge between the head of Bush Creek and Hinkley Gulch. The small operators had a very difficult time during 1950 because of the dry season.

Fortymile District: Thirteen placer operations were in progress during 1949 and twelve in 1950. Of this total, one was dragline-bulldozer, eight were bulldozer, two were hydraulic, and one was hand sniping. The Yukon Placer Mining Company was the largest producer and had three operations in 1949. In 1950 this company moved one operation to the Eagle district and another into Canada. A very dry season caused difficulties in 1950.

Fort Gibbon-Tanana District: Three widely separated operations were active in this district in 1950. Two were bulldozer operations, and the largest producer, Strandberg and Sons on Utopia Creek, tributary of Indian River, used a dry-land washing plant and draglines.

Strandberg & Sons washing plant on Utopia Creek, Fort Gibbon Precinct — Tanana district.

Goodnews Bay District: The Goodnews Bay Mining Company operated its platinum dredge on Salmon River during the biennium and produced a large amount of crude platinum. The recovery system of the dredge was improved during the summer of 1950 by an extension on the trommel screen and the installation of a high-pressure screen washing system. The company also mined with a dragline-bulldozer set-up, which operated for the first time in 1950 on a three-shift basis.

Hot Springs District: Mining in this district proceeded at about the same rate as in the previous biennium, and ten companies were active during 1950. There were one dragline-bulldozer, six bulldozer and bulldozer-hydraulic and three drift mines active.

Iditarod District, Otter Precinct: A total of ten companies were active in this district in 1950. These were one dredge, four dragline-bulldozer, two bulldozer-hydraulic and three hydraulic operations. The dredge of the North American Gold Dredging Company operated during both years of the biennium and was the largest producer and employer in the area.

Innoko Precinct, Ophir District: This was an active mining district during the biennium. Three dredges, seven dragline-bulldozer, and three bulldozer-hydraulic operators were mining in 1950 and had good seasons. The Innoko Dredging Company

completed reconstruction of the Ganes Creek dredge during 1949 and operated it in 1950. Strandberg and Sons also started their formerly idle dredge on Candle Creek during 1950. Another new operation during 1950 was that of Richard and John Fullerton, who took over ground on Colorado Creek that was prepared in 1949 by the Goodnews Bay Mining Company.

Kantishna District, Fairbanks Precinct: Only one bulldozer operation was active in this area during the biennium.

Koyukuk District: A total of nineteen operations were active in this district during 1950. They were one dragline-dozer, six bulldozer, three hydraulic, eight hand operations and one drift. Myrtle Creek Mining Company, operating by dragline-bulldozer methods, was the largest producer in both 1949 and 1950.

Kuskokwim District (Kuskokwim Precinct): Only two operators were active in this district during the biennium and both were dragline-bulldozer combinations.

Nenana District: Seven separate placer operators were active in this area during 1950. Two were bulldozer-hydraulic, one was hydraulic, and four were hand mining. All operations in the area have small crews.

Rampart District: There was an increase of operations in the district from six in 1949 to eight in 1950. Of these, one was a dragline-bulldozer, five were bulldozer-hydraulic and two were hand operations. Largest operator in the district was the Little Minook Mining Company, using bulldozer, bedrock boxes and a dragline on Little Minook Creek.

Ruby District, Nulato Precinct: Three operators using dragline set-ups and two operations using bulldozers were active in the area in 1950. Largest operation was that of P. Miscovich and Sons using a dragline and bulldozer on Flat and Timber Creeks.

Tolovana District, Fairbanks Precinct: Seven companies were active in this district during 1950. Livengood Placers, Inc. on Livengood Creek was operated in 1950 under the parent company name, Callahan Zinc-Lead Company, Inc., and work preparatory to dredging was continued with the largest crew in the area. Olive Creek Mines, operated by Parker and Heflinger, was the largest producer of placer gold in the district both years of the biennium. Elsewhere in the district there were one bulldozer, two hydraulic plants, one prospecting venture, and one maintenance operation.

Coal Mining

During the biennium a new all-time high in coal production was reached with a total of 840,000 tons. The 1949 production was 435,000 tons, but the 1950 production dropped slightly to 405,000 tons due to one of the defense establishments converting temporarily to oil. Although Evan Jones Coal Company in the Matanuska field, and Healy River Coal Corporation and Usibelli Coal Mine, Inc. in the Healy field contributed most of the production, the following list of coal mining operations indicates all the mines that were at any time active during the biennium:

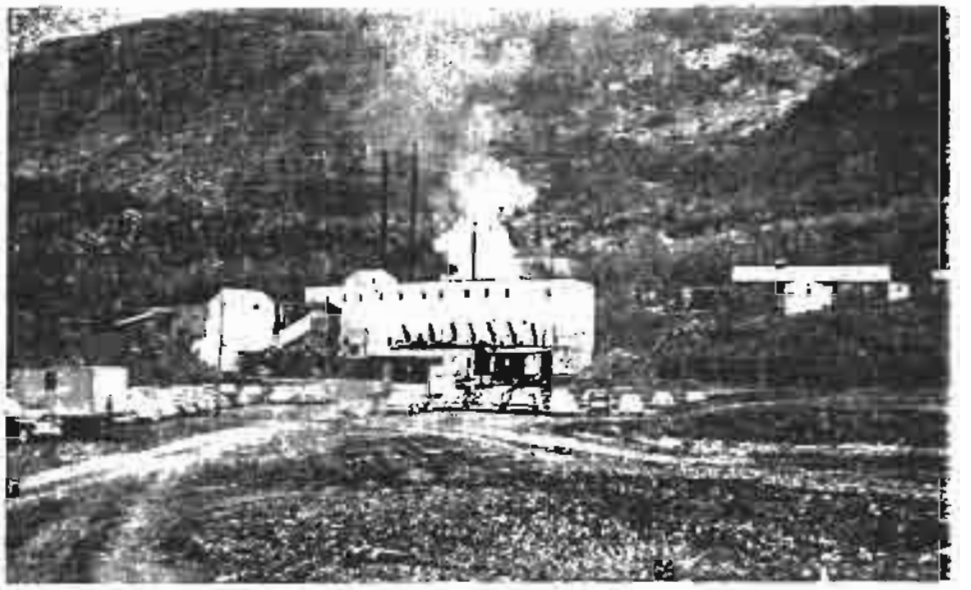
(Matanuska Field) (Bituminous)	
Evan Jones Coal Company (underground)	Operated 1949 and 1950
Buffalo Coal Company (underground)	Reopened 1950
Knob Creek Coal Company (underground)	Closed down in 1950
Houston Coal Company (strip)	Operated 1949 and 1950
(Homer Field) (Sub-bituminous)	
Homer Coal Corp. (underground & strip)	Expanded exploration 1950
(Healy Field) (Sub-bituminous)	
Healy River Coal Corp. (underground & strip)	Operated 1949 and 1950
Diamond Coal Company (strip)	Closed down early in 1949
Cripple Creek Coal Company (strip)	Began operations fall 1950
Usibelli Coal Mine, Inc. (strip)	Operated 1949 and 1950
(Point Barrow Field) (Sub-bituminous)	
Meade River Coal Mine (A.N.S.)	Operated 1949 and 1950

Matanuska Field:

Important improvements were made at the mine of the Evan Jones Coal Company at Jonesville during the biennium. A new heavy-media coal cleaning plant of latest design, with surface bins, crushers, and complete equipment including a washer using a Chance cone, was constructed. This new principle of coal-rock separation, using a magnetite mixture for heavy media, is the latest modern equipment, and should go far toward improving the quality of Evan Jones coal. A laboratory was established in connection with the new washer for the determination and control of ash content in the coal. Conditions in the underground operations were also notably improved, and mechanized equipment, including coal cutters and mechanical loaders, was on order and en route at the end of 1950.

In the fall of 1949 the Alaska Road Commission constructed a new highway from Sutton on the Glenn Highway to the property. This highway, following the easy grade of the Alaska Railroad, is an important improvement over the old highway which followed the ridges to the west. Three new entries on

coal found by drilling, about a mile west of the Jonesville tipple, were attempted. A complete surface set-up was made, with bunkers, hoists, compressors and power lines, but because of unexpected faulting, the relationships were not worked out, and the work was abandoned.



Surface plant of Evan Jones Coal Company.

The Buffalo coal mine on Moose Creek was opened by the Norris brothers during the spring of 1950, after it had been closed for a number of years, and rehabilitation of the surface plant and pumping of the shaft were started. A 150-K.V.A. steam turbine was obtained and installed for electric power, and preparations were made to start a new slope on Bed No. 1.

Small-scale operations were continued at the Premier mine of the Alaska Matanuska Coal Company, located on Moose Creek at the northwesterly end of Wishbone Hill. A small production was obtained from near-surface remnants above water level on several of the coal seams in the flooded slope-workings of the old mine, which in the past has yielded a large tonnage of exceptionally high-grade bituminous coal. Also during 1950, surface prospecting was carried out by bulldozer-trenching in an

effort to work out some of the complex geology east of the property and in an attempt to locate the coal beds between the Premier and old Baxter mine.

At the Knob Creek mine east of the Jonesville mine an unexpected fault in the workings forced abandonment of attempts to open a mine, and the property became idle early in the spring of 1950.

In an effort to expand the bituminous coal reserves of the Matanuska field, the Department of the Interior was conducting during the biennium, under the direction of the U. S. Bureau of Mines, a diamond-drilling program in the area west of the Jonesville mine. Additional drilling is planned in the same area for the open season of 1951.

At Houston on the Alaska Railroad, the Houston Coal Company continued stripping operations on flat-lying seams, and during 1950 contributed to the rail belt and military coal supply. A washer was completed on a spur of the Alaska Railroad in 1949. The operation consists of stripping off the shallow overburden by bulldozers, blasting the coal, and loading into trucks with power shovels. The trucks haul the coal to the washer, located about half a mile to the north on the Alaska Railroad spur. Future development plans include a drilling program and an increased production schedule.

Homer Field:

Small-scale coal mining operations were continued during the biennium at the property of the Homer Coal Corporation, located at Homer on lower Kenai Peninsula. During 1950 a complete engineering study, including the drilling of 23 holes, blocked out a considerable quantity of coal, and a little near-surface strip mining was done. The opening of the Homer-Seward highway during the summer of 1950 should result in an increased market for this coal on Kenai Peninsula.

Point Barrow Field:

Coal for use by the Eskimo inhabitants at Barrow, on the Arctic Coast, continued to be mined at the rate of about 1,000 tons per year at the Meade River mine, which was opened in 1943 by the Alaska Native Service at a point on Meade River about 70 miles south of Point Barrow. This small mine has served to alleviate a very serious fuel problem for the inhabitants of the Point Barrow region.

Healy Field:

Strip mining operations have become an important source of coal from this field since the war period, and their importance is shown by the fact that all of the operations in the area, with the exception of those of Healy River Coal Corporation, are stripping, exclusively, and even that company produces a substantial tonnage from its surface pits. In 1949 and 1950 a total of 480,000 tons, valued at about $3,279,000 was produced in the Healy field, of which 210,000 tons was stripped.

The Diamond Coal Company, operating the Norris-Parris leasehold four miles southwest of Healy, opened a new strip pit in 1948, approximately one mile west of the main pit. Due to the extremely faulted nature of the ground, extraction of clean marketable coal became very difficult, and efforts to mine were finally abandoned in 1949. The property, which is well equipped with tipple, machine shop, garage, warehouse, and camp on the Healy railroad siding, remained idle during 1950.

The mine of the Healy River Coal Corporation at Suntrana continued underground mining at about the same rate as in the previous biennium. This mine has been operating for 30 years, producing the bulk of the coal consumed in the Tanana Valley during that time. A characteristic of the coal in the Healy subbituminous field is the spontaneous combustible nature of the coal, which condition requires unusual vigilance and skill in mining. Gob fires are easily started and are extremely difficult to extingunish. In September 1950 an underground fire of long standing broke through its seals, and a gob fire developed by spontaneous combustion, after the shutdown caused by the strike at the Fairbanks workings of the U. S. Smelting, Refining and Mining Company, which company is a large user of Healy River coal in its power plant. This fire caused a great deal of trouble and delay. Due to the vigilance and efforts of the Department of Mines coal mining engineer, no one was injured, the old fire was again sealed off, and the new fire was extinguished.

Notable improvements have been made in the mining system used on beds Nos. 2 and 3 of the Healy River Coal Corporation underground operation. The credit for success of these new mining systems goes to the mine staff which has long worked on the problem of efficient extraction of the thick, pitching seams. An important improvement was made in the underground haulage system in the fall of 1950, with completion of a sand haulage tunnel in the footwall of Bed No. 1 at a distance from the bed. This area, close to the portal, has been difficult and expensive to maintain, due to the heaving character of the footwall. At the end of the biennium, equipment, including

mechanical coal cutters and loaders, were on order and should do much to improve efficiency and lower costs of this operation. During the biennium, a strip pit was opened on Bed No. 1 on property adjacent to the Usibelli leasehold, and production from this new pit started in September 1950. A modern, 24 x 72-foot office building was finished during the biennium and added much to the comfort and efficiency of the staff.

Usibelli Coal Mine, Inc. continued stripping and mining during the biennium on Bed No. 1, which is approximately 45 feet thick. A record tonnage was mined to supply an army contract late in 1949 and early in 1950. The gravel overburden is stripped with hydraulic giants and the sandstone hangwall is blasted then removed by the giants. Coal is blasted and loaded by power shovel on trucks for the 3-mile haul to the tipple on the Alaska Railroad tracks near Suntrana. Due to limited contracts, mining was somewhat curtailed the latter part of 1950; however, stripping was continued, and this mine has ample reserves ready for mining. During 1950, a new and commodious shop with an area of 7,000 square feet, a large and modern dry room with radiant heating, and four well-constructed and comfortable family bungalows were built. With the tipple and other existing improvements, and the new construction, this camp now is one of the best-equipped in the Territory. The surface plant is already well prepared for the time when plans for underground mining are carried out.

Stripping overburden on Bed No. 1 by hydraulic giant—Usibelli Coal Company, Healy River, Healy coal field.

Cripple Creek Coal Company, on the permit of A. Ben Shallit adjacent to the Usibelli Coal Mine, Inc. property, commenced operations in the Healy River district in 1950. Production for an army contract began in November from beds exposed on Cripple Creek, a tributary of Healy River. The overburden on the principal exposure, which is 45 feet in thickness, and which is believed to be an extension of Healy River Series Bed No. 1, was stripped by bulldozers. The coal is blasted and loaded on trucks by power shovels, and hauled six miles to a loading ramp below Suntrana on the Alaska Railroad. A camp at the mining site, and six miles of road on the north side of the Healy River valley, were constructed in August and September. Overburden was stripped during the same period and sufficient coal to fill the army contract was exposed for extraction. The rapidity with which this previously undeveloped area was brought into production is an outstanding example of good planning and management.

Future and Needs of the Coal Mining Industry

In view of the present trend toward mechanization of underground operations, it can reasonably be expected that production per man will be increased; however, the reverse may be expected at the strip mines, as their stripping limits are reached. Due to steep pitch, and location of most Alaskan coals, reserves of coal that may be stripped are limited, and are being depleted at a rapid rate. The solution to the problem of a long-range supply of coal is underground operation.

A substantial increase in the demand for coal is expected, as there are some 32,000 Kw. in steam power plants now being built in the railroad belt. This figure includes about 12,000 Kw. in the Tanana Valley and 20,000 Kw. in the Anchorage area. It can, therefore, be predicted that the yearly consumption of coal in Alaska will rise to 500,000 tons within the coming biennium.

This presents a challenge to the coal industry, especially to the operators in the Matanuska field where oil is competitive. Coal producers will have to increase output if markets are not to be allowed to turn to oil because of their inability to meet the demand for fuel.

Those Alaska communities such as Anchorage and Seward, which are so situated that they could economically utilize waste steam for heating, should study the example of Fairbanks. The Fairbanks utility system is presently constructing a power plant

for the generation of electric energy, which will utilize the low pressure waste steam for heating sections of the city. This system has proven highly successful in the past in Fairbanks and elsewhere throughout the world.

There is a distinct need for a procurement policy, and clear statement of anticipated annual coal consumption and stockpile requirements by the military establishments. As the military is the largest consumer of coal in the Territory, much confusion exists until annual awards are made, and operators are forced to close their mines at times until awards are made. Awarding of semiannual contracts on smaller lots might prevent operators failing to gain annual contracts from being closed down for long periods.

In view of the increasing importance of the coal industry, and the substantial amounts of coal consumed yearly, there is an urgent need for a coal-analysis laboratory in the Territory. At the present time there are no such facilities, and coal must be sent to the U. S. Bureau of Mines laboratory at Pittsburgh, Pennsylvania for analysis, thereby consuming so much time that Alaskan coals are rarely tested.

A reactivated first-aid and mine-rescue program is badly needed in the Territory at this time. Practically no trained men are available at present in case of disaster, and there are no organized safety teams to conduct rescues. The Safety Division of the U. S. Bureau of Mines in Alaska should be revived to conduct this important work. It would greatly aid the engineers of the Department of Mines, and the safety committees or safety engineers of the mining companies in maintaining a low accident rate. A continuing program of safety training to establish fully trained and equipped mine rescue teams immediately available in case of disaster is an urgent requirement of the coal mining industry.

Lode Mining

Lode mining continued to decline during the biennium, as indicated by tables III and IV in following sections of this report, in spite of the fact that two of the formerly important producers of lode gold began operations on a reduced scale. Present conditions certainly are not favorable to early return of lode-gold mining to its former important position in the mining industry as a producer and employer. More hopeful for the immediate future in lode mining seems to be the possibility of developing base and critical metallic minerals, as well as nonmetallic minerals for use in the building industry.

During the biennium of 1949-1950 only one base metal property was operated in Southeast Alaska. This mine, the Riverside, a lead-tungsten property near Hyder employing about 32 men, has been able to operate only because it was able to hire low-cost Canadian labor and ship over Canadian steamship lines.

In the Ketchikan district on Prince of Wales Island, Wendell Dawson continued to mine and mill on his gold lode near Hollis. Mr. Dawson has consistently operated and shipped concentrates to the smelter since the war.

The Lake Bay Mining Company on Prince of Wales Island was active for a short time during 1950, as also was Elmer Johnson and associates at the Londevan property on George Inlet near Ketchikan.

Robert Novatney of Juneau was actively developing a gold-lode prospect on Helm Bay near Ketchikan during the biennium.

The Tillicum Mining Company of Ketchikan did a small amount of tunnel work on the Dora Lake lead-zinc prospect on Prince of Wales Island. The work was under the supervision of George Roberts.

In the Wrangell district, L. C. Berg of Sitka had a diamond-drill crew at his lead-zinc property in Berg Basin both open seasons of the biennium.

There was some interest in the iron deposits of Southeast Alaska during the biennium. W. S. Pekovich of Juneau staked an iron deposit at Snettisham, and obtained samples for metallurgical tests in the summer of 1950. Negotiations were under way at the end of the biennium for outside capital to develop this property. The Alaska Iron Company of Haines was engaged in staking and developing a magnetite-hornblende deposit during the biennium near Klukwan, 24 miles northwest of Haines. The property consists of placer claims on the alluvial fan paralleling the ridge to the northeast of the village of Klukwan, and lode claims on a mineralized zone on the mountainside above the placer. Apparently, there is a large tonnage of mineralized material on this property, but only extensive testing will determine the feasibility of producing marketable iron ore or concentrates.

Herman Kloss and Jack Davis continued development work during the biennium on their promising gold-antimony prospect at Sunset Cove near Windham Bay.

The Alaska Juneau Gold Mining Company maintained a crew of 31 men during the biennium, which was engaged for the most part on maintenance of power plants and lines, mill and other equipment.

In the Chichagof district, Slocum Arm Mining Company maintained at its property on Slocum Arm a small crew that was engaged during the biennium on assessment work and some surveying and mapping. Ole Twedt worked alone at developing his gold lode on Klag Bay during 1949 and 1950.

The operation receiving most attention during 1950 was the reopening of the well-known Hirst-Chichagof mine at Kimshan Cove. This mine has been a substantial gold producer in the past, and was closed by the Government L-208 order during the last war. The rehabilitation program was in charge of Paul M. Sorensen, who was also manager for the company at the time the mine was closed, and for several years prior to that. He had a crew of six former employees of the company.

Also of interest in the Chichagof area, was the operation of Hayes and Whiteley Enterprises of Juneau at the Chichagof mine. This company had a crew of seven engaged during 1950 in remilling tailings, utilizing a dragline lift to the elevator, thence to the mill. This mine, for many years prior to its closing early in the last war period, was one of the principal lode-gold producers in the Territory.

In the Glacier Bay area, Leroy Mining Company operated during both years of the biennium with a small crew. Concentrate shipments were made to the Tacoma Smelter. Charles Parker was prospecting a lead-silver-copper showing near Excusion Inlet in 1950.

Mines of the third division in the Willow Creek district were the principal producers of lode gold in the Territory during the biennium. This production, although small, was on the increase. The Alaska Pacific Consolidated Mining Company reopened its Independence mine late in the 1949 season. The operation commenced with the inauguration of a leasing system for the extraction of ore—the first attempt of the kind in Alaska—although a similar system has been successfully used for a number of years in certain mining districts of the western states. Mining and milling operations continued in 1950 on a highly efficient one-shift basis. However, late in 1950, the operation closed down for what was described as an indefinite period.

The Fern mine was operated on Archangel Creek during 1949 and 1950, and some production was reported in both years. The company was reorganized during the fall of 1950.

Snowbird Mining Company, Inc. continued its development program, and construction completed during the biennium included a mill of modern design, hydro-diesel power plant, and a complete camp. Underground development also continued but there was no production.

Others active in the Willow Creek area included Jack Lane, who was developing the Glacier claims on upper Archangel Creek, and some development work on the Webfoot gold lode by W. Conroy, also in the Archangel Creek area. Frank O'Neil and Ward Sroufe made an exceedingly rich strike on Craigie Creek and spent the summer of 1950 developing the lode and preparing to mill the ore in one of the mills of the district.

At Girdwood, Joe Danich did some development work and improved the mill on the old Jewel and Monarch properties during the biennium.

On Kenai Peninsula, the Falls Creek Mining Company, near Moose Pass, mined and operated its mill during 1949 but closed down in 1950. On Palmer Creek near Hope, Iver Nearhouse did some development work on the Gold Mint claims.

In the Fairbanks district of the fourth division during the biennium, Vern Jokela and Charles Lazeration worked the Greenback claims of the old Robinson property on Pedro Dome near the head of Eldorado Creek, milling their ore at the Cleary Hill Mines Company mill on Cleary Creek. Near this operation toward the head of Cleary Creek, at the Tolovana mine, Howard Sparks mined antimony and a little gold during 1949. This property was in litigation and was closed in 1950. E. L. Kaye operated the Sanford property in the Ester Dome area during 1949, but it was idle in 1950. Also in the same area, Earl Beistline operated the O. M. Grant property on Happy Creek during 1949. Both Beistline and Kaye milled their ore at the mill near the head of Ready Bullion Creek on Ester Dome. Doug Jackson and Earl Beistline operated the Cleary Hill mine during 1950 and milled their ore there. There was some prospecting activity at the Coffee Dome by Walter Lindgren and associates. John Vuyovich during 1950 milled some ore from a lode on Ester Dome in the St. Paul mill on Eva Creek. The Four-A Mining Company prospected a silver-lead occurrence near the head of Flume Creek.

A purchasing agency was set up in the Fairbanks area by Howard Sparks, who became a representative of Goldsmith Bros. Smelting and Refining Company of Chicago. Sparks was actively engaged in buying ore in this district. During 1950 he contracted to buy the 1948 production of the Sawtooth Mining Company near Rampart, and about 100 tons of high-grade antimony ore was on its way to Livengood from the property at the close

of 1950. No mining was reported by this company in 1949 and 1950, due to the low price of antimony, but active operations were planned for 1951. The property is to be completely equipped and supplied.

Earl Pilgrim operated the Stampede antimony mine on Stampede Creek in the Kantishna district during 1949 and made some shipments, but only a little activity was reported at the property in 1950.

Elsewhere in the fourth division, Sam Gamblin and associates did some work in 1949 on his antimony claims on Boulder Creek in the Slana-Tok district, but no activity was reported at the property in 1950. Frank Barrett prospected on the old Cameron property, a gold lode on Mosquito Fork of the Fortymile River. Robert Stone and associates developed the Eagle Creek quartz lode near Medfra, and moved in additional supplies and equipment.

There was but little lode mining or prospecting in the second division during the biennium. In the Solomon area, the Big Hurrah mine was taken over in 1950 by T. P. Lane of the pioneer mining family, and plans were to rework the tailings of previous operations by cyanidation. A cyanide plant was ordered and received in the fall of 1950 that was expected to be erected and operated during 1951. Elsewhere in the area, a bismuth lode prospect on Charley Creek, tributary of Sinuk River was being developed by Margraf and Kolowski of Nome. Fred Crane did some prospect work on a tin lode at Cape Mountain in the York district in 1949 but was not active in 1950. Other lode operations in the division consisted only of assessment work and a little prospecting.

PRODUCTION

Mineral production of Alaska in 1948, 1949, and preliminary estimates for 1950, as compiled by Alfred L. Ransome of the Economics Division, U. S. Bureau of Mines Region I, Juneau, Alaska, is shown in Table I. There was a steady increase over the previous biennium in the total value of all minerals produced, although production of gold in 1949 was somewhat lower than for either of the two preceding years. Valuation of the increased output of coal and platinum in 1949 more than offset the decrease from the previous year in gold production. Tonnage of coal produced in 1949 exceeded by some 25,000 tons the previous record set in 1948, and again dropped a little below the 1948 level in 1950.

TABLE I

Mineral Production of Alaska, 1948-1950

	1948			1949			1950 1/	
	Quantity		Value	Quantity		Value	Quantity	Value
Antimony ore	68	short tons	$ 29,336	74		$ 31,356	.....	.....
Coal, bituminous and lignite	407,906	do.	2,789,276	433,533	2	3,309,303	395,000	(3)
Copper, Cu content	16	do.	6,944	4		1,576	7	2,912
Gold, Au content	248,395	troy ounces	8,693,825	229,416		8,029,560	282,866	$ 9,900,310
Lead, Pb content	329	short tons	117,782	51		16,116	150	37,500
Mercury	100	flasks (76 pounds)	7,649	100		7,946	.....	.....
Silver, Ag content	67,341	troy ounces	60,947	36,056		32,633	48,478	43,875
Tin, Sn content	5	long tons	(3)	51		114,800	76	(3)
Tungsten (60% concentrates) 4	.....	short tons	.....	2		.....	2	(3)
Zinc, Zn content	22	do.	5,852	.....		496	6	1,668
Miscellaneous 5	.....		1,312,336	.....		4,005,086	.....	9,215,300
Total	.....		$13,024,000	.....		$15,549,000	.....	$19,202,000

1 All figures for 1950 are preliminary and subject to revision.
2 Exclusive of mines producing less than 1,000 tons.
3 Bureau of Mines not at liberty to publish separately; value included with miscellaneous.
4 Shipments.
5 Comprises value of platinum-group metals, sand and gravel, stone, and items indicated by (3).

Note: Above statistics prepared by Alfred L. Ransome, Economics Division, U. S. Bureau of Mines, Region I.

METAL PRICES

The following table, published on January 4, 1951 by E. and M. J. Metal and Mineral Markets, shows comparative prices of the more common metals for the two years of the biennium. There was a decided upward trend in prices of base and other metals required in the preparedness program that was under way at the end of the biennium. A few of the quotations on January 3, 1951 were: **Copper,** domestic refinery—24.2¢ lb., export refinery—24.425¢ lb.; **Tin,** New York—151¢ lb.; **Lead,** New York—17¢ lb., St. Louis—16.8¢ lb.; **Zinc,** East St. Louis—17.5¢ lb.; **Silver,** New York—80¢ oz., Treasury price on newly mined—90.5¢ oz.; **Platinum,** wholesale—$90 oz., sales to consumers—$93 oz.; **Quicksilver,** New York—$150@$153 76-lb. flask.

TABLE II

Yearly Average Price—1949-1950
(E. & M. J. Averages)

	1949	1950
Copper, domestic, f.o.b. refinery, c/lb.	19.202	21.235
Copper, export, f.o.b. refinery, c/lb.	19.421	21.549
Lead, common, New York, c/lb.	15.364	13.296
Lead, common, St. Louis, c/lb.	15.172	13.096
Zinc, Prime Western, St. Louis, c/lb.	12.144	13.866
Tin, Straits, New York, c/lb.	99.336	95.539
Silver, foreign, New York. c/oz.	71.930	74.169
Quicksilver (per flask 76-lb.)	$79.458	$81.258
Antimony, domestic, New York (cases), c/lb.	40.299	30.906
Platinum, refined, oz.	$73.360	$76.556
Cadmium (producers' quotation), c/lb.	200.000	216.840
Aluminum, 99 plus percent, ingot, c/lb.	17.000	17.713
Magnesium, ingot, c/lb.	20.500	22.043
Nickel, electrolytic, c/lb.	40.000	44.792

EMPLOYMENT AND ACCIDENTS AT MINES

The following Table III reveals the trend of employment in the mining industry from 1914, the first year for which records are available, through 1950. Accidents and employment at the various types of mines are shown for each year of the biennium in Table IV. The number of man-shifts, number of accidents, and resulting time lost at mines of various types in Alaska, during each year for which records are available, are indicated in Table V.

TABLE III

Employment at Mines, 1914 to 1950, Inclusive
Number of Men Employed at:

Year	Placers	Lode Mines and Milling Plants	Coal and Other Mines	Totals
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
1937	3,136	1,957	92	5,185
1938	3,470	2,071	218	5,759
1939	3,928	1,986	229	6,143
1940	4,240	1,974	149	6,363
1941	3,965	1,805	218	5,988
1942	2,175	1,065	249	3,489
1943	556	581	312	1,449
1944	658	489	393	1,540
1945	903	238	309	1,450
1946	1,694	446	334	2,474
1947	1,824	384	280	2,488
1948	1,938	309	267	2,514
1949	1,838	262	323	2,423
1950	1,722	243	297	2,262

TABLE IV

Summary of Accidents and Employment at Mines in Alaska 1949-1950

Number of Mines	Group	Number of Men Employed	Number Shifts Worked	Results of Accidents: Fatal	Serious	Slight	Total Time Lost (Days)
	(1949)						
	PLACER MINES:						
31	Dredges	1,009	225,104	0	13	43	495
37	Draglines	298	53,640	0	1	2	43
91	Dozer-Hydr.	310	49,600	0	0	0	0
105	Others*	221	33,150	0	0	0	0
264		1,838	361,494	0	14	45	538
	COAL MINES:						
7	Underground	173	49,082	0	23	28	1,126
3	Surface	150	37,520	0	4	11	166
10		323	86,602	0	27	39	1,292
	LODE MINES:						
49	Metal**	209	46,479	0	6	4	376
3	Non-metal***	28	3,937	0	1	0	45
52		237	50,416	0	7	4	421
	MILLS:						
7	Metal	25	4,380	0	0	1	6
333	Totals	2,423	502,892	0	48	89	2,257
	(1950)						
	PLACER MINES:						
28	Dredges	874	203,474	0	15	22	642
37	Draglines	342	61,560	0	1	0	14
87	Dozer-Hydr.	304	48,640	0	0	0	0
113	Others*	202	30,300	0	0	0	0
265		1,722	343,974	0	16	22	656
	COAL MINES:						
6	Underground	161	40,959	0	16	26	721
4	Surface	136	29,405	1	6	15	220
10		297	70,364	1	22	41	941
	LODE MINES:						
44	Metal**	214	47,797	0	4	7	241
1	Non-metal	7	1,050	0	0	0	0
45		221	48,847	0	4	7	241
	MILLS:						
9	Metal	22	4,003	0	2	1	355
329	Totals	2,262	467,188	1	44	71	2,193

*Includes hydraulic, shovel-in, drift, snipe and prospectors.
**Includes prospectors and intermittent operations.
***Includes quarry.

Fatality

Only one fatality resulted from accidents at mines in Alaska during the biennium. Austin E. Lathrop, prominent pioneer businessman and principal owner of the Healy River Coal Corporation, was killed at the mine camp on July 26, 1950. A loaded railroad car struck and ran over "Cap," as he was affectionately known by friends and employees, during switching operations in the mine yard at Suntrana, causing instantaneous death.

TABLE V

Summary of Man-Shifts Worked, Fatal and Non-Fatal Accidents, and Time Lost in All Mines in Alaska

Year	Man-Shifts Worked at Placer Mines	Man-Shifts Worked at Lode Mines and Mills	Man-Shifts Worked at Coal Mines	Fatalities Placer Mines	Fatalities Lode Mines and Mills	Fatalities Coal Mines	Non-Fatal Accidents Placer Mines	Non-Fatal Accidents Lode Mines and Mills	Non-Fatal Accidents Coal Mines	Time Lost (Days) Placer Mines	Time Lost (Days) Lode Mines and Mills	Time Lost (Days) 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	496,370	515,105	27,285	2	8	0	89	284	8	1,014	3,780	149
1937	547,748	548,929	25,267	2	2	16	129	298	14	1,733	5,007	407
1938	607,624	595,520	27,744	2	5	0	112	351	20	1,365	5,091	423
1939	683,624	548,121	26,643	1	3	0	158	302	15	2,263	4,247	488
1940	718,153	552,579	34,450	4	4	0	162	313	29	1,999	4,260	721
1941	657,142	517,347	54,779	1	1	0	151	325	38	1,978	5,069	630
1942	358,185	300,785	68,593	2	2	2	72	149	41	1,129	3,002	746
1943	82,780	155,370	84,694	0	3	1	1	82	37	54	1,338	635
1944	98,117	81,246	101,609	0	1	0	0	18	89	0	386	2,057
1945	145,260	52,224	84,523	0	0	3	5	2	64	22	10	1,417
1946	297,529	116,670	82,303	0	1	1	44	12	75	521	131	952
1947	351,916	85,361	80,691	1	1	1	65	8	47	869	110	646
1948	390,566	66,602	74,273	0	0	1	55	7	48	1,003	322	613
1949	361,494	54,796	86,602	0	0	0	59	12	66	538	427	1,292
1950	343,974	52,850	70,364	0	0	1	38	14	63	656	596	941

LIST OF MINING OPERATIONS IN ALASKA, 1950

Name and Address of Operator	Location	Precinct	Type of Operation	Approx. Crew
Adamik, Martin, Circle	Boulder Cr., trib. Coal Cr.	Circle	Hydraulic	1
Agoff, Harry, Flat	Prince Cr.	Otter	Bulldozer-hydraulic	5
Alaska Exploration & Mining Co., Talkeetna	Bird Cr.	Talkeetna	Hydraulic	3
Alaska Iron Company, Haines	Near Klukwan	Skagway	Road construction and development	6
Alaska Juneau Gold Mining Co., Juneau	Alaska Juneau, Juneau	Juneau	Gold lode and mill (Maintenance only)	31
Alaska Matanuska Coal Co., Anchorage	Premier Mine, Moose Creek. Matanuska Field	Palmer	Coal mine development	3
Alaska Native Service, Juneau	Barrow & Wainwright	Noatak-Kobuk	Coal mine	15
Alaska-Pacific Consolidated Mining Co., Wasilla	Fishhook Cr., Willow Cr. Dist.	Wasilla	Lode gold and mill	50
Alaska Placer Co., Nome or 327 Colman Bldg., Seattle 4, Wn.	Niukluk R., Council Dist.	C. Nome	Gold Dredge	15
Alder Creek Mining Co., Meehan	Fairbanks Cr.	Fairbanks	Dragline-bulldozer-hydraulic	15
Alluvial Golds, Inc., Fairbanks	Woodchopper Cr.	Circle	Gold dredge maintenance	1
Amero, A. W., Chandalar	Big Cr., Chandalar Dist.	Fairbanks	Sniping	1
Amund, Otto, Eagle	Fox Cr., trib. Seventymile R.	Eagle	Hydraulic	1
Amy Creek Mning Co., Fairbanks	Amy Cr.	Fairbanks	Stripping & maintenance	1

Anderson, Ellis,Chandalar	Tobin Cr., Chandalar Dist.	Fairbanks	Placer drift	1
Anderson, Luoto & Frienze, Nome	Hammon Cr., trib. Inmachuk R.	Fairhaven	Bulldozer-hydraulic	3
Atwood Mining Co., Chicken	Stonehouse Cr. bench, Fortymile Dist.	Fairbanks	Bulldozer	1
Awe Mining Co., Flat	Marvel Cr.	Kuskokwim	Dragline-bulldozer	6
Backstrom, Gus, Flat	Head of Flat Cr.	Otter	Hydraulic	3
Balabanoff, N. R., Talkeetna	Nugget Cr.	Talkeetna	Sniping	2
Baldwin, Jim, Nome	Sweepstakes Cr., trib. Peace R.	C. Nome	Bulldozer-hydraulic	4
Barret, Frank, Chicken	Mosquito Fork, trib. Fortymile R.	Fairbanks	Gold lode development	1
Bartholomae Oil Corp., Los Angeles, California	Ryan Lode, Ester Dome	Fairbanks	Gold lode (maintenance)	1
Bauer, Richard & Calich E., Eagle	Crooked Cr., trib. Seventymile R.	Eagle	Hydraulic	2
Beaton, Neal, Ophir	Ganes Cr. bench	Innoko	Bulldozer-hydraulic & Gold dredge	7
Benick, Ed, Nome	Ophir Cr., trib. Niukluk R.	C. Nome	Shovel-in	1
Berg, L. C., Sitka	Berg Basin, Wrangell Dist.	Wrangell	Diamond-drilling & development lead-zinc lode	6
Berail, Phillip, Circle	Colorado Cr.	Circle	Groundsluice	1
Berry Dredging Co., 1704 Sutter St., San Francisco 4, Calif.	Mammoth Cr.	Circle	Gold dredge	15
Big Hurrah Quartz Mine, Nome, or 2220 N. 13th St., Phoenix, Ariz.	Big Hurrah Cr., trib. Solomon R.	C. Nome	Gold lode & mill	4
Blasher, Frank, Hyder	Cantu & upper Texas Cr.	Hyder	Lode prospecting	1
Bleecker, F. C., Fairbanks	First Chance Cr.	Fairbanks	Hydraulic stripping	1

Blundell, J. B., Big Lake	Jim Pup Cr., trib. California Cr.	Koyukuk	Shovel-in & W. drift	1
Bodis, George, Nome	Dick Cr.	C. Nome	Bulldozer-dragline	2
Bonanza Mining Co., Chisana	Bonanza Cr.	Chitina	Hydraulic	2
Bott, Earl & Lyle, Big Lake	Eight Mile Cr., trib. Bettles R.	Koyukuk	Shovel-in & ground-sluice	2
Bouquier, John, Flat	Happy Cr.	Otter	Bulldozer-hydraulic	1
Bowman, Harry, Iliamna	Portage Cr., trib. L. Clarke	Iliamna	Bulldozer-hydraulic	1
Bradley, C. W., Talkeetna	Upper Cache Cr.	Talkeetna	Hydraulic	3
Brinker-Johnson Mining Co., 215 N. Carson St., Carson City, Nev.	Caribou Cr.. Salcha R. Dist.	Fairbanks	Gold dredge	21
Brown, R. A., Chicken	Uhler Cr., trib. Fortymile R.	Fairbanks	Bulldozer-hydraulic	3
Bufvers, John, Ketchikan	Prince of Wales I. near Kasaan	Ketchikan	Silver-gold prospect	1
Burns, J. & Sons, Fairbanks	Homestake Cr., trib. Totatlanika R.	Nenana	Bulldozer-hydraulic	5
Callahan Zinc-Lead Co., 100 Park Ave., New York 17, N. Y.	Livengood Creek	Fairbanks	Gold dredge maintenance, stripping and thawing	85
Cannon, Robert, Teller	Birch Cr., trib. American R.	C. Nome	Bulldozer-hydraulic	3
Canyon Creek Mining Co., Jens Kvamme & Sons	Canyon Cr.	Bethel	Bulldozer-hydraulic	4
Carlo, Wm., & May, John, Ruby	Ophir Cr., trib. Sulatna R.	Nulato	Bulldozer-hydraulic	3
Casa de Paga Gold Co., 1106 Hoge Bldg., Seattle, Wn.	Inmachuk R.	Fairhaven	2 Gold dredges	30
Chappell, Oliver L., Wiseman	Thompson Gulch, trib. Nolan R.	Koyukuk	Hydraulic	1
Chititu Mines, McCarthy	Rex & Chititu Crs .	McCarthy	Placer drift	12
Chrome Queen Mining Co., Seward	Red Mountain, Kenai Penin.	Seldovia	Assessment on Chromite lode	2

Cleary Hill Mines, Inc., Fairbanks	Sullivan Cr. & Tofty Gulch	Hot Springs	Dragline-hydraulic	8
Coffin, W. H., Deering	Kugruk R.	Fairhaven	Hydraulic	2
Collinsville Mines, Box 547, Anchorage	Mills Cr. & lower Twin Cr.	Talkeetna	Dragline-washing plant	10
Colorado Cr. Mining Co., Ophir	Colorado Cr., Cripple Dist.	Innoko	Dragline-bulldozer-hydraulic	6
Connell, Paul A., Circle	Hughes Mtn., N. bank Yukon R.	Circle	Lode prospecting	1
Cripple Creek Coal Co., Box 622, Fairbanks, Alaska	Cripple Cr., trib. Healy R.	Nenana	Strip coal mine	20
Cripple Creek Mining Co., Anchorage	Upper Cripple Cr. near Folger	Innoko	Dragline-bulldozer--hydraulic	16
Dahl, Ben, Fairbanks	Bear Cr., trib. Buckland R.	Fairhaven	Bulldozer-hydraulic	5
Dahl, Robert, Talkeetna	Nugget Cr.	Talkeetna	Sniping	1
Danich, Joe, Anchorage	Jewel & Monarch Mines, Girdwood	Anchorage	Assessment on gold lode	1
Davis, Joe, Chisana	No. 2 Little Eldorado Cr.	Chitina	Shovel-in	1
Dawson, Wendell, Box 2384, Ketchikan	Harris Cr., Prince of Wales I.	Ketchikan	Gold lode with mill	1
Deadwood Mining Co., Circle Hot Springs	Deadwood Cr.	Circle	Dragline-bulldozer	4
Dean, Tom, Hot Springs	Lower Miller Cr.	Hot Springs	Placer drift	2
Degnan, Joe, Ophir	Little Cr.	Innoko	Dragline-bulldozer-hydraulic	6
Dempsey & Edwards, Nome	Casadepaga R., trib. Niuluk R.	C. Nome	Gold dredge	4
Diamond Coal Co., Box 890, Fairbanks	Norris-Parris permit. Healy R.	Nenana	Strip coal mine	12
Dinan, Frank, Rampart	Florida Cr.	Rampart	Placer drift & ground-sluice	2
Dittman, David, Fairbanks	Skoogy Cr.	Fairbanks	Bulldozer-hydraulic	1

Dobson, H., Nome	American Cr., Pt. Clarence Dist.	C. Nome	Groundsluice	1
Douglas, J., Marshall	Upper Willow Cr.	Wade-Hampton	Shovel-in	2
Doyle, Jere, Hot Springs	Lower New York Cr.	Hot Springs	Bulldozer-hydraulic	3
Eagle Creek Mine, Medfra	Vicinity of Medfra	Mt. McKinley	Gold lode development	2
Eisenmenger, Wm., Fairbanks	Tibbs Cr., trib. Goodpaster R.	Fairbanks	Gold lode prospect	1
Englebritzen, Wm., Fairbanks	Pedro Cr.	Fairbanks	Sniping	1
Engstrom, Herbert, Nome	Basin Cr., trib. Nome R.	C. Nome	Bulldozer-hydraulic	3
Engstrom & McDonald, Nome	Basin Cr., trib. Nome R.	C. Nome	Placer drilling	2
Erickson, Helvor, Talkeetna	Cache Cr.	Talkeetna	Hydraulic	1
Evan Jones Coal Co., Box 619, Anchorage	Jonesville, Matanuska Field	Palmer	Bituminous coal mine & washery	124
Evans, Orville, Fairbanks	Van Curler Bar	Fairbanks	Bulldozer	1
Fern Gold Mining Co., Anchorage	Fern Mine, Archangel Cr.	Wasilla	Gold lode & mill	4
Four-A Mining Co., Fairbanks	Pedro Creek area	Fairbanks	Bulldozer-hydraulic Silver lead prospect	3 1
Francis, Earl & Coble, Joe, Fairbanks	Lower Eureka Cr.	Hot Springs	Bulldozer-hydraulic	2
Franklin Mining Co., Fairbanks	Chicken Cr., trib. Fortymile R.	Fairbanks	Dragline-bulldozer-hydraulic	5
Frasca, John & Gibson, Chas., Miller House	Eagle Cr.	Circle	Bulldozer-hydraulic	2
Frey Bros., Palmer	Valdez Cr.	Talkeetna	Repairing pipeline	3
Gietler, Grover, & Myklebust, John, Ophir	Little Cr.	Innoko	Dragline-bulldozer-hydraulic	4
Glass & Taylor, Nome	Solomon R.	C. Nome	Bulldozer-hydraulic	3
Gold Mint Mines, Hope, or 621 S. Hope St., Los Angeles, Calif.	Nearhouse property, Palmer Cr.	Seward	Gold lode development	1

Gold Placers, Inc., Fairbanks	Coal Cr., Circle Dist.	Circle	Gold dredge	21
Goodnews Bay Mining Co., Platinum	Salmon R. & tribs., Goodnews Bay Dist.	Bethel	Platinum dredge Dragline-bulldozer-washing plant	50 15
Goodwick & Tronstad, Kobuk P. O.	Dahl Cr., trib. Kobuk R.	Noatak-Kobuk	Hydraulic	2
Granger, D., & Dragon, L., Chicken	South Fork Fortymile R.	Fairbanks	Bulldozer-hydraulic	3
Grant Mining Co., Nome	Macklin Cr., trib. Kougarok R.	C. Nome	Bulldozer-hydraulic	3
Grant Mining Co., Nome	Coffee Cr., Kougarok Dist.	C. Nome	Bulldozer-hydraulic	3
Grant, O. M., Fairbanks	Happy Cr., Ester Dome	Fairbanks	Gold lode maintenance	1
Grubstake Mine, Inc., Wasilla	Grubstake Cr.	Wasilla	Gold lode and mill	2
Hamberg & Giliska, Talkeetna	Pass Cr.	Talkeetna	Hydraulic	2
Hard & Utolia, Folger	Bear Cr., Cripple area	Innoko	Dragline-bulldozer	9
Harrison Creek Mining Co., Miller House	Harrison Cr.	Circle	Hydraulic-bulldozer	3
Hassel, Harold, Fairbanks	Ready Bullion Cr., trib. Ester Cr.	Fairbanks	Dragline-bulldozer-hydraulic	3
Hatten & Turner, Flat	Willow Cr.	Otter	Dragline-bulldozer-hydraulic	5
Havenstrite Mining Co., 811 W. 7th St., Los Angeles 14, Calif.	Mud Cr.	Fairhaven	Gold dredge Dragline-bulldozer-hydraulic	55 20
Hayes & Whiteley, Douglas	Alaska Juneau dump	Juneau	Truck-shovel-sluice	10
Hayes & Whiteley, Douglas	Chichagof Mine, Chichagof I.	Sitka	Re-milling tailings	7
Healy River Coal Corp., Suntrana	Suntrana Mine, Healy R.	Nenana	Subbituminous coal mine screening plant	77
Helcolicon Mines, Inc., Kiana	Salmon R. & Klery Cr., tribs. Kobuk R.	Noatak-Kobuk	Placer drilling & gold dredge	24

H & H Mining Co., Teller	Million Cr., trib. Windy Cr., trib. American R.	C. Nome	Buldozer-hydraulic	2
Hi Yu Mining Co., Fairbanks	Hi Yu Mine, Fairbanks Cr.	Fairbanks	Gold lode maintenance & prospect	2
Hirst-Chichagof Mining Co., Kimshan Cove, or 415 Seventh Ave., Seattle	Kimshan Cove, Chichagof I.	Sitka	Rehabilitation gold lode & mill	6
Homer Coal Corp., Homer	McNally property, Cook Inlet Field	Seldovia	Coal mine development	5
Hosler, D. G. & Elmer, Anchorage	Moose Cr., trib. Kantishna R.	Fairbanks	Bulldozer	3
Houston Coal Co., Anchorage	Tucker-Peterson Permit, Houston	Wasilla	Bituminous coal	8
Houston, Alexander, Nome	Dahl Cr., trib. Quartz Cr.	C. Nome	Bulldozer-hydraulic	2
Hovely, Otto, Hot Springs	Fergeson Cr., trib. Cache Cr.	Hot Springs	Placer drift	2
Hunter Creek Mining Co., Kotzebue or Nome	Hunter Cr., trib. Kiwalik R.	Fairhaven	Placer drilling	2
Hunter Creek Mining Co., Fairbanks	Upper Hunter Cr.	Rampart	Bulldozer-hydraulic	4
Iditarod Operating Co., Fairbanks	Golden Cr., trib. Illinois Cr.	Ft. Gibbon	Bulldozer-hydraulic	5
Innoko Dredging Co., Ophir	Upper Ganes Cr.	Innoko	Gold dredge	14
Jackson, Douglas & Beistline, Earl, College	Cleary Hill Mine	Fairbanks	Gold lode with mill	2
Jackson, Nels, Fairbanks	Totatlanika R.	Nenana	Bulldozer-hydraulic	2
Jenkins, Fred F. & Assoc., Eagle	Flume Cr., trib. Seventymile R.	Eagle	Nickel lode prospect	2
Johanssen, Ed, Chicken	Ingle Cr., trib. Mosquito Fork	Fairbanks	Hydraulic	1
Johnson, Elmer, Ketchikan	George Inlet	Ketchikan	Prospecting & Assessment work on zinc lode	2
Johnson, Frank, Kobuk P. O.	Dahl Cr., trib. Kobuk R.	Noatak-Kobuk	Hydraulic	1
Johnson, H., Teller	Gold Run Cr., trib. Bluestone R.	C. Nome	Placer drift & shovel-in	1

Johnson, Helmer, Fairbanks	Cleary Cr.	Fairbanks	Bulldozer-hydraulic	4
Johnson, Iver & Co., Long via Ruby	Trail Cr.	Nulato	Dragline-bulldozer-pump	3
Johnson, Pete & Louis, Hot Springs	Between Glen Gulch & Rhode Island Cr.	Hot Springs	Bulldozer-hydraulic	2
Jones, R. H. & Harvey, C. F., Fairbanks	Smith Cr., trib. Nolan Cr.	Koyukuk	Hydraulic	2
Jurich, John & Carr, Tom, Livengood	Lillian Cr., trib. Livengood Cr.	Fairbanks	Hydraulic	2
Kelly, Franklin & Wilkinson, R. Miller House	Miller Cr.	Circle	Bulldozer-hydraulic	2
Keyes, Ed. M., Fairbanks	No. 3 Pup, trib. Grubstake Cr.	Nenana	Shovel-in	1
Kloss, H. & Davis J., Entrance I. via Juneau	Sunset Cove, Windham Bay	Juneau	Gold-antimony lode development	2
Knob Creek Coal Mine, Palmer	Knob Cr., Eska area, Matanuska Field	Palmer	Coal mine development	6
Knorr, Vincent, Wiseman	Mascot Cr.	Koyukuk	Shovel-in	1
Kougarok Consolidated Placers, Inc., Nome	Kougarok R.	C. Nome	Dragline	35
Kougarok Freight & Mining Co., Nome	Buster Cr., trib. Nome R.	C. Nome	Construction of gold dredge	2
Kupoff, Nick & Tavitoff, Alec, Fairbanks	Pedro Cr.	Fairbanks	Bulldozer-hydraulic	2
Lake Bay Mining Co., 25 Broadway, New York, N. Y., or Butte, Mont.	Lake Bay, Prince of Wales, I.	Ketchikan	Assessment on copper lode	2
Landlow, Jens, Central	Switch Cr., trib. Deadwood Cr.	Circle	Hydraulic	1
Lane, Jacob, Anchorage	High Grade Claims, Fishhook Cr.	Wasilla	Gold lode development	1
Lannng, Tony, Hot Springs	Thanksgiving Cr.	Hot Springs	Bulldozer-hydraulic	1
Last Chance Mine, Seward	Town of Seward	Seward	Gold lode development	2
Lazeration, Charles & Jokela, Vern, Fairbanks	Pedro Dome	Fairbanks	Gold lode	2

Leov, Harry, Flat	Malamute Pup, trib. Otter Cr.	Otter	Hydraulic	2
Lee Bros. Dredging Co., Nome	Solomon R.	C. Nome	Gold dredge	14
Leisman, Hans, Bettles	Rye Cr., trib. Wild R.	Koyukuk	Shovel-in	1
Leonard, H. H., Seward	Skilak Lake	Seward	Antimony lode development	2
Leroy Mining Co., Box 4011, Juneau, or 12715 Aurora Ave., Seattle, Wash.	Reid Inlet, Glacier Bay	Juneau	Gold lode & mill	3
Lindfors, Hugo & Bale, Nome	Rocky Mtn. Cr., trib. Nome R.	C. Nome	Bulldozer-hydraulic	1
Lindquist & Carlson	Victor Gulch	Innoko	Bulldozer-hydraulic	2
Little Minook Mining Co., Fairbanks	Little Minook Cr.	Rampart	Dragline-bulldozer-pump	7
Lindgren, M. & Assoc., Fairbanks	Coffee Dome	Fairbanks	Gold lode prospect	2
Lody, Mike, Fairbanks	California Cr.	Nenana	Groundsluice	1
Long Creek Mining Co., Ruby	Bear Pup, trib. Long Cr.	Nulato	Dragline-bulldozer-hydraulic	2
Longborg & Anderson, Box 523, Nome	Unalakleet	St. Michael	Coal Mining	2
Lost Chicken Mining Co., Chicken	Lost Chicken Cr., Fortymile Dist.	Fairbanks	Bulldozer-hydraulic	2
Lucky Nell Mining Co., 511 Puyallup Ave., Tacoma 2, Wn.	Prince of Wales L. near Hollis	Ketchikan	Assessment on gold-copper lode	1
McFarland, C. & Hubbard, W., Ophir	Six Pup, upper Little Cr.	Innoko	Bulldozer-hydraulic	8
McMahan, C. J., Nelchina	Albert Cr., Nelchina Dist.	Chitina	Bulldozer-hydraulic	4
McShane, O. T., Talkeetna	Upper Falls Cr.	Talkeetna	Placer Gold development	5
Margraf, Kolowski & Co., Nome	Charley Cr., trib. Sinuk R.	C. Nome	Bismuth lode prospect	4
Margraf, Eugene, Nome	Cripple River	C. Nome	Placer drilling	2

Martin, G. B. Mining Co., Fairbanks	Buckeye Cr., trib. Banner Cr.	Fairbanks	Bulldozer-hydraulic	8
Martin, Henry, Circle Hot Springs	Portage Cr.	Circle	Groundsluice	1
Martinson, Olaf, Teller	Gold Run Cr., trib. Bluestone R.	C. Nome	Shovel-in	1
Matheson, H. & Savage, P., Ophir	Spruce Cr.	Innoko	Dragline-bulldozer-hydraulic	3
Maurer, Ernest, Fairbanks	First Chance Cr., trib. Goldstream Cr.	Fairbanks	Bulldozer-hydraulic	1
Meise, Tony & Stanton, Harold, Talkeetna	Ruby Gulch & Cache Cr.	Talkeetna	Bulldozer-hydraulic	3
Meldrum, Wm., Chicken	Chicken Cr.	Fairbanks	Bulldozer-hydraulic	1
Midnight Mining Co., Nome	Skookum Cr.	C. Nome	Bulldozer-hydraulic	2
Miller, Frank & Sons, Wiseman	Sheep Cr., trib. Middle Fork Koyukuk R.	Koyukuk	Bulldozer	3
Miscovich, P., & Sons, Flat	Otter Cr.	Otter	Dragline-bulldozer-hydraulic	10
Miscovich, P. & Sons, Fairbanks	Flat & Timber Crs.	Nulato	Dragline-bulldozer-pump	8
Moore Creek Mining Co., Fairbanks	Taylor Cr., trib. Holitna R.	Kuskokwim	Bulldozer-hydraulic	8
Morelock Mining Co., Fairbanks	Rosie Cr., trib Morelock Cr.	Ft. Gibbon	Bulldozer-hydraulic	4
Morrison-Knudsen Co., Inc., Fairbanks	Nome Cr., Tolovana Dist.	Fairbanks	Gold dredge maintenance	1
Mountain View Gold Mining Co., Ketchikan	Fish Cr., near Hyder	Hyder	Assessment work	1
Munz, William, Nome	Aggie Cr.	C. Nome	Bulldozer-hydraulic	3
Murphy, John, Ferry	Upper Eva Cr.	Nenana	Groundsluice	1
Myrtle Creek Mining Co., Fairbanks	Myrtle Cr.	Koyukuk	Dragline-bulldozer	10
Nashenweng, Louis & Bliss, Nome	Lower Dahl Cr., Kougarok Dist.	C. Nome	Bulldozer-hydraulic	6

Nelson & Fitch, Nome	Nome Beach near Ft. Davis	C. Nome	Shovel-in	2
Nesland, E. & White, P., Wiseman	Vermont Cr., trib. Hammon R.	Koyukuk	Bulldozer-hydraulic	2
New Hope-Hirshey, Seward	Hirshey & Hatcher Mines, Palmer Cr.	Seward	Gold lode development	1
New York-Alaska Gold Dredging Corp., Nyac or 41 Broad St., New York	Bear Cr., trib. Tuluksak R.	Bethel	2 golde dredges, and dragline-bulldozer-hydraulic	50 10
No Grub Mining Co., Fairbanks	No Grub Cr., Salcha Dist.	Fairbanks	Hydraulic	3
Norheim, Hans & Assoc., Hot Springs	Eureka Creek bench	Hot Springs	Bulldozer-hydraulic	4
North American Gold Dredging Co., Flat	Otter Cr.	Otter	Gold dredge	16
Northern Tin Co., Nome, c/o Wein Alaska Airline	Buck Cr., York Dist.	C. Nome	Dragline-jigs	10
North Fork Dredging Co., Nome	N. Fk. Kougarok R.	C. Nome	Gold dredge	4
Novatney, Robert, Juneau	Helm Bay	Ketchikan	Lode gold prospect	1
Nugget Mining Co., Talkeetna	Cache Cr. at mouth Thunder Cr.	Talkeetna	Bulldozers	5
Olive Creek Mines, Fairbanks	Olive Cr., trib. Tolovana R.	Fairbanks	Dragline-bulldozer	5
O'Brien, Jim & Dunsmuir, Jim, Seward	Surprise Cr., trib. Kenai R.	Seward	Groundsluice & drift	2
O'Neil, Frank & Sroufe, Ward, Box 2000, Anchorage	Upper Craigie Cr.	Wasilla	Gold lode prospecting	2
Ost., L. E., Council	Crooked Cr., trib. Ophir Cr.	C. Nome	Assessment gold placer	2
P. R. & H. Mining Co., Fairbanks	Deadwood Creek	Circle	Bulldozer-hydraulic	4
Parker, Charles L., Juneau	Excursion Inlet	Juneau	Lead-silver-copper prospect	1
Pekovich, W. S., Box 529, Juneau	Sentinel Pt., Port Snettisham	Juneau	Sampling & staking iron lode	2
Pennington & Tyler, Palmer	Daisy Cr., trib. Tyone R.	Talkeetna	Placer development	3

Peterson, Hans, Nome	Dome Cr., trib. Iron Cr.	C. Nome	Assessment gold placer	1
Philpott, L. & Hoidahl, A., Fairbanks	Upper Firth River	Fairbanks	Bulldozer	4
Pierce, James & Cravey, Chas., Rampart	Hoosier Cr.	Rampart	Bulldozer-sluice plate	3
Pitoff, Geo., Talkeetna	Upper Nugget Cr.	Talkeetna	Sniping	1
Pitts, Fred, Wiseman	Lake Cr., trib. Big Lake	Koyukuk	Hydraulic	1
Portage Mining Co., Circle Hot Springs	Portage Cr.	Circle	Dragline-bulldozer	3
Porter, Wallace, Haycock	Bear Cr., trib. Buckland R.	Fairhaven	Bulldozer-hydraulic	5
Price, Stanton, Windham	Spruce Cr., Windham Bay	Juneau	Bulldozer-sluice boxes	3
Primer, Paul, Shungnak	Lynx Cr ., trib. Kogoluktuk R.	Noatak-Kobuk	Hydraulic	1
Pringle, A. W., Hot Springs	Rhode Island Cr.	Hot Springs	Bulldozer-hydraulic	3
Purdy, Fred & Arthur, Chicken	Myers Fk., trib. Chicken Cr., Fortymile Dist.	Fairbanks	Bulldozer-hydraulic	2
Purkeypile, I. W., Poorman	Boulder Cr., Tonzona Dist.	Mt. McKinley	Silver-lead prospect	2
Quigley, E. W., Solomon via Nome	Solomon R.	C. Nome	Bulldozer-hydraulic	4
Radak, John, Livengood	Ruth Cr., Tolovana Dist.	Fairbanks	Hydraulic	1
Radovan, Martin, McCarthy	Glacier Cr.	McCarthy	Copper lode development	1
Rainbow Mining Co., Nome, Box 266	Goose Cr.	C. Nome	Bulldozer-hydraulic	2
Reinoski, Frank J., Rampart	Grouse Cr., trib. upper Hunter Creek	Rampart	Prospecting	1
Rheims, J. & Wilke, J., Boundary	Squaw Cr., Fortymile Dist.	Fairbanks	Bulldozer	2
Rice, C. F. Co., Teller	Sunset Cr.	C. Nome	Bulldozer-hydraulic	3
Riverside Tungsten Mine, Hyder, or 81-553 Granville St., Vancouver, B.C.	Salmon R. 7 Mi.	Hyder	Lead, silver, gold, tungsten, Lode and mill	32
Rosander, T. & Reed, L., Ophir	Yankee Cr.	Innoko	Dragline-bulldozer-hydraulic	8

Rosenbush, B., Franklin	Fortymile R.	Fairbanks	Sniping	1
Ruby Creek Mining Co., Rampart	Ruby Cr.	Rampart	Bulldozer-hydraulic	2
Rupp, Ray, Ferry	Little Moose Cr.	Nenana	Groundsluice	2
Savage, Patrick, Flat	Flat Cr. & Willow Cr.	Otter	Dragline-bulldozer-hydraulic	10
Schwaesdall, Andy & Acherson, T., Wiseman	Crevice Cr., trib. John R.	Koyukuk	Bulldozer-hydraulic	2
Scott, Tolbert, Nome	Iron Cr.	C. Nome	Gold dredge	2
Sellars, R. W., Chandalar	Big Cr., Chandalar Dist.	Fairbanks	Bulldozer-hydraulic	10
Silver Bow Mining Co., Nome	Coffee Cr.	C. Nome	Bulldozer-hydraulic	3
Slocum Arm Mining Co., Cobel via Juneau	Cox-Bolyan Mine, Slocum Arm, Chichagof I.	Sitka	Assessment on gold lode	2
Smith, F. J., Wiseman	Spring Cr.	Koyukuk	Shovel-in	1
Snowbird Mining Co., Inc., Anchorage, Box 1719	Reed Cr., trib. Little Susitna R.	Wasilla	Mill construction	14
Sourdough Dredging Co., Council	Ophir Cr.	C. Nome	Gold dredge	10
Stampede Mines, Fairbanks	Stampede Cr., Kantishna Dist.	Fairbanks	Antimony lode & mill	3
Stanich & Stanich, Wiseman	Porcupine Cr., trib. Koyukuk R.	Koyukuk	Bulldozer-hydraulic	2
Stock & Grove, Anchorage	Geographic Bay	Iliamna	Pumicite stripping & mining	6
Strandberg & Sons, Anchorage	Utopia Cr., trib. Indian R.	Ft. Gibbon	Dragline-bulldozer-Washing plant	18
Strandberg & Sons, Anchorage	Candle Cr., Takotna Dist.	Mt. McKinley	Gold dredge	18
Stuver, Jules, Flat	Head of Happy Cr.	Otter	Hydraulic	1
Sunset Mining Co., Anchorage	Lower Cache Cr.	Talkeetna	Bulldozer-hydraulic	4

Swanson Bros., Albert & Emil, Rampart	Hunter Cr.	Rampart	Bulldozer-hydraulic	5
Tanner & Taylor, Nome	Ophir Cr.	C. Nome	Prospecting	1
Taraski, A. J., Talkeetna	Cache Cr.	Talkeetna	Hydraulic	1
Tasker, E. & Bacon, W.	Marguerite Cr.	Nenana	Hydraulic	2
Terrel, Fred, Big Lake	Garnet Cr., trib. Bettles R.	Koyukuk	Groundsluice	1
Theisen, Frank & Farrell, Ed., Wiseman	Suckik Cr., trib. John R.	Koyukuk	Buldozer-groundsluice	2
Thompson, Joe, Iliamna	Kijik R., trib. Lake Clark	Iliamna	Lead-silver prospect	1
Thunder Mines, Inc., Box 993, Anchorage	Thunder Cr.	Talkeetna	Hydaulic & prospecting	3
Tillicum Mining Co., Ketchikan	Dora Lake, Prince of Wales I.	Ketchikan	Lead-zinc prospect	2
Trinity Mining Co., Nome	Trinity Cr., trib. Kougarok R.	C. Nome	Buldozer-hydraulic	4
Twedt, Ole, Chichagof	Klag Bay, Chichagof I.	Sitka	Gold lode development	1
Tweet, N. B. & Sons, Teller	Kougarok R.	C. Nome	Bulldozer-hydraulic	4
Ulen, Joe & Pringalo, Sam, Wiseman	Nolan Cr. bench	Koyukuk	Buldozer-hydraulic	2
U. S. S., R. & M. Co., 75 Federal St., Boston, Mass.	Fairbanks Dist.	Fairbanks	5 gold dredges	335
U. S. S., R. & M. Co.	Nome vicinity	C. Nome	3 gold dredges	123
U. S. Tin Corp., 201 Jones Bldg., Seattle, Wn.	Cassiterite Cr., trib. Lost R., Pt. Clarence Dist.	C. Nome	Bulldozer-hydraulic tin placer	35
Uotila & Hard, Ophir	Ophir Cr.	Innoko	Dragline-hydraulic-bulldozer	10
Uotila & Ogriz, Flat	Slate Cr.	Otter	Dragline-bulldozer-hydraulic	6
Usibelli Coal Mine, Suntrana	Healy Field	Nenana	Strip coal mine	28
Vanadium Corp. of America, Rifle, Colorado	Claim Pt. & Red Mtn., Kenai Peninsula	Seldovia	Road repair	4

Verdin, Ed., Fox	Near head of Fox Cr.	Fairbanks	Hydraulic	1
Vogan, Barney, Teller	Gold Run Cr.	C. Nome	Bulldozer-hydraulic	2
Vuyovich, John, Ester	Ready Bullion Cr., Ester Dome	Fairbanks	Gold lode	1
Wade Creek Mining Co., Box 1108, Fairbanks	Wade Cr., Fortymile Dist.	Fairbanks	Bulldozers	6
Wackowitz, Charles & Fred, Fairbanks	Bedrock Cr., trib. Cleary Cr.	Fairbanks	Gold lode	2
Waldhelm, Geo., Nome	Atlas Cr., trib. Dahl Cr.	C. Nome	Bulldozer-hydraulic	3
Wallin, Geo., Candle	Chicago Cr.	Fairhaven	Coal Mine	1
Wanamaker, H. S., Wiseman	Smith Cr.	Koyukuk	Prospecting	1
Warwick Mines, Fairbanks	Gertrude Cr., Livengood Dist.	Fairbanks	Bulldozer-hydraulic	2
Watkins, R. V., Fairbanks	Deep Cr., trib. Faith Cr.	Fairbanks	Bulldozer	2
Weatherall, Geo., Talkeetna	Nugget Cr.	Talkeetna	Hydraulic	2
Weaver, Vern, Chicken	Napoleon Cr., trib. Fortymile R.	Fairbanks	Hydraulic	1
Webb, Herman L.. Chandalar	Little Squaw Cr.	Fairbanks	Placer drift	2
Weinard, Fred, Candle	Jump Cr., trib. Candle Cr.	Fairhaven	Bulldozer-hydraulic	3
Wells, Cecil, Fairbanks	Big Minook & Hoosier Creeks	Rampart	Bulldozer-hydraulic (stripping)	2
Wells, John, Circle	Iron Cr., trib. Woodchopper Cr.	Circle	Hydraulic	1
Weston, David M., Eagle	Dome Cr.	Eagle	Bulldozer-hydraulic	2
Whitmore, R. H., Nome	Kougarok R.	C. Nome	Dragline-bulldozer	4
Willow Creek Mining Co., Marshall	Willow Cr.	Wade-Hampton	Dragline-bulldozer	5
Winder, J. S., Hayrock	Sweepstakes Cr., trib. Peace R.	Koyuk	Hydraulic	1
Wiurm Bros., Nome	Coffee Cr	C. Nome	Bulldozer-hydraulic	2
Woodchopper Mining Co., Tofty	Woodchopper Cr.	Hot Springs	Placer drift	4
Wolf Creek Mining Co., Fairbanks	Wolf Cr., trib. Cleary Cr.	Fairbanks	Hydraulic stripping	3
Yukon Mining Co., Anchorage	Tribs. of Kako Cr.	Wade-Hampton	Dragline	6
Yukon Placer Mining Co., Fairbanks	Fourth of July Cr.	Eagle	Bulldozer	2
Zeiser, Clarence, Poorman	Spruce Cr.	Nulato	Buldozer stripping	2
Zimmerman, A. A. & Peters, Harry, Miller House	Independence Cr.	Circle	Hydraulic	2

LIST OF REPORTS ISSUED BY THE COMMISSIONER OF MINES AND CORRESPONDING PRECEDING OFFICIALS

*Report of the Mine Inspector for the Territory of Alaska to the Secretary of the Interior, fiscal year ended June 30, 1912.

*Report of the Mine Inspector for the Territory of Alaska to the Secretary of the Interior, fiscal year ended June 30, 1913.

*Report of the Mine Inspector for the Territory of Alaska to the Secretary of the Interior, fiscal year ended June 30, 1914.

*Report of the Territorial Mine Inspector to the Governor of Alaska for the year 1915.

*Report of William Maloney, Territorial Mine Inspector, to the Governor of Alaska for the year 1916.

*Report of the Territorial Mine Inspector to the Governor of Alaska for the year 1917.

Annual Report of the Territorial Mine Inspector to the Governor of Alaska, 1920.

*Annual Report of the Territorial Mine Inspector to the Governor of Alaska, 1921.

*Annual Report of the Mine Inspector to the Governor of Alaska, 1922.

*Annual Report of the Mine Inspector to the Governor of Alaska, 1923.

Report upon industrial accidents, compensation and insurance in Alaska for the biennium ending December 31, 1924.

*Report of the Territorial Mine Inspector, calendar years 1925-1926.

Report of cooperation between the Territory of Alaska and the United States in making mining investigations and in the inspection of mines for the biennium ending March 31, 1929.

*Report of cooperation between the Territory of Alaska and the United States in making mining investigations and in the inspection of mines for the biennium ending March 31, 1931.

*Mining investigations and mine inspection in Alaska, biennium ending March 31, 1933.

*Report of the Commissioner of Mines to the Governor, biennium ending December 31, 1936.

Report of the Commissioner of Mines to the Governor, biennium ending December 31, 1938.

*Report of the Commissioner of Mines to the Governor, biennium ending December 31, 1940.

*Joesting, Henry R., Strategic mineral occurrences in interior Alaska: Pamphlet No. 1, May 1942.

*Joesting, Henry R., Supplement to Pamphlet No. 1—Strategic mineral occurrences in interior Alaska: Pamphlet No. 2, March 1943.

Anderson, Eskil, Mineral occurrences in Northwestern Alaska; Pamphlet No. 5, May 1944.

Stewart, R. L., Prospecting in Alaska (26-page pamphlet), December, 1944. (Revised to November 1949).

Report of the Commissioner of Mines to the Governor, two biennia ended December 31, 1944.

Glover, A. E., Industrial minerals as a field for prospectning in Alaska, including a glossary of elements and minerals (82-page booklet), March 1945 (Revised to May 1946).

Anderson, Eskil, Asbestos and jade occurrences in the Kobuk River region, Alaska; Pamphlet No. 3, May 1945.

Roehm, J. C., Some high calcium limestone deposits in Southeastern Alaska; Pamphlet No. 6, March 1946.

Report of the Commissioner of Mines, biennium ended December 31, 1946.

Report of the Commissioner of Mines, biennium ended December 31, 1948.

*Out of print—on file in certain public and university libraries.