TERRITORY OF ALASKA DEPARTMENT OF MINES

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Report

of the

Commissioner of Mines

for the

BIENNIUM ENDED DECEMBER 31, 1952

DEPARTMENT OF MINES STAFF ON DECEMBER 31, 1952

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Honorable Ernest Gruening Governor of Alaska Juneau, Alaska

I have the honor to submit to you, and through you to the Twenty-first 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, 1952.

Respectfully submitted,

PHIL R. HOLDSWORTH

Commissioner of Mines

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THE DEPARTMENT OF MINES

Administrative and General Information

The Territorial Department of Mines, under the management and direction of the Commissioner of Mines, has charge of all matters affecting exploration, development and mining of the mineral resources of the Territory; the collection and dissemination of all official information relative to the mineral resources, and mines and mining projects of the Territory; and has charge of the administration of the laws with respect to all kinds of mining.

The Department of Mines conducts a continuing survey of the mineral resources and mining operations of the Territory and disseminates information in regard thereto with a view to perpetuate and assist prospectors and miners; safeguards the lives and health of miners; protects investors in the mining industry; and otherwise fosters and promotes the best interests of the mining, mineral and related industries of the Territory.

For the purpose of aiding bona fide miners and prospectors and stimulating mineral discoveries, the Department of Mines maintains four public offices in the Territory located at Ketchikan, College, Anchorage and Nome.

Leo H. Saarela, who was appointed Commissioner of Mines on January 1, 1950 to replace B. D. Stewart upon his retirement, resigned his position April 1, 1952 to become Regional Mining Supervisor, Conservation Division, U. S. Geological Survey on a full-time basis. Phil R. Holdsworth was appointed Commissioner of Mines on April 21, 1952 to fill the vacancy.

The staff of the Juneau office of the Department also includes James A. Williams, Associate Mining Engineer, an Administrative Assistant and a Clerk-Stenographer. Located in the Anchorage area are Wiley D. Robinson, Associate Coal Mining Engineer, and Thomas Thomas, Laboratory Assistant. Robert H. Saunders, Associate Mining Engineer, and Lowell L. Patten, Assayer-Engineer, are stationed at College in the Fairbanks area. The Ketchikan office is run by Arthur E. Glover, Engineer-Assayer, and the Nome office by Daniel A. Jones, Assayer-Engineer.

ILLUSTRATIONS

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P. R. & H. Mining Company's bulldozer-sluice plate placer operations on	
Deadwood Creek, Circle District, in 1951. This is a good example of	
the type of small and efficient operations that have been developed in	
recent years to enable the operators to partly combat rising costs.	
Only two men are required, yet a large amount of gravel is sluiced	23
Revolving stacker chute in use on the Goodnews Bay Mining Company platinum dredge. The purpose of this recent innovation is to provide a means of stacking bedrock clay, which may contain values, on top of the tailing piles where it may be reworked with a dragline opera-	
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Several changes in personnel took place during the biennium. The one change having the most marked effect on the operation of the Department was the drafting of Pete Sandvik, Anchorage assayer, by the Armed Forces in April, 1952. No replacement being available, a laboratory assistant was employed to receive and prepare samples for assay by the College or Ketchikan offices, and to keep the Anchorage office open for reference purposes and mineral identifications. The marked increase in prospecting activities in the Anchorage area makes it imperative that suitable quarters, and a full-time qualified assayer, be provided for this area early in 1953.

Construction on a new assay office for Nome was commenced and will be completed by mid-1953. Plans for the new assay office building at Anchorage are in the hands of an architect and the available funds for construction will be committed in early March, 1953.

Libraries of Alaskan publications issued by the U. S. Geological Survey, U. S. Bureau of Mines and the Atomic Energy Commission are maintained at the assay offices and the Juneau headquarters. These libraries are open to the public and, in addition to these publications, the Juneau office has collected additional information on various properties in the Territory resulting from examinations and reports by engineers of the Department. The offices also maintain collections of classified rocks and minerals, including those of Alaskan origin, as a means of ready reference or identification by the prospector and miner.

Several thousand inquiries in regard to the mining industry by visitors and by correspondence were answered during the biennium. Professional advice in the way of examinations and reports is offered to the prospector and miner by Departmental engineers. This service is offered to those who cannot afford the employment of a private consultant. Many requests for this type of advice were received and resulting examinations made by members of the Department staff.

Cooperation with Federal Agencies

A close cooperative exchange of information, and in some cases joint field investigations with the Atomic Energy Commission on radioactive samples originating in Alaska, were carried out by the Department of Mines. There has also been a free exchange of information with the U. S. Geological Survey and the U. S. Bureau of Mines, and some joint inspections or examinations have been made. On occasion, the Department of Mines has been able to make a preliminary examination of a prospect on short notice, as a means of justifying further investigation by the Defense Minerals Exploration Administration field team.

The U. S. Bureau of Mines has suggested a system of region and district designations for Alaska, based primarily on water drainage patterns, to be used for statistical purposes. The project has been under consideration and study for over ten years and has now been presented as a means of standardized designation by all agencies reporting on mineral information in Alaska. Throughout the following text, in describing the active operations in the Territory, the proposed region and district designations will be used. The Burcau's system will also be used in the appended tabulation "List of Alaskan Mining Operations Active During the Biennium, 1951-52" under the column headed "Location of Mine."

The Department of Mines has also received excellent cooperation from the Alaska Road Commission when requesting, with proper justification, aid for mine operators.

Field Investigations

Field examinations and technical assistance were given by members of the Department of Mines staff to those requesting this service. Examinations were made, and reports written or professional advice given, on those properties listed in Table I.

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	$\mathbf{T}A$	ABLE I-Field Inves	tigations		01
Region and Property	Chief Minerals	Location	Type of Examination	Examining Engineer and Year	1
Cook Inlet-Susitna Region	n			5 5	
Dutch Hills Exploration	n				1
& Development Co.	Gold	Bird Creek	Geological	Saunders—1951	1
Mining Investigations	Gold	Yentna Subdistrict	General	Saunders—1951	1
Ihly, Callahan & Pank	У				1
Prospect	Silver-Lead	Gold Creek	Geological	Holdsworth-1952	1
Mrak Mine	Coal	Near Eska	Geological	Holdsworth-1952	문
Copper River Region					日日
Alaska Copper Co.	Copper	Glacier Creek	General	Saunders & Williams1951	Q
Porphyry Mountain	Molybdenum	Near McCarthy	Geological	Saunders & Williams—1951	2
Alaska Copper Corp.	Copper	Port Fidalgo	Geological	Williams—1952	
Threeman Mine	Copper	Landlocked Bay	Engineering	Williams—1952	1 Fil
Beatson Mine	Copper	Latouche	General	Williams—1952	
Fitzpatrick Prospects	Copper	Unakwik Inlet	Geological	Williams & Saunders—1952	ŏ
Gold King Mine	Gold-Antimony	Near Dan Creek	Engineering	Holdsworth—1952	
Holmes Prospect	Antimony	Nizina District	Geological	Holdsworth—1952	
Kenai Peninsula Region					S
K & T Prospect	Antimony	Kenai Lake	Geological	Williams—1952	SI
Kodiak Island Region					12
Peninsula Exploration	C				H
CO.	Copper	Sitkalidak Island	Engineering	Saunders—1951, 1952	
Ruskowim Region					0
Mountain Mines	Monant	Converteres Gub dist	Gentenient	Trablementh 1050	뇌
Nouthmostern Aleska Dogio	mercury	Georgetown Sub-dist.	Geological	Holdswortn—1952	X
Pero Prospect	Connor	Buby Greek	Geological	Coundary 1050	し ば
Seward Penjusula Region	Copper	Ruby Creek	Geological	Saunders—1952	E
Hirk Edwards	Tin	Boulder Greek	Tin Evaluation Depart	Jones 1051	ŝ
Herb Engstrom	Gold	Basin Creek	Gold Evaluation Report	Jones 1951	1
Native Bismuth, Inc.	Bismuth	Charley Creek	General	Jones-1951	1
U. S. Tin Corp.	Tin	Lost River	Geophysical Explora-	Williams Saunders & Jones	
			tion and General		
Glacial Lake Area		Kigluaik Mountains	Geological	Jones-1952	
Alaska Tin Corp.	Tin	Ear Mountain	General	Jones—1952	
Foster Prospect	Lead	Niukluk River	Geological	Jones—1952	
-			0		

Sc	outheastern Alaska Region	1			
	Dyrdahl Prospect	Lead	Kuiu Island	Geological	Fowler—1951
	Londevan Mine	Gold	George Inlet	Geological	Fowler—1951
	Roberts Prospect	Antimony	Cleveland Peninsula	Engineering	Fowler—1951
	Riverside Mine	Tungsten	Hyder District	Engineering	Fowler-1951
	Silverton No. 1 Lode	Silver-Gold-Lead-		e e	
		Zinc	Howard Bay	Geological	Williams & Saarela—1951
	Gynsum Camel Group	Gypsum	Ivoukeen Cove	General	Williams & Saarela—1951
	Keku Group	Lead-Zinc	Kuju Island	Radiometric & Gen.	Williams & Saarela—1951
	K & D Lode	Gold-Antimony	Sunset Cove	Geological	Williams & Saarela-1951
	Enterprise Mine	Gold	Limestone Inlet	General	Williams-1951
	Snettisham Magnetite	iron	Port Snettisham	Geophysical Explora-	Williams-1951
	Difetubilatio inagricoroo	,1011		tion	
	Reconnaissance Work		Union Bay & Helm Bay	Radiometric with	
			-	USGS TE Unit	Glover—1951
	Reconnaissance Work	Rare Earths	NE Coast of Prince of	Radiometric with	
			Wales Island	USGS TE Unit	Glover—1951
	Reconnaissance Work	Rare Earths	Salmon Bay	Radiometric with	
				USGS TE Unit	Glover—1952
	Alaska Iron Co.	Iron	Near Klukwan	Geological & Geo-	
				physical Exploration	Holdsworth & Williams1952
	Mountain View Property	Tungsten	Hyder District	Radiometric & General	Williams & Glover—1952
	Novatney Prospect	Gold	Helm Bay	Engineering	Williams & Glover—1952
	Reconnaissance Work	Rare Earths	Salmon Bay	Radiometric with	
			Ū	USGS TE Unit	Williams—1952
	Wilson Prospect	Gold-Zinc	Near Fanshaw	Geological	Williams—1952
Y	ukon River Basin Region			0	
-	Connell Prospect	Barite	Yukon River above	Radiometric and Geo-	
			Circle	logical	Williams—1951
	Denny's Gulch & Sawlog	¢			
	Creek	Gold	Kovukuk-Chandalar	Geophysical Explora-	
				tion and Geological	Williams—1951
	Alaska Meta's Mining Co.	Tungsten	Gilmore Dome	Ore Reserves Report	Saunders—1951
	Alaska Meta's Mining Co.	Tungsten	Gilmore Dome	General	Williams & Saunders—1952
	Creighton Mine	Gold	Pedro Dome	Geophysical Exploration	Williams & Saunders—1952
	Healy River Coal Co.	Coal	Suntrana	Safety (Mine fire)	Saunders-1952
	Jenkins Prospect	Nickel-Copper-		•	
		Cobalt	Near Eagle	Geological	Saunders—1952

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Safety Inspections

Safety inspections were made at all properties visited by the Department engineers. Inspections were also made at tunnel sites not directly connected with mining—the Eklutna power project, and the Ward Cove power project in connection with the new pulp mill near Ketchikan.

Monthly inspections of coal mines were continued by the associate coal mining engineer stationed at Anchorage. The union-sponsored safety committees continued to work with the Department and mine management to keep the miners "safety conscious" and thus help to maintain a low accident rate in Alaskan coal mines.

The 82nd Congress, just before adjournment, passed a bill which became Public Law 522. This law directs the U. S. Bureau of Mines to enforce the provisions of the Federal Coal Mine Safety Code, a duty which had previously been performed by State or Territorial agencies. The law provides for submission of a State or Territorial plan for approval by the Director, U. S. Bureau of Mines, before State or Territorial agencies can resume policing powers. The Department of Mines has submitted a safety plan for approval and in the interim, in the interests of the coal mine operators, has agreed to cooperate with the U. S. Bureau of Mines in making joint inspections with that agency.

There were no fatalities during the biennium in operation of the coal mines, although the accident experience in Alaska is by no means as satisfactory as that of the States on minor accidents. The following table compares the accident rates in underground and strip coal mines in Alaska with those in the States:

	Man Shifts	Non-Fatal Accidents	Accidents Per M.M.H.
Strip Underground	32,869 119,554	44 110	167 115
Total—Alaska U. S. Coal—States		154	126

Assay Offices and Field Stations

The assay offices and field stations of the Department at Ketchikan, College, Anchorage and Nome performed analyses and mineral determinations during the biennium. This service is offered free of charge to bona fide prospectors and miners and serves to encourage the search for minerals in the Territory. The following tabulation compares the number of samples handled for the past four years:

	1949	1950	1951	1952
Gold and silver	949	1080	666	861
Chemical analyses	258	292	400	643
Coal analyses			3	10
Mineral identifications	585	506	433	496
Totals	1792	1878	1502	2010

The above table clearly indicates the trend of interest swinging from precious metals to base metals and strategic minerals. A marked increase in the total volume of determinations was evident in 1952, and indications are that this volume will continue to grow throughout the next biennium. In addition to the above, several hundred radioactivity checks were made on samples submitted at the various offices.

A new assay office is under construction at Nome. A well constructed building was purchased which was near the site of the new location. A contract was awarded to construct a concrete basement at the new site and to move and set the building on the concrete foundation. The new site is on the main street near the beach and out of the permafrost area. Construction is scheduled for completion by August 1, 1953.

The assay office at Anchorage is housed in a building belonging to the Chamber of Commerce, located on city property and structurally condemned by their inspectors. The anticipated construction of a large Territorial building in Anchorage in which an assay office might be housed did not materialize. The Department finally decided to construct its own building on a lot which it has acquired. Plans and specifications for the new building are now in preparation and the available monies left in the construction fund will be committed before the end of the biennium. Funds to complete this building have been requested in the 1953-55 budget proposal.

The assay office at College is presently housed in a small section of the basement of the old power plant on the college campus. The quarters are entirely inadequate for the work load now imposed on that office, and it is hoped that funds will be made available to construct better quarters in the near future.

THE MINING INDUSTRY

Alaska's mineral production for the 1951-52 biennium increased by 18 per cent over that of 1949-50. The increase was due almost entirely to the coal mining industry which produced 1,143,000 tons, a 35 per cent increase over the 1949-50 production. There was a slight decrease in gold and silver, and a slight increase in sand and gravel, produced during the biennium. Platinum production remained about the same. Among the minor metals, there was a decrease in the production of antimony, copper, lead, zinc and mercury; an increase in production of tin and tungsten. Gold remains the most important mineral, followed in total value by coal, sand and gravel, platinum, antimony, tin, tungsten and silver in that order.

Adverse economic conditions still plague the mining industry. The high wages offered on the many defense projects in the Territory make it extremely difficult for mining companies to compete in the labor market. In the face of the \$35 per ounce "pegged" price for gold, and the continually rising operating costs, many small placer operations were suspended. Those who continued to operate did so by working only the higher grade portion of their ground—leaving marginal ground behind which may never be worked—or were able to increase the efficiency of their operations by increased mechanization or other improvements. By the end of the biennium, only one small gold lode mine was active.

Increased interest in the base metals was evident as the biennium closed. Active work took place on copper, nickel and iron deposits in Southeastern Alaska, copper in the Copper River region, and mercury in the Kuskokwim region. Activities increased in tin and tungsten operations on the Seward Peninsula, and tungsten in the Fairbanks district.

The Department of Mines and the Trace Elements Unit of the U. S. Geological Survey continued a free interchange of information and on occasion participated in joint field investigations. All U. S. Atomic Energy Commission reports on Alaska have now been placed on "open file" in the various Department offices. Prospecting activities in the search for radioactive ores have continued throughout the biennium, but no deposits of commercial grade have been found. Specimens of commercial grade material have turned up, but efforts to trace them back to their source have so far been unsuccessful.

Uranium minerals have been identified at several localities in Alaska, but investigations have indicated that continued prospecting by private individuals stand the best chance of success if concentrated in the following areas:

- 1. Brooks Mountain and Lost River, Port Clarence District, Seward Peninsula
- 2. Peace River, Koyuk District, Seward Peninsula
- 3. Salmon Bay, Wales District, Southeastern Alaska
- 4. Hyder, Hyder District, Southeastern Alaska

Many areas in other parts of Alaska, geologically speaking, are structurally favorable for the occurrence of uranium minerals and it will be only a matter of time before deposits of commercial value are found.

The Defense Minerals Exploration Administration participated in financial aid to develop mines in Alaska. Following is a list of the operations which received aid from this agency in the amount of \$928,000.

U. S. Tin Corporation, tin-tungsten, Port Clarence District
Zenda Gold Mining Company, tin, Port Clarence District
I. W. Purkeypile, tin, Melozitna District
Stampede Mine, antimony, Kantishna District
Wren, Waskey & Wolfe, mercury, Bristol Bay District
Alaska Metals Mining Company, tungsten, Fairbanks District
Alaska Copper Corporation, tungsten, Nome District
Alaska Copper Corporation, copper, Prince William Sound District
Admiralty-Alaska Gold Mining Company, nickel-cobalt-copper, Admiralty Island District

The Defense Minerals Procurement Administration also authorized a loan of approximately one million dollars as an operating advance against future production of tin and tungsten by the U. S. Tin Corporation.

The Reconstruction Finance Corporation authorized a loan to the Buffalo Coal Company as an operating advance against future production.

Geological reconnaissance work was carried on by two major oil companies in the search for likely oil bearing structures in Alaska. In addition to this, two private companies were formed

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locally, made up of new lease-holders, with plans to begin drilling operations in 1953. The anticipated drilling in the Katalla area under the Northern Development Company leases did not materialize, but a change was made in the proposed drilling company which should improve the financial aspect of the program.

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Bloating tests (by both the U.S. Bureau of Mines and private interests) on the expansive shale found along the railbelt have given exceptionally favorable results. A company was formed in Anchorage which proposes to install a plant for the manufacture of lightweight aggregate to be used in the local building industry.

Future and Needs of the Industry

The future of gold mining in the Territory depends on an increase in the present "pegged" price of \$35 per ounce. The former high world market price for gold has slowly dropped until it now averages \$39 per ounce. There would be little advantage to the gold miner today to be able to sell his newly mined gold on the open world market. Either the Treasury price of gold must be raised in proportion to increased labor and materials costs, or economic conditions must change to bring costs down in line with \$35 gold, if gold mining is to continue to keep its place at the head of the mineral industry.

Coal mining, which is second to gold in importance, is definitely on the increase, and will have to accelerate this upward trend if it is to keep pace with the anticipated demand to be placed upon it. The 494,000 tons of coal produced in 1951 was increased to 658,000 tons in 1952 by increased output from practically the same operating mines. The known increased plant capacity—both military and civilian—to be installed and operative during the next biennium will require a coal production of approximately 850,000 tons in 1953 and 950,000 tons in 1954.

It is evident that new coal mines must be developed and put into production if these demands are to be met. Investment capital is reluctant to enter this field of expansion unless assured of a long-term contract for their coal output. The major consumers of coal in Alaska—the Armed Forces—are in a position to know what their future requirements are, and should be able to award long-term purchase contracts as well as issue the necessary "certificate of necessity" needed to justify loans for new operations. The coal industry has already grown to the extent that qualified supervisory personnel are employed by the operating companies whose entire experience has been in Alaska. A Territorial Coal Miners Examining Board should be established to give examinations and issue "certificates of competency" to qualified foremen and fire bosses as is done in all the coal producing States.

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.

The Department of Mines assay office at College will analyze coal samples for the prospector, but samples on which purchase contracts are based are required to be sent to the U. S. Bureau of Mines laboratory at Pittsburgh, Pennsylvania. The same is true of drill cores recovered from test drilling by the U. S. Bureau of Mines. A standard Bureau of Mines coal laboratory is now under construction in Anchorage and will be ready to handle samples next summer.

In the base metals field, the need for a mineral buying program still exists. There are in Alaska many small deposits of tungsten, antimony, lead, tin, mercury, molybdenum, manganese and zinc which could be worked if a market were available for the material in small lots. The Federal Defense Minerals Administration should initiate a buying program in the Territory.

Increased interest in copper, nickel and iron may be expected during the next biennium. This is particularly true in view of the possible availability of low cost electrical energy for local smelting of ores. Iron ore and coal will also be considered for development as export material for world markets.

With three drilling operations likely during the next biennium, the Territory should soon know if it has oil in commercial quantities. The Territory should be prepared to assume the responsibilities involved in the production of oil, and proper conservation measures should be adopted. The Territory should join the Interstate Oil Compact Commission as an associate member and avail itself of the operational and legal advice offered by this organization, gained through many years of experience.

Basic Requirements for Development of a Sound Mining Industry

There are three basic requirements that are necessary for the development of a sound mining industry.

First, an active group of real, down-to-earth, economically minded prospectors is necessary. This group must be aware of the present-day importance of all minerals, the existing labor and materials costs, transportation problems, etc., as well as possessing a good basic knowledge of mineralogy and geology.

Second, some agency, such as the Department of Mines, should make available to interested parties all known information on the mineral resources of the Territory, including the economic features of all mineral occurrences, accessibility, operating and marketing costs, land ownership and present market demand.

Third, but of prime importance, is a worthwhile incentive which can be offered to investment capital to attract its interest to the Territory's mineral resources. The incentive, of course, is a favorable tax structure; that is, favorable to new investment capital interested in developing Alaska's natural resources.

The best example of the workings of such a system is our neighbor—Canada. The various provinces of Canada have applied the above principles, in different ways, with the result that American capital is actually playing an important part in the development of Canada. Alaska's mineral resources are comparable to those of western Canada. A comparison of the mining industries in the two sections will give one the answer to the question, "Why is Alaska's mining industry at a standstill?"

Precious Metals

Lode Mining

Lode gold mining continues to decline in Alaska. The causes of the decline are well known and are as follows: greatly increased costs in taxes, equipment and supplies; undependability and high cost of labor; and the fixed price of gold. Very few of the many gold lodes that exist in the Territory can be profitably mined under the present economic conditions.

In the First Division there was no lode gold production during the biennium. The Leroy Mine at Glacier Bay closed down after the season of 1950, and the Hirst-Chichagof mine was unsuccessful in its attempt to get into profitable operation. Gold prospects being actively developed were those of Robert Novatney at Helm Bay in the Ketchikan district and Herman Kloss at Sunset Cove in the Juneau district. The Hayes and Whitely remilling operation at Hirst-Chichagof was not continued in this biennium. Some lode gold properties, including the Alaska Juneau Gold Mining Company, continue to keep maintenance crews or men on the property in the hopes of changing conditions which will enable them to once more get into production. Some of the gold mines in other mining districts about the Territory are also keeping maintenance men on the payroll.

A lode gold milling operation was active in the Second Division at the Big Hurrah Mine near Solomon. Mr. Travis P. Lane, Manager, was engaged in cyaniding the mill tailings from the former operation and thereby recovering gold that was lost by the earlier incomplete milling process.

Of the gold mines in the famous Willow Creek district in the Third Division, only the Fern mine was active in 1951 and none in 1952. The Independence mine of the Alaska Pacific Consolidated Mining Company, which made a good start in 1949, was forced to close in 1950. None of the lode operations on the Kenai Peninsula were active. Chris Helgesen was reported to be operating a small lode gold mine on Kodiak Island at Terror Bay. The Dutch Hills Exploration and Development Company (Bill Lyons) was actively developing its gold lode at Bird Creek, Yentna-Cache Creek district.

In the Fourth Division, the one hardrock gold operation remaining active was that of Lazeration and Jokela at the old Creighton mine on Pedro Dome in the Fairbanks district. As before, they mill their ore in batches at the nearby Cleary Hill Mines mill on a custom milling basis. Lode gold prospecting activity has continued on a small scale in the Fairbanks district in easily accessible locations. Wayne Adney and Ed Toussaint did a limited amount of lode mining in the Chandalar district.

Placer Mining

Placer gold mining is caught in the same squeeze between increasing costs and the fixed gold price as the lode mining, and although it is also decreasing, it has not diminished to the point that lode mining has. Gold production in Alaska, which is practically all by placer mining, decreased from \$10,124,520 in 1950 to \$8,387,295 in 1951, a drop of 17 per cent. The Bureau of Mines estimates a production of \$8,169,980 for 1952, which indicates a temporary slowing up of the rate of drop.

Placer operators continue to have great difficulty in securing sufficient and dependable labor for the wages that they are able to pay because of the competition of the high-paying defense construction projects in the Territory. As more and more workers pour into the Territory and the defense work tapers off in the next few years, this condition should improve. Many of the operators have learned to mine or dredge with fewer men by more efficient methods and curtailment of certain parts of the operation. Also, the Eskimo from the northern portion of Alaska is being employed in increasing numbers and used in jobs which were formerly filled by white men only.

A feature of placer gold deposits which helps placer operations continue in the face of rising costs is that they can usually be selectively mined to take the richest part of the paystreak, leaving the rest behind. The richest part is quite often the center of the deposit, and this will be mined or dredged, abandoning the "side pay" because it will not be profitable to mine it under the present circumstances. The tragedy of this situation is that the abandoned side pay will in most cases never be mined because of its poorness and its position after the rest of the deposit is mined. Thus, the Territory is losing millions of dollars in gold production.

Smaller operations have become more efficient by adopting improvements to their excavating equipment, doing away with hydraulic giants or nozzles where a sluice plate is practical, better and cheaper stripping methods, automatic giants, and so forth. Few small operations have more than a two or three-man crew now, where six to ten-men crews were once common.

Some of the operations and conditions of placer mining will be mentioned here, and a complete list of operations active during the biennium are included at the end of the report.

First Division:

Gold placer mining in Southeastern Alaska was limited to a few small operations. Stanton Price continued his placering at Windham Bay and Hayes and Whitely continued to recover gold from the Alaska Juneau mill tailings with a sluice box setup. Late in 1952, Bert Caro and Floyd Jacobs of Juneau were cleaning out a pothole in Gold Creek above Juneau by shovelling into a small sluice box.

Second Division:

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In the Second Division, the largest operation, as usual, was the Nome branch of the U.S.S.R.&M. Company which was digging with three of their four dredges and continuing their stripping, thawing, and drilling work. A large share of their laboring force of about 140 men during the summer is now Eskimo. A small but well constructed homemade dredge was operated by its builders, the Kougarok Freight and Mining Company, on Buster Creek in the Nome district. Other active dredging companies include Alaska Placer Company in the Council-Bluff district, Lee Brothers in the Nome district, and the Casa de Paga Gold Company in the Fairhaven district. The Helcolicon dredge in the Kiana district was active for a short time in 1951, but was closed down in 1952 by financial difficulties.

Kougarok District: The Atlas Mining Company's bulldozerhydraulic operation was active as was the Tweet and Sons dragline-bulldozer setup. Patrick Bliss mined in 1951 but restricted his activities to prospect drilling in 1952. The P. R. & H. Mining Company mined in the Kougarok in 1952 after moving there from the Circle district where they mined in 1951.

Port Clarence District: The Adderson Exploration Company was busy with both mining and drilling, and a number of other smaller operations were active in the Teller area.

Nome District: The Basin Creek Mining Company operated their bulldozer-hydraulic plant as usual, while Hirk Edwards leased the former Quigley property on the Solomon River and did considerable rehabilitation work before getting into production.

Fairhaven District: The former Havenstrite operation on Candle Creek was reported to have been returned to the Havenstrite Company from Benny Allen who had purchased it a year or two previously from Havenstrite. Fred Weinard also mined on Candle Creek, and Ben Dahl mined with his bulldozer-hydraulic plant on Bear Creek.

Koyuk District: Baldwin and Moon were again actively mining, and Carl Swanson still worked his placer drift mine, one of only two or three remaining in Alaska.

Marshall District: The Wade-Hampton Mining Company and the Willow Creek Mining Company were both active with bulldozer-hydraulic operations.

Third Division:

Yentna-Cache Creek District: This is the only district in the Third Division that still retains a fair amount of placer mining activity. The Alaska Exploration and Mining Company and C. W. Bradley are operating hydraulic plants on Bird Creek and Cache Creek respectively. Collinsville Mines has the largest operation in the district with a dragline and a crew of ten on Mills Creek. Helvor Erickson and A. J. Taraski each have a one-man operation on Cache Creek, and Harold Stanton is on Falls Creek while Hamberg and Gilliska operate on a small scale on Pass Creek.

Chistochina District: Though once highly productive, Slate Creek now has only one operation—that of A. M. Elmer with a dragline and a crew of three.

Nelchina District: C. J. "Slim" McMahan used a bulldozer and carryall in a placer operation on Albert Creek in 1951, but did not operate in 1952.

Moose Pass-Hope District: O'Brien and Dunsmuir, known as the "Two Jims", are still active in their underground sluicing operation at Surprise Creek.

Fourth Division:

Fairbanks District: The Fairbanks district remains the highest gold producing district in Alaska because of the largescale operations of the Fairbanks branch of the U.S.S.R.&M. Company. Five of their eight dredges were operated in 1951 and six in 1952. They employ an average of 550 men through the summer months on the dredges and on their various stripping and thawing operations which prepare the ground for the dredges. Early in 1951, they moved dredge No. 6 from Ester Creek to the Gold Hill paystreak, a distance of 1-1/4 miles, in the novel and comparatively simple manner of hydraulicking a canal, filling it with water, and floating the dredge to its new digging location.

The Brinker-Johnson Mining Company dredge on Caribou Creek had another successful season and reportedly paid off its Reconstruction Finance Corporation debt. Small operations in the Fairbanks district include those of Harold Hassel on Ready Bullion Creek, Ernest Maurer on First Chance, Wolf Creek Mining Company, and Berg, Tweiten and Wickstrom on Chatham Creek. Helmer Johnson and the Alder Creek Mining Company mined as usual on Cleary Creek and Fairbanks Creek respectively.

Bonnifield-Nenana District: Only three small operations were active during the biennium. Burns, Jackson and Zukoev were the operators.

Chandalar District: Mining is nearly at a standstill in the Chandalar. The operation at Big Creek started by Sellars in



P. R. & H. Mining Company's buildozer-sluice plate placer operation on Deadwood Creek, Circle District, in 1951. This is a good example of the type of small and efficient operations that have been developed in recent years to enable the operators to partly combat rising costs. Only two men are required, yet a large amount of grave) is sluiced.

1950 has been idle since then. Two one-man operations, Anderson and Amero, are all that remain.

Circle District: A. A. "Tony" Zimmerman turned his ground on Independence Creek over to the Wrede Brothers in 1952, and the P. R. & H. Mining Company moved from Deadwood Creek to the Kougarok in the same year. Heine Carstens built a novel one-man tractor-powered washing plant on Portage Creek. The Berry Dredging Company operated as usual and so did small operators Jens Landlow and Henry Martin on Switch and Portage Creeks respectively. Ray Hamilton, Walt Roman and Robert Wilkinson each had bulldozer operations through the biennium. Alluvial Golds, Inc., operated their dredge on Woodchopper Creek in 1952 and Gold Placers, Inc., dredged on Coal Creek in 1951. Frasca and Gibson mined on Eagle Creek in 1951 only. Frasca prospected there in 1952.

Eagle District: This district which was once very active now has very few small operations. Otto Hagen is on Fox Creek, Bauer and Calich are on Crooked Creek, and Barney Hanson is on Alder Creek.

Fortymile District: Five placer operations remain active in this district. Wade Creek Dredging Company completed its mining on Wade Creek and moved its operation elsewhere after the season of 1951. The Purdy Brothers mined only in 1951. Lost Chicken Hill has changed hands, and the Franklin Mining Company mined as usual.

Goodnews Bay District: The Goodnews Bay Mining Company continued the only platinum mining operation in Alaska. It operates a dredge and a dragline-sluice box setup with a crew of about 70 men.

Hot Springs District: Six placer operations remain active in this district. L. McGee of Anchorage purchased the Cleary Hill Mines property on Sullivan Creek, but only operated in 1951. Strandberg and Sons mined on Eureka Creek in 1952. Otto Hovely moved away from the district in 1951. Pringle on Eureka Creek, Enstrom on American Creek, Johnson on Rhode Island Creek, and Lanning on Omega Creek mined as usual.

Hughes District: The Strandberg and Sons dragline and washing plant on Utopia Creek was the only operation reported in this district.



Revolving stacker chute in use on the Goodnews Bay Mining Company platinum dredge. The purpose of this recent innovation is to provide a means of stacking bedrock clay, which may contain values, on top of the talling piles where it may be reworked with a dragline operation, if desired.

Iditarod District: The once very active Iditarod district has seen a very great drop in placer mining. One dredging operation, five mechanical operations and two small hydraulic plants are all that remain. North American Gold Dredging Company, Miscovich and Sons, Pat Savage, and John Bouquier mined as usual. Harry Leov is no longer on Malemute Pup, and Uotila and Ogriz quit mining on Slate Creek. Agoff is reported still on Prince Creek, and Backstrom is actively working his mine at the head of Flat Creek.

Innoko District: Ten mechanical sluicing plants and one dredge remain active in the Innoko district. The dredge on lower Canes Creek, which was operated by Neal Beaton, has closed down. Hard and Uotila remain in production with two operations in the district. Innoko Dredging Company is producing steadily on upper Ganes Creek.

Kantishna District: Only one placer operation was reported active in the Kantishna—that of Burnette and Hunter on Crooked Creek.

Koyukuk District: A number of small operators remain active in the Koyukuk which include eight small hydraulic setups and four mechanical operations. The largest operation is that of the Myrtle Creek Mining Company which was active in 1952 after being idle in 1951.

McGrath District: The Strandberg and Sons dredging operation on Candle Creek was the only active placer operation in this district. Strandberg and Sons are among the highest producers in the Territory.

Rampart District: Mining is also slowly diminishing in the Rampart. The Little Minook Mining Company is the only dragline operation, and other steadily producing operations are those of the Hunter Creek Mining Company and the Swanson Brothers, both on Hunter Creek. Three other smaller operators are reported active.

Ruby District: Mining is nearly at a standstill in this district. The Miscovich operation on Flat and Timber Creeks was idle in 1952. Other operations are those of the Long Creek Mining Company, William Carlo, and Clarence Zeiser. Tolovana District: The Callahan Zinc-Lead Company started their dredge on Livengood Creek in 1951 and have been successfully producing since then. They have a crew of about 70 men, and have also turned to Eskimos for a large portion of their labor force. Olive Creek Mines and Jurich and Carr are actively mining, while the Warwick Mines operated in 1951 only.

Tuluksak-Aniak District: The New York-Alaska Gold Dredging Company with two dredges and a dragline-bulldozer operation was active again. Smaller operations included the Taylor Creek Placers with a dragline operation, Lyman and Acheson on Donlon Creek, Russel Schaeffer on Forty-seven Creek, and the Canyon Creek Mining Company on Marvel Creek.

Coal

Production of coal for this biennium again reached an all-time high. The 1,143,000 tons produced came from both underground and strip operations, and was a 35 per cent increase over the previous biennium. The producing mines are listed below:

Matanuska Field (Bituminous)

Evan Jones Coal Company (underground and strip)	Operated 1951 and 1952					
Buffalo Coal Company (underground)	Reopened 1952					
Houston Coal Company (strip)	Operated 1951 and 1952					
Mrak Coal Company (underground)	Began operations 1952					
Kenai Field (Sub-bituminous)						
Homer Coal Corporation (underground and strip)	Closed down 1951					
Broad Pass Field (Sub-bituminous)						
Alaska Aggregate Corporation (Dunkle Mine) (strip)	Operated 1952					
Point Barrow Field (Sub-bituminou	Point Barrow Field (Sub-bituminous)					
Meade River Coal Mine (A.N.S.)	Operated 1951 and 1952					
Nenana Field (Sub-bituminous)						
Healy River Coal Corporation (underground and strip)	Operated 1951 and 1952					
Usibelli Coal Mine, Inc. (strip)	Operated 1951 and 1952					
Cripple Creek Coal Company (strip)	Operated 1951 and 1952					
Matanucka Field.						

The new heavy-media coal cleaning plant at the Evan Jones Coal Mine, which had been idle during 1951, was reactivated in 1952. A bed of strip coal was also developed at the Evans Jones Mine so that, with the combined underground and strip operations, a daily output of 1,000 tons of cleaned coal has been reached.

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The Buffalo Coal Mine was reopened under new management in 1952. A Reconstruction Finance Corporation loan against future production was instrumental in aiding a program of full development of this former producer. No actual production of coal has been made to date. The mine has been unwatered and ventilated, and a new surface plant is under construction. Some production from this mine is anticipated in 1953.

Small-scale operations at the Premier mine on Moose Creek were conducted intermittently during the biennium, but the mine is idle at the present time. This mine, in the past, has produced a large tonnage of exceptionally high-grade bituminous coal. The Moose Creek area may again be a sizable producer of high-grade coal if the proper approach and long-range planning is applied on a large scale.

The Mrak Coal Company began a new operation late in 1952 on an 8-foot bed of high-grade bituminous coal on their lease which is located approximately two miles northeast of Eska. The company "roughed in" an access road from the Eska camp which was later improved by the Alaska Road Commission. A tipple was constructed at the main entry and a loading ramp at the Eska railroad siding. At the close of the biennium a small tonnage of good coal was being delivered to railroad cars at Eska.

At Houston, on the Alaska Railroad, strip mining of a flatlying seam was continued by the Duck Flat Company, sub-leasers from the Houston Coal Company. Operations were suspended late in 1952 and it is doubtful if operations will be resumed in 1953.

Diamond drilling and churn drilling by the U. S. Bureau of Mines continued in the Wishbone Hill area and new drilling was completed in the Houston area, in a continuing effort to enlarge the coal reserves of the Matanuska field.

Prospecting for coal along the Little Susitna River from Houston easterly and upstream to the mouth of the canyon was conducted by various parties throughout the biennium. Hand augers were used and trenching was done with buildozers. Nothing of consequence was discovered.

Kenai Field:

Small-scale mining continued at the property of the Homer Coal Corporation in 1951, but no mining was carried on during 1952. The U. S. Geological Survey completed their preliminary investigations of the Kenai coal field and have published ar "open-file" preliminary report. Increased activities are anticipated in this field during the next biennium.

Broad Pass Field:

The old Dunkle underground mine on Costello Creek was reopened in 1952 as a strip mine by Alaska Aggregate Corporation. In a comparatively short operating season, 25,000 tons of coal were mined and delivered to the railroad at Colorado station This operation helped to meet the pressing demand for increased tonnage, and will continue to produce coal during the next biennium.

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.

Nenana Field:

The comparatively flat-lying beds of this field have become an important source of coal for the military and civilian consumers in interior Alaska. Most of this coal is produced by strip mining operations. The one exception is the Healy River Coal Corporation which now produces 600 tons per day, mostly from underground operations. A disastrous fire on August 28, 1952 completely destroyed most of the Healy surface installation. The mine management is to be commended on the dispatch with which they planned and completed construction of the new surface plant. The Healy mine was in full operation again in early December.

The underground mine fire at Healy has been kept well sealed-off from present workings with the one exception of a small break-through on May 7, 1952 at a seal just off the gangway on No. 3 bed. The fire was quickly extinguished and the seal repaired.



New plant of Healy River Coal Corporation which was built after the disastrous fire of August 28, 1952.

The Usibelli Coal Mine, Inc., continued its strip mining on a large scale and was the largest single producer in the Territory, capable of 1,600 tons per day. This operation was plagued with labor difficulties and an extended shut-down due to picketing in late May, and early June of 1952 was marked by mob violence and destruction of company property. Extended operations at this mine will eventually necessitate going underground.

The Cripple Creek Coal Company has a very efficient strip operation. With a crew of 14 men, they are able to load out 500 tons of coal per day. The 1952 season was one of a series of road washouts which hampered their operations considerably.

There is a very definite need for the extension of the Healy River railroad spur to the Usibelli and Cripple Creek operations for direct loading to railroad cars.

New interest is being shown in the possibilities of coal mining operations on Lignite Creek in this same field, and with the anticipated increase in demand, activities may be expected on Lignite in the near future.

Base Metals

Alaska has known and potential resources of many metals which are in great demand, and should be developed as a secure source of supply which changing world conditions cannot interrupt. The most important of these is tin, followed in order of importance by titanium, nickel, cobalt, molybdenum, tungsten, chrome, manganese, mercury, copper, iron, antimony and graphite.

Tin is found in placer concentrates in many locations throughout the Territory. The apparent area of most importance, however, is the Seward Peninsula. In 1951, placer tin was recovered by U. S. Tin Corporation on Lost River and by Northern Tin Company on Buck Creek, both in the Port Clarence district. In the same district, but on Cape Creek near Tin City, the Zenda Gold Mining Company conducted a placer tin exploration program with the help of a D.M.E.A. loan.

In 1952, Northern Tin Company's operations continued, and substantial reserves were developed by Zenda Gold Mining Com-



Surface plant of U. S. Tin Corporation at Lost River, Port Clarence District, Seward Peninsula.

pany's exploration program. Also in 1952, Alaska Tin Corporation staked a number of placer tin claims near Ear Mountain on the Seward Peninsula. I. W. Purkeypile completed exploration work under a D.M.E.A. loan on tin placer ground on Tozimoran Creek, Melozitna district. U.S. Tin Corporation abandoned their placer operations, reorganized their company, and began the development of a tin lode mine on Cassiterite Creek, a tributary of Lost River, with D.M.E.A. assistance. As the year progressed, a 100-ton mill was constructed.ore was blocked out underground. and efforts were made to develop a winter water supply for the mill. At the year's end, the operation was ready to go into production, providing the water development reached a satisfactory conclusion. This company has also received assistance from Defense Minerals Procurement Administration in the form of an operating loan against future production. Tin production in Alaska should receive a tremendous boost from a year-around operation of this size.

Tin is also recovered in small amounts as a by-product from gold placer operations in Alaska. Several years ago, a piece of tin "float" was found on the beach in St. James Bay, Lynn Canal, Southeastern Alaska, indicating a possible source of lode tin in the pegmatites of the Coast Range batholith.

Titanium is becoming more important as an alloying metal each day. In the form of ilmenite, it is associated with the magnetite iron deposits of Southeastern Alaska. Concentrations of ilmenite in an igneous magma have been reported in the Yakataga district and it is also found in the upper bench on the beaches of this same area.

Nickel, as found in the deposits of Southeastern Alaska, is generally associated with copper, and occasionally cobalt. The more important occurrences are found as disseminated sulphide mineralization in a norite stock. In some cases concentrations of the sulphide minerals—pentlandite, chalcopyrite and pyrrhotite —are found in relatively small pods.

The Admiralty-Alaska Gold Mining Company conducted exploration of a nickel-cobalt-copper deposit at Funter Bay in the Admiralty Island district with D.M.E.A. assistance. A new development in 1952 was the staking of claims on Yakobi Island in the Chichagof Island district by Canadian engineers representing Toronto and New York interests. An aerial magnet meter survey and extensive diamond drilling of these deposi are planned for 1953.

Molybdenum is found in widely scattered areas of the Terr tory, although no deposits of present economic importance a known. Recent samples submitted to the Department of Minfrom a new discovery in Southeastern Alaska are of excelle: grade, but extent of the deposits is as yet unknown.

Tungsten is also found throughout the Territory. All tun sten shipped from the Territory during the biennium was in the nature of a by-product associated with tin, or from a gold place operation. Russel R. Schaeffer recovered some scheelite as by-product from a gold placer operation on Forty-seven Creek the Kuskokwim region. The Rocky Mountain Mining Compar. produced a similar product in 1951 and recovered a small amoun of scheelite from its lode prospect in 1952, both on Rocky Mountain Creek in the Nome district.

Exploration work under a D.M.E.A. loan by the Alask Metals Mining Company on a lode tungsten deposit on Gilmon Dome in the Fairbanks district extended the known mineralize zone. Exploration by Alaska Copper Corporation on a lode tung sten deposit on Rocky Mountain Creek in the Nome district, wit D.M.E.A. assistance, failed to disclose any new reserves.

At the Mountain View property in the Hyder district, Ar Moa continued exploration of the tungsten deposit. Lloyd Louns bury on Tungsten Hill and Dave Dittman on Gilmore Creek, bot in the Fairbanks district, carried on tungsten prospecting.

The known chromite deposits in Alaska are found near Sel dovia in the Nuka Bay district, near Eklutna in the Turnagai Arm-Girdwood district, and at Red Bluff Bay in the Chichago Island district. Only those deposits near Seldovia are considereto be of economic importance at the present time. Mike Seile and John Bachner now have the Red Mountain property at Jaka lof Bay and are still attempting to obtain a purchase contrac from the General Services Administration at least comparablto that offered to miners in the States. A known tonnage o commercial grade chromite ore has been developed at this property, and production would begin immediately if the operatorwere offered the same price for ore in Seattle as is paid to the local miners at the government ore-buying depot at Grants Pass, Oregon. Renewed interest in the Chrome Queen mine, a property near Red Mountain and a former producer, was noted at the close of the biennium.

Manganese is another metal of changing importance. Many deposits of manganese have been known in Alaska for several years, but none have been considered of any commercial value. During 1952, the general status of manganese in the United States has changed considerably. Manganese is beginning to be considered "in short supply" and, in order to develop a greater reserve within our own country, the national policy has changed to include the acceptability of low-grade manganiferous ores. This policy will change the entire outlook for Alaskan deposits, and the development of some of these may be expected in the next biennium, particularly in Southeastern Alaska.

The property now held by Henry Olson near Taku Harbor, Juneau district, is one of the more promising prospects. Another of interest is the T. Hungerford holdings on Kuiu Island, Kupreanof district.

The known deposits of mercury ore have been quite thoroughly examined by Federal and Territorial engineers. A group of Anchorage businessmen have recently taken over control of the DeCoursey Mountain Mining Company; reorganized and interested new capital; combined the holdings of the Red Devil, Barometer, Parks, and DeCoursey properties; applied for a D.M.E.A. loan for exploration; and plan to conduct an active program at the Red Devil and DeCoursey properties in 1953. A program of exploration by trenching was begun at the Wren, Waskey and Wolfe property near Dillingham in the Bristol Bay district, with the assistance of a D.M.E.A. loan.

Copper production has a long history in Alaska. From the early 1900's when copper was mined in the Prince William Sound district and on Prince of Wales Island in the Ketchikan district, until the closing of the famous Kennecott Mine in the Nizina district in 1938, Alaska was an important producer of copper. The time will come when the Territory will again be a producer of the red metal. The Prince William Sound and Nizina districts are still the most promising areas, but copper is also found in the Chisana. Bristol Bay, Alaska Peninsula and Aleutian Island districts, as well as throughout most of Southeastern Alaska. Extensive exploration was in progress on the Nelson and Radovan copper claims in the Nizina district by Alaska Copper Company throughout the biennium. Henry Schultz continued development of his copper prospect in this same district. The Alaska Copper Corporation completed an exploration program at Fidalgo Bay, Prince William Sound district, but no copper reserves were developed. The Peninsula Exploration Company did extensive work on their copper prospect on Sitkalidak Island, Kodiak Island district, in both 1951 and 1952. The property looks more promising as exploration continues.

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Iron ore continues to grow in importance as United States reserves continue to decrease. Iron is found widely scattered throughout the Territory, but can only be considered economical for export purposes when the ore is high-grade and cheap transportation facilities are readily available. A low-grade ore requiring beneficiation is, of course, economical if large blocks of low-cost electrical energy are locally available for mining and plant operation, and possible smelting.

These requirements limit the present possibilities to that part of the Alaskan coast where year-around operations are possible. Known deposits of magnetite are found on Prince of Wales Island in the Ketchikan district, and were examined in 1952 as a possible source of high-grade ore for export purposes. Other known important deposits are at Port Snettisham and Klukwan in the Juneau district.

The Klukwan deposit is held by the Alaska Iron Company and comprises some 85 placer and 75 lode claims. A tremendous body of pyroxenite with disseminated magnetite has been traced for two miles along its strike and has a known width, in one place, of over 4,000 feet. The depth of the deposit is entirely unknown, and can only be determined by drilling. The deposit contains some concentrations or pods of high-grade magnetite, but the deposit's greatest commercial value lies in possible local beneficiation and smelting with the use of low-cost electrical energy. Some diamond drilling was done on this deposit by the C. T. Takahashi Company in an effort to develop shipping-grade ore for export to Japan. The deposit is now being considered by other interests as a source of ore for a local iron and steel industry.

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The Snettisham deposit, held by W. S. Pekovich and Robert Coughlin, is not as well exposed as the Klukwan deposit. The U. S. Bureau of Mines has started some preliminary exploration work at Port Snettisham and will do some diamond drilling following a dip-needle survey by the Territorial Department of Mines. Sampling indicates that this deposit contains titanium, which might be recovered as a by-product from the smelting of the iron ore.

No antimony was being produced in Alaska at the close of the biennium because of the unsettled market. In 1951, Alamco, Inc. of Fairbanks operated two properties, the Sawtooth Mine near Rampart and the Rambler Mine on Boulder Creck in the Tok district. Some development work was also done on a prospect at Smith Creek near Wiseman. Earl Pilgrim again operated the Stampede Mine in the Kantishna district and shipped a substantial tonnage of 53 per cent ore. A small tonnage of ore was produced at Stampede in 1952, but was not shipped. Native antimony, a rare occurence, is included in the K & D lode, owned by Herman Kloss at Sunset Cove, Windham Bay district. Antimony is found in many places in the Territory, but mining for this metal will remain inactive until the market improves or the U. S. Government establishes a buying policy which will protect the local producer.

Graphite is known to occur in the Imuruk Basin, Port Clarence district, Seward Peninsula in what may be commercial deposits. The claims are held by John Grove, C. Moriarty and associates.

The only lead produced in the Territory was that from a small hand operation on a lode on Pedro Dome in the Fairbanks district by Fred Wackowitz. Silver was derived from this operation also. Nick Bankovich was reported to have made a good lead discovery in the vicinity of Texas Creek, Hyder district, and I. W. Purkeypile of Fairbanks continued work on his lead-silver prospect at Boulder Creek in the McGrath district. Willie Foster actively prospected his lead-silver prospect at Dry Creek on the Seward Peninsula, and another lead prospect is that of Joe Thompson's on the Kijik River in the Bristol Bay district.

There are many good lead and zinc prospects in Alaska, but the present poor market makes it virtually impossible to mine them at a profit. The old Mahoney Mine near Ketchikan is an example of a lead-zinc property that will no doubt some day be reopened and profitably operated when economic conditions change.

Native Bismuth, Inc., has the only known occurrence of **bismuth** in Alaska. It is located on Charley Creek in the Nome district and is in conjunction with a placer gold deposit. More exploration work needs to be done to determine its extent and value. During 1952, the owners built an access road to the property with Territorial funds.

Non-Metallics

In the non-metallics field, Basic Building Products, Inc. of Anchorage was formed in 1952 for the purpose of producing an expanded shale lightweight aggregate. A bloating plant is to be built at Sutton, on the Glenn Highway near the Evan Jones Coal Mine. The deposit of shale which has proven to be suitable for bloating is located on the same highway, six miles from the proposed plant site. Construction of the plant and production of lightweight aggregate is anticipated in 1953.

Another group of Anchorage men formed Great Northern Stone, Inc. in 1952. Members of the group searched the Cook Inlet area for suitable building stone and staked claims on a variety of types. Their work is to include stone etching and engraving; building of retaining walls, chimneys, patios; cutting of tile, stone veneer and monuments.

Small shipments of jade by Empire Jade Company, operating on Jade Creek, Shungnak district, were made throughout the biennium. Some prospecting was done on a kyanite deposit in the Kougurok district, Seward Peninsula, by Paul Ablowalik.

An area indicating possible clay and silica sand deposits near the old Fishook Inn site on Little Susitna River, Willow Creek district, was prospected by Jack Fabian and Don Moore.

Another non-metallic mineral of strategic importance today is mica. The present market price of white or amber mica varies according to a classification peculiar to the industry. Sheet mica, or that which can be recovered in sheets two inches square or larger, sells for \$1.00 to \$4.50 per pound depending on size. Scrap and ground mica sells for \$32 to \$150 per ton depending on grade. Mica is found in pegmatites and is known to occur-

at several locations in Southeastern Alaska. Prospecting activities have been noted at Sitklan Island in the Ketchikan district, and in the Windham Bay district.

Prospecting on a thorium-bearing rare earth deposit of appreciable size in the Salmon Bay area, Prince of Wales Island, Ketchikan district, was conducted throughout the biennium by Smith. Pitcher and Company.

Oil and Gas

Two major oil companies conducted preliminary field investigations in Alaska during 1952. One of these groups has indicated they plan to send two full field parties to Alaska in 1953. The Alaska Oil and Gas Development Company was incorporated in Alaska in 1952 and has acquired 12,000 acres of promising ground near Eureka in the Nelchina district. The company plans to drill a test hole 6,000 to 8,000 feet deep after a thorough geological investigation. At the close of the biennium, a rotary drill rig had been arranged for, and actual drilling should begin in 1953. A group of Anchorage businessmen are officials of this company.

Another group of businessmen in Fairbanks has formed the Pioneer Oil and Gas Company, acquired 2,560 acres of land in the Wood River subdistrict south of Fairbanks, and reportedly has a drill rig on the way with the intention of drilling in 1953. A third group, in Anchorage, is reportedly forming the Alaska Gulf Oil and Gas Development Company and acquiring possible oil lands on the west side of Cook Inlet.

Little information is available on the progress of the Navy's oil drilling project on Naval Petroleum Reserve No. 4 north of the Brooks Range. Some gas has been tapped and is being used to heat one of the camps in the area. An oil reserve of several million barrels has been reported but, up to the present time, no attempt has been made to actually produce any oil.

Some question still remains as to the status of the grouped oil leases held by Northern Development Company in the Katalla field, Yakataga district. Deep Rock Oil of Tulsa, Oklahoma, was to have started drilling operations in 1953, but has dropped out of the picture. It is reported that Phillips Petroleum and Kerr-McGee Oil Industries have taken over their phase of the proposed drilling operations.

LAWS AND REGULATIONS PERTAINING TO LOCATING AND LEASING MINERAL GROUND

Under the present mining laws, all mineral deposits except oil and coal may be located and held by staking claims on the public domain. Public domain includes all government-owned lands which have not been withdrawn or reserved for some purpose. The University of Alaska has compiled a map showing the larger withdrawn areas and the recording precincts in the Territory, which may be purchased from the University Bookstore.

Mining claims are of two types: placer and lode. They are staked under slightly different regulations, but in either case a prospector must make a discovery of valuable mineral on or in the ground before he may stake it.

Placer claims are staked on ground where the mineral is not "in place": that is, where it has been moved from its original position in bedrock by erosion and weathering agencies to another location in an unconsolidated deposit, usually in an ancient or present stream bed. In Alaska there is a limit on the staking of placer claims to two per month in any one recording precinct. Claims may be staked for others by power of attorney, but in the case of placer claims, they cannot be staked in any manner so that any one person may accumulate more than the legal limit. The size of a placer claim can be no larger than twenty acres. and the dimensions are ordinarily 1320 by 660 feet, but it cannot be longer than 1320 feet. It must be marked by a post or monument at each corner and angle of the boundary lines and the boundary lines must be marked on the ground. A location notice must be posted on the claim giving the name of the claim, name of the locator, date of location, and description of claim. A location certificate must be recorded, with the recorder of the recording precinct in which the claim is located, within ninety days of the location. The certificate contains the same information as the location notice with the addition of the description of the actual geographical situation of the claim.

Lode claims are staked where the valuable mineral is "in place", undisturbed in its original position in a vein or lode in bedrock. There is no restriction on the number of lode claims that may be staked, but the locator should remember that assess-

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ment work must be done for each of his claims if he is to hold them. The dimensions of lode claims cannot be longer than 1500 feet along the vein nor extend more than 300 feet from the vein on either side. Thus the correct size of the lode claim, when possible, is 1500 by 600 feet with the vein outcrop (called the apex) running through the center of the claim. The end lines of the lode claim must be parallel if the miner is to have his extralateral rights which entitle him to follow the vein down after it passes out from under the side lines, but requires him to remain between the downward vertical extensions of the end lines. Thus, if the claim is properly staked, he may follow the vein as deep as he wishes, regardless of which way it dips, but he cannot mine more than 1500 feet, or his claim length, of the vein laterally.

A minimum of seven posts or monuments is required to follow legal requirements in locating a lode claim. One post must be on each corner, one in the center of each end line where the line crosses the apex of the vein, and one at the discovery point on which the location notice is posted. As with the placer claim, posts are also required at any angle of the boundary lines, and all boundary lines should be marked. Practically the same information is written on the lode location notice as the placer, and forms for each may be purchased from various printing concerns in the Territory. Claim location certificates must be recorded at the recorder's office within 90 days after the date of location.

To legally hold claims after they are staked and recorded, \$100 worth of assessment work must be done on each claim each year. This work must be done in such a way as to improve the claim or benefit it. Work for a group of claims that are contiguous may all be done on one claim. Cost of tools purchased or transportation expense of tools or personnel to or from the claim is not chargeable to assessment work. The annual deadline for completion of assessment work is July 1st at noon. An affidavit stating that the assessment work has been done should be recorded each year as proof that the claim is being legally held.

After \$500 worth of work has been done on a claim, the holder may apply for a patent. This gives him full title to the ground and relieves him of the necessity of doing the annual assessment work. The process of obtaining a patent is lengthy and rather expensive, the details of which may be obtained from the Bureau of Land Management.

Oil and coal lands are not staked like other minerals, but are located under mineral leasing acts under which a permit or lease is obtained from the Bureau of Land Management and a rental is paid to the government. In the case of oil and gas in Alaska, up to six leases of 2560 acres each may be obtained, if approved. Coal lands are obtained by getting a prospecting permit first, then a lease if commercial quantities of coal are found.

A small book entitled Alaska Mining Laws by Henry Roden may be purchased from the Daily Alaska Empire Printing Company, Juneau, Alaska, for \$2.00.

	19	50	15	351	195	2 1/
	Quantity	Value	Quantity	Value	Quantity	Value
Antimony oreshort tons			859	(2)		
Coal, bituminousshort tons	412,455	\$ 3,033,445	494,333	\$ 3,766,987	648,000	(2)
Gold troy ounces	289,272	10,124,520	239,637	8,387,295	233,428	\$ 8,169,980
Lead	149	40,230	21	7,266	1	320
Sand and gravelshort tons	3,050,020	2,377,407	1/6,818,000	1/3,538,000	6,817,800	3,537,900
Silvertroy ounces	52,638	47,640	32,870	29,749	31,825	28,803
Tin long tons	79	170,281	69	198,025	90	243,936
Tungsten (60% concentrates)short tons	13	(2)	10	(2)	5	(2)
Zine	9	1,704	-1	218		
Undistributed 3/		2,100,000		3,600,000		9,052,000
Total		\$17,900,000		\$19,500,000		\$21,033,000
1/ All figures for 1952 are preliminary and subj	ect to revisi	on.				
2/ Value included with "Undistributed" to avoi	d disclosing	individual c	ompany oper	ations.		
3/ Comprises value of pumice (1951 only), plati	num group	metals (crud	e), stone (19	951 only), and	l items indica	ted by foot-

Note: Above statistics prepared by Alfred L. Ransoms and William H. Kerns, Mineral Industry Division, Region 1, P. O. Box 560, Juneau, Alaska. note 2.

REPORT OF COMMISSIONER OF MINES

TABLE III

Average Metal Prices as Quoted by E. & M. J.

1950	1951	1952	1/1/53
21.235	24.200	24.200	24.50
21.549	26.258	31.746	34.645
13.296	17.500	16.467	14.75
13.096	17.300	16.266	13.25
13.866	18.000	16,215	12.50
95.539	127.077	120.473	121.50
74.169	89.368	84.941	83.25
\$81.258	\$210.125	\$199.097	\$219.00
30.906	45.666	45.524	37.97
\$76.556	\$90.000	\$90.000	\$90.00
216.840	255.000	224.095	200.00
17.713	19.000	19.410	20.00
22.043	24.500	24.500	24.50
44.792	54.000	56.500	56.50
	1950 21.235 21.549 13.296 13.866 95.539 74.169 \$81.258 30.906 \$76.556 216.840 17.713 22.043 44.792	$\begin{array}{ccccc} 1950 & 1951 \\ 21.235 & 24.200 \\ 21.549 & 26.258 \\ 13.296 & 17.500 \\ 13.096 & 17.300 \\ 13.866 & 18.000 \\ 95.539 & 127.077 \\ 74.169 & 89.368 \\ \$81.258 & \$210.125 \\ \$0.906 & 45.666 \\ \$76.556 & \$90.000 \\ 216.840 & 255.000 \\ 17.713 & 19.000 \\ 22.043 & 24.500 \\ 44.792 & 54.000 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

EMPLOYMENT AND ACCIDENTS AT MINES

The following Table IV reveals the trend of employment in the mining industry from 1914, the first year for which records are available, through 1952. Accidents and employment at the various types of mines are shown for each year of the biennium in Table V. 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 VI.

TABLE IV

Employment at Mines, 1914 to 1952, Inclusive Number of Men Employed at:

Year	Placers	Lode Mines and Milling Plants	Coal and Other Mines	Totals
1914		3,500	140	8,040
1915		3,850	160	8.410
1916		4,200	340	8,590
1917		3,220	270	7,040
1918		1,897	400	5,297
1919		1,757	310	4,247
1920		1,880	360	4,230
1921		1,681	400	4,231
1922		1,623	280	4,101
1923		1,500	270	3,851
1924		1,978	175	4,653
1925		1,745	116	4,561
1926		1,663	108	4,103
1927		1,930	114	4,141
1928		1,668	109	4.011
1929	2,354	1,605	89	4,048

TABLE II

<u> </u>			OL MUNEO	
1930	2 220	1 502	98	2 020
1931	2 163	1 323	79	3,020
1932	2 180	1,000	79	2,004
1933	2 063	1 946	69	0,10%
1934	2 105	1,451	70	3,377
1025	2,200	1,101	19	3,725
1026	9 605	1,000	89 105	4,077
1027		1,807	105	4,577
1020		1,957	92	5,185
1930		2,071	218	5,759
1939		1,986	229	6,143
1940		1,974	149	6,363
1941		1,805	218	5 ,9 88
1942		1,065	249	3,489
1943		581	312	1,449
1944		489	393	1,540
1945		238	309	1 450
1946		446	334	2 474
1947	1,824	384	280	2,488
1948	1,938	309	267	2,514
1949	1.838	262	323	2,02
1950	1.722	243	297	2,120
1951	1.219	202	287	1 708
1952	1.286	222	404	1,000
			101	1,912

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TABLE V

Summary of Accidents and Employment at Mines in Alaska 1951-1952

			(1951)				
Numb of Mines	er Group	Number of Men Employed	Number shifts Worked	Results Fatal	of Accidents Non-Fatal	Total Time Lost (Days)	
	PLACER MI	NES:					
15	Dredges		156,587	0	44	381	
30	Draglines		25,620	0	õ	0	
62	Dozer-Hyd.	168	21,150	i	1	21	
97	Others*	162	19,220	Ō	õ	0	
204		1,219	222,577	1	45	402	
	COAL MINES	S:					
4	Underground	215	54.268	0	50	793.	
3	Strip		12,717	Ő	16	111	
7		287	66,985	0	66	834	
	LODE MINES	3:				•	
73	Metal**	179	31.115	0	t	10	
3	Non-metal	10	300	0	õ	0	
76		189	31,415	0	1	10	
	MILLS:						
3	Metal	13	1,620	0	0	0	
290	Totals	1,708	322,597	1	112	1,246	

		(1059)			
	PLACER MINES:	(2661)			
14	Dredges	181.675	1	27	200
30	Draglines 182	25.020	ō	0	0
57	Dozer-Hydr. 158	20 010	Ō	õ	0
98	Others* 166	19,360	Õ	õ	õ
199	1 286	246.065	1		200
100	2,200	210,000	2	21	200
	COAL MINES:				
5	Underground 317	65,286	0	60	582
4	Strip	20,152	0	28	322
9	404	85,438	0	88	904
	LODE MINES:				
78	Metal** 214	39,460	0	0	0
2	Non-metal 4	120	0	0	0
80	218	39,580	0	0	0
	MILLS:				
1	Metal 4	480	0	0	0
289	Totals 1.912	371 563	 I	115	1 104

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

Fatalities

Two fatalities resulted from accidents at mines in Alaska during the biennium, one in 1951 and one in 1952. Strangely enough, neither accident occurred underground. Investigations of both accidents indicated carelessness on the part of the victims. and in no way reflected on the operating companies' safety measures.

On July 7, 1951, Peter Wirum was panning for gold in Eagle Draw in the Kougarok River area. He was working under the brow of a high bank on one side of the open cut when an unexpected "cave-in" caught and buried him. He was found by his brother, too late to be of any help.

On July 14, 1952, Eugene A. Swendsen, an employee of the United States Smelting Refining and Mining Company at Cripple Creek stripping operation, was attempting to swing the nozzle of a hydraulic giant to a new position. He was standing on the wrong side of the nozzle and was attempting to swing it toward himself. He evidently lost his balance and stumbled backward, jerking the nozzle in a rapidly moving sweep which caught him in the chest and pinned him against the "deadman" mound. The powerful blow killed him almost instantly.

REPORT OF COMMISSIONER OF MINES

TABLE VI

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

	Man-Shifts Worked at		Fatalities		Non	-Fatal Accid	lents	Tim	e Lost (Days	5)		
Vear	Placer Mines	Lode Mines and Mills	Coal Mines	Placer	Lode Mines	Coal Mines	Placer	Lode Mines	Coal Mines	Placer Mines	Lode M.nes	Coa
1010	1111100			Minico				and wins	1411103			141111
1912				5	6							
1913				10	15					ļ		
1914				b	14							
910				4	19			500				
1910				1 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	
921		568,615	103,389	0	12		0	249		ļ	3,519	471
922		537,180	55,309	0	5	0	0	252			4,344	250
.923	84,948	618,359	66,927	2	9	0	7	230	42	394	3,991	673
.924	117,545	468,890	51,398	0	16	0	30	327	6	560	4,882	75
.925	405,000	592,326	34,353	0	6	0	0	303	5	No report	5,639	109
.926	418,744	563,992	51,398	1	6	1	90	365	10	1,042	5,303	75
927	418,235	555,155	34,915	2	7	1	178	259	13	3,267	4,819	445
.928	445,707	559,081	32.766	3	6	0	152	302	2	2,048	5,981	19
929	420,249	524,836	25,525	5	9	0	142	255	6	1,657	4,301	197
930	484,301	486,515	30,101	0	7	0	123	271	7	1,096	3,979	221
931	437,573	425,201	22,129	0	6	0	92	167	5	1,251	2,668	101
932	441,335	445,876	22,267	0	5	0	67	163	14	765	2,630	250
.933	437,267	403,021	19,805	1	7	0	90	177	3	1,077	2,381	9
934	478,908	443,265	20,514	0	6	0	95	220	7	1,313	3,784	201
935	499,765	458,440	23.571	2	6	0	116	266	12	1,250	4,372	291
936	496,370	515,105	27,285	2	8	0	89	284	8	1,014	3,780	149
937	547,748	548,929	25.267	2	2	16	129	298	14	1,733	5,007	407
938	607,624	595,520	27,744	2	5	0	112	351	20	1,365	5,091	423
939	683,624	548,121	26,643	1	3	0	158	302	15	2,263	4,247	488
940	718,153	552.579	34,450	4	4	Ŋ	162	313	29	1,999	4,260	721
	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	
1951	222,577	33,035	66,985	1	0	0	45	1	66	402	10	834	
1952	246.065	40.060	85,438	1	0	0	27	0	88	200	0	904	_

REPORT OF COMMISSIONER OF MINES

Name and Address of Operator	Loction of Mine	Recording Precinct	Type of Operation	Approx. Crew
Ablowalik, Paul H., Teller	Kuzitrin River Kougarok Dist.	Cape Nome	Kyanite prospect	2
Adderson Exploration Co., 19621 Crest- wood Drive, Seattle	Sunset Cr. Port Clarence Dist.	Cape Nome	Bulldozer-hydraulic and prospect drilling	3
Admiralty Alaska Gold Mining Co., Box 529, Juneau	Funter Bay Admiralty Island Dist.	Juneau	Nickel lode development	8
*Adney, Wayne and Toussaint, Ed, Fort Yukon	Chandalar Chandalar Dist.	Fairbanks	Gold lode development	2
Agoff, Harry, Flat	Prince Cr. Iditarod Dist.	Mt. McKinley	Bulldozer-hydraulic	5
‡Alamco, Inc., Fairbanks	Boulder Cr. Tok Dist.	Fairbanks	Antimony lode	5
‡Alamco, Inc., Fairbanks	Smith Cr. Koyukuk Dist.	Koyukuk	Antimony lode	2
‡Alamco, Inc., Fairbanks	Sawtooth Mountain Rampart and Tolovana Dists.	Rampart and Fairbanks	Antimony lode	6
Alaska Copper Co., Box 2000, Anchorage	Glacier Cr. Nizina Dist.	McCarthy	Copper lode development	8
*Alaska Copper Corp., 1013 Smith Tower, Seattle	Port Fidalgo Prince William Sound Dist.	Valdez	Copper lode development	3
*Alaska Copper Corp., 1013 Smith Tower, Seattle	Rocky Mountain Cr. Nome Dist.	Cape Nome	Tungsten lode exploration	n 3
Alaska Exploration and Mining Co., Talkeetna	Bird Cr. Yentna-Cache Creek Dist.	Talkeetna	Hydraulic	3
Alaska Iron Co., Haines	Near Klukwan Juneau Dist.	Haines	Iron lode development	4
Alaska Juneau Gold Mining Co., Juneau	A. J. Mine, Juneau Juneau Dist.	Juneau	Gold lode and mill (Maintenance only)	30
Alaska Matanuska Coal Co., Anchorage	Premier Mine Willow Creek Dist.	Palmer	Coal mine	2
Alaska Metals Mining Co., Box 965, Fairbanks	Gilmore Dome Fairbanks Dist.	Fairbanks	Tungsten exploration	5

Alaska Pacific Consolidated Mining Co.,
Alaska Placer Co., Nome, or 327 Colman
*Alaska Tin Corp., Nome, or 327 Colman
Bldg., Seattle Alder Creek Mining Co., Meehan
*Alluvial Golds, Inc., Fairbanks
Amero, A. W., Chandalar
Anderson, Ellis, Chandalar
‡Anderson, Louis, Juneau
Anderson, Luoto and Frienze, Nome
Anderson, Tury, Fairbanks
Atlas Mining Co., Nome
Ausley, Clarence, Nome
Awe Mining Co., Flat
Backstrom, Gus, Flat
Baldwin and Moon, Box 371, Nome
Ballard, James, Sitka
Bankovich, Nick, Hyder
Barrett, Frank, Chicken

Alaska Native Service, Juneau

Meade River and Wainwright Barrow and Wainwright Dists. Independence Mine Willow Creek Dist. Niukluk River Council-Bluff Dist. Ear Mountain Port Clarence Dist. Fairbanks Cr. Fairbanks Dist. Woodchopper Cr. Circle Dist. Big Cr. Chandalar Dist. Tobin Cr. Chandalar Dist. Douglas Island Juneau Dist. Hannum Cr. Fairhaven Dist. Porcupine Cr. Circle Dist. Atlas Cr. Kougarok Dist. Agashashok headwaters Noatak Dist. Marvel Cr. Tuluksak-Aniak Dist. Head of Flat Cr. Iditarod Dist. Sweepstakes Cr. Koyuk Dist. Baranof Island Chichagof Island Dist. Texas Cr. Hyder Dist. Mosquito Fork Fortymile Dist.

Noatak-Kobuk	Coal mine	8
Wasilla	Gold lode and mill	2
Cape Nome	Gold dredge	9
Cape Nome	Lode and placer tin prospecting	; 2
Fairbanks	Dragline-bulldozer-hyraulic	10
Fairbanks	Gold dredge	15
Fairbanks	Sniping	1
Fairbanks	Placer drift	1
Juneau	Antimony lode development	1
Fairhaven	Bulldozer-hydraulic	3
Fairbanks	Bulldozer-hydraulic	3
Cape Nome	Bulldozer-hydraulic	4
Noatak-Kobuk	Shovel-in and prospecting	2
Bethel	Dragline-bulldozer	6
Mt. McKinley	Hydraulic	1
Cape Nome	Bulldozer-hydraulic	7
Sitka	Prospecting	1
Hyder	Lead prospect	1
Fairbanks	Prospecting	1

REPORT OF COMMISSIONER OF MINES

Bartholomae Corp., 1033 Brea Road, Gold Run Cr. Fullerton, Calif. Port Clarence Dist. Bartholomae Oil Corp., Los Angeles, Calif. Basin Creek Mining Co., Nome, or 512 Bowdoin Place, Seattle Bauer, Richard and Calich, E., Eagle Beistline, Earl, College Benick, Ed, Nome Berg, Rhinehart, Chitina *Berg, Tweiten, and Wickstrom, Fairbanks Berry Dredging Co., 1704 Sutter St., San Francisco, Calif. Big Hurrah Quartz Mine, Nome, or 2220 N. 13th St., Phoenix, Ariz. Bittner, Paul, Fairbanks [‡]Black Butte Mining Co., Palmer Blasher, Frank, Hyder Bleecker, F. C., Fairbanks

Bliss, Patrick, Nome, or Box 2225, Anchorage Blundell, J. B., Big Lake

Bodis, George, Nome

Bott, Earl and Lyle, Big Lake

Bouquier, John, Flat

Ryan Lode, Ester Do Fairbanks Dist. Basin Cr. Nome Dist Crooked Cr. Eagle Dist. Ester Dome Fairbanks Dist. Ophir Cr. Council-Bluff Dist. Ruby Cr. Shungnak Dist. Chatham Cr. Fairbanks Dist. Mammoth Cr. Circle Dist. Big Hurrah Cr. Nome Dist Rampart and Circle D Fern Mine Willow Creek Dist. Cantu and Upper Ter Hyder Dist. First Chance Cr. Fairbanks Dist. Dahl Cr. Kougarok Dist. Jim Pup Kovukuk Dist. Dick Cr. Serventine River Disi Eight Mile Cr. Koyukuk Dist. Happy Cr. Iditarod Dist.

	Cape Nome	Placer drilling and hydraulic	2	5
ome,	Fairbanks	Gold lode	1	
	Cape Nome	Shovel-in	1	
	Fairbanks	Hydraulic	2	
	Fairbanks	Gold lode	1	,
	Cape Nome	Shovel-in	1	EPO
	Noatak-Kobuk	Copper lode development	1	1 ² T
	Fairbanks	Dragline-bulldozer	3	윩
	Fairbanks	Gold dredge	9	Q0 ₽
	Cape Nome	Tailings cyanidation	4	IMI
vists.	Rampart and	Prospecting	1	OISS
	Wasilla	Gold lode and mill	3	ŽE
kas Cr.	Hyder	Lode prospecting	1	2
	Fairbanks	Placer maintenance	1	A
	Cape Nome	Bulldozer-hydraulic and	2	INES
	Koyukuk	Shovel-in and drift	1	
L L	Cape Nome	Bulldozer-hydraulic	2	
ç.	Koyukuk	Groundsluice	2	
	Mt. McKinley	Bulldozer-hydraulic	1	
				1

Bowman, Harry, Iliamna

Bradley, C. W., Talkeetna

Brinker-Johnson Mining Co., 215 N. Carson St., Carson City, Nev. *Buechley, Robert, Juneau

and growing of

Buffalo Coal Mining Co., Box 2257, Anchorage Bufvers, John, Ketchikan

Burnette, Dewey and Hunter, M., Fairbanks Burns, J. and Sons, Fairbanks

Callahan Zinc-Lead Co., 100 Park Ave., New York 17, N.Y. Cannon, Robert, Teller

Canyon Creek Mining Co., Jans Kvamine Marvel Cr. & Sons, Akiak Carlo, William, Ruby

*Caro, Bert and Jacobs, Floyd, Juneau

Carstens, Heine, Central

Casa de Pága Gold Co., 1106 Hoge Bldg.. Seattle, Wash. Chappell, Oliver L., Wiseman

Chena Mining Co.

Cleary Hills Mines, Inc., Box 1150, Fairbanks Coffin, W. H., Deering

Portage Cr. Bristol Bay Dist. Upper Cache Cr. Yentna-Cache Creek Dist. Caribou Cr. Fairbanks Dist. Eagle River and vicinity Juneau Dist. Buffalo Coal Mine Willow Creek Dist Prince of Wales Island Ketchikan Dist. Crooked Cr. Kantishna Dist. Homestake Cr. Bonnifield-Nenana Dist. Livengood Cr. Tolovana Dist. Birch Cr. Port Clarence Dist. Tuluksak-Aniak Dist. Ophir Cr. Ruby Dist. Gold Cr. Juneau Dist. Portage Cr. Circle Dist. Inmachuk River Fairhaven Dist. Thompson Gulch Keyukuk Dist. Jackson Cr. Bonnifield-Nenana Dist. Cleary Hill Mine Fairbanks Dist. Kugruk River Fairhaven Dist.

Iliamna
Talkeetna
Fairbanks
Juneau
Palmer
Ketchikan
Fairbanks
Nenana
Fairbanks
Cape Nome
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Nulato
Juneau
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Nenana
Fairbanks
Fairhaven

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3 e

Bulldozer-hydraulic

Coal mine rehabilitation

Gold dredge, stripping and

Bulldozer-hydraulic

Bulldozer-hydraulic

Bulldozer-hydraulic

Bulldozer-hydraulic

Bulldozer-washing plant

Hydraulic

Gold dredge

Prospecting

Prospecting

thawing

Shovel-in

Shovel-in

Hydraulic

Gold lode

Hydraulic

Placer

2 Gold dredges

(Maintenance only)

REPORT ဌ COMMISSIONER ရှု

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Collinesville Mines, Box 547, Anchorage	Mil Yei
Colorado Creek Mining Co., McGrath	Col
Connell, Paul A., Central	28
Crane, Fred & Associates, Nome or Point	Ku
Hope Cripple Creek Coal Co., Box 622,	Lisi Crij
Fairbanks Dabl Ben and Bernard Al Fairbanks	Bor
	Fai
Dahl, Robert, Talkeetna	Nug Yer
Davis, T. E.	Sel
Dayo, Stanley Deadwood Mining Co., Circle Hot Springs	Ind
*DeCoursey Mining Co. Sleitmut	Circ
Decoursey mining co., Stettmut	Tul
Degnan, Joe, Ophir	Litt
Dempsey & Edwards, Nome	Cas
Dinan, Frank, Rampart	Flo
*Dittman David Fairbanks	Rar Hea
	Fai
Dobson, H., Nome	Am Por
Donnely, Joe, Central	Dea
Douglas, J., Marshall	Upp
Drews, Max, Eagle	Mai Gra
Deale The b Fining Co. Delayer	Eag
Duck Flat Mining Co., Palmer	Wil

lls Cr. and Lower Twin C ntna-Cache Creek Dist. orado Cr. ioko Dist. Mile, Yukon River ck Dist. kpuk River burne Dist. pple Cr. nnifield-Nenana Dist. ar Cr. rhaven Dist. gget Cr. ntna-Cache Creek Dist. awik Dist. t Springs Dist. lependence Cr. cle Dist. d Devil Mine luksak-Aniak Dist. tle Cr. ioko Dist. adepaga River incil-Bluff Dist. rida Cr. mpart Dist. ad of Gilmore Cr. rbanks Dist. erican Cr. t Clarence Dist. dwood Cr. cle Dist. per Willow Cr. rsha'l Dist. vel Gulch le Dist. iston low Creek Dist.

Cr.	Talkeetna	Dragline-washing plant	10	52
	Innoko	Dragline-bulldozer-hydraulic	6	
	Fairbanks	Lode prospecting	1	
	Noatak-Kobuk	Prospecting	2	
	Nenana	Strip coal mine	20	म
	Fairhaven	Bulldozer-hydraulic	4	EPO
	Talkeetna	Sniping	1	RT
	Noatak-Kobuk Hot Springs Fairbanks	Prospecting Prospecting Dragline-bulldozer	1 1 4	OF CON
	Kuskokwim	Mercury lode	5	IMIX
	Innoko	Dragline-bulldozer-hydraulic	6	SSIC
	Cape Nome	Gold dredge	4	NET
	Rampart	Placer drift	1	ĝ
	Fairbanks	Lode prospect	1	M
	Cape Nome	Groundsluice	1	NES
	Fairbanks	Lode prospect	1	
	Wade-Hampton	Shovel-in	1	
	Fairbanks	Shovel-in	1	
	Wasilla	Coal mine	15	

George, Flat Dutch Hills Exploration and Development Co., Talkeetna Eagle Creek Mine, Medfra Edgecumbe Exploration Co., Sitka Edwards, Hirk, Solomon Eisenmenger, William, Fairbanks Elmer, A. M., Slate Creek, via Gulkana *Empire Jade Co., Kotzebue Englebritzen, William, Fairbanks Engstrom, Herbert, Nome Enstrom, Oscar & McDougal, Fairbanks Erickson, Helvor, Talkeetna Erikson Placers, Anchorage Evan Jones Coal Co., Box 619, Anchorage Falls, Ben & Johnson, Livengood Finzel, Ralph, Ketchikan Foster and Associates, Willie Foster, Nome Franklin Mining Co., Fairbanks ‡Frasca, John & Gibson, Charles Miller House *Frasca, John, Miller House

Duffie, Bill; Hatten, Frank; and Turner, Chicken Cr. Iditarod Dist. Bird Cr. Yentna-Cache Creek Dist. Vicinity of Medfra McGrath Dist. Silver Bay Chichagof Island Dist. Solomon River Nome Dist. Tibbs Cr. Goodpaster Dist. Chistochina Dist. Jade Cr. Kiana Dist. Goldstream Cr. Fairbanks Dist. Basin Cr. Nome Dist American Cr. Hot Springs Dist. Cache Cr. Yentna-Cache Creek Dist. Nome Dist. Jonesville Willow Creek Dist. Wilbur Cr. Tolovana Dist. Ham Island Ketchikan Dist. Dry Cr. Council-Bluff Dist. Chicken Cr. Fortymile Dist. Eagle Cr. Circle Dist. Eagle Cr. Circle Dist.

Mt. McKinley	Stripping	3	
Talkeetna	Gold lode development	1	
Mt. McKinley	Gold lode development	2	
Sitka	Gold lode development	2	
Cape Nome	Bulldozer-hydraulic	7	R
Fairbanks	Antimony prospect	1	EPO
Chitina Noatak-Kobuk	Dragline-bulldozer Jade cutting	3 2	RT OJ
Fairbanks	Sniping	1	ج 00
Cape Nome	Bulldozer-hydraulic	4	MMM
Hot Springs	Bulldozer-hydraulic	2	SSI
Talkeetna	Hydraulic	1	ION
Cape Nome Palmer	Scheelite prospecting Bituminous coal mine and	3 240	ER OF
Fairbanks	Bulldozer-hydraulic	2	M
Ketchikan	Prospect development	1	NES
Cape Nome	Lead prospect	2	
Fairbanks	Dragline-bulldozer-hydraulic	5	
Fairbanks	Bulldozer-hydraulic	2	
Fairbanks	Placer prospecting	1	ទួ

Frey Bros., Box 693, Palmer	Valdez Cr.	Talkeetna	Repairing pipeline	3	54
Girtler, Grover & Myklebust, John, Onhir	Little Cr.	Innoko	Dragline-bulldozer-hydraulic	4	
Godfrey, Sam, Nome	Kougarok River Kougarok Dist.	Cape Nome	Maintenance—repair	3	
Gold Mint Mines, Hope, or 621 S. Hope St., Los Angeles, Calif.	Palmer Cr. Moose Pass-Hope Dist.	Seward	Gold lode development	1	
tGold Placers, Inc., Fairbanks	Coal Cr. Circle Dist.	Fairbanks	Gold dredge	15 -	RE
Goodnews Bay Mining Co., Platinum	Salmon River & tribs., Goodnews Bay Dist.	Bethel	Platinum dredge Dragline-buldozer- washing plant	50 20	PORT
Goodwick & Tronstad, Kobuk P. O., or Fairbanks	Dahl Cr. Shungnak Dist.	Noatak-Kobuk	Hydraulic (also jade recovery)	2	Q
Grant Mining Co., Nome	Coffee Cr. Kougarok Dist.	Cape Nome	Bulldozer-hydraulic	4	0
Grant, O., M., Fairbanks	Happy Cr. Fairbanks Dist.	Fairbanks	Gold lode prospecting	1	MM
Grubstake Mine, Inc., Wasilla	Grubstake Cr. Willow Creek Dist.	Wasilla	Gold lode and mill assessment	2	ISSI
Hagen, Otto Amund, Eagle	Fox Cr. Eagle Dist.	Fairbanks	Hydraulic	1	ONE
Hamberg & Giliska, Talkeetna	Pass Cr. Yentna-Cache Creek Dist.	Talkeetna	Hydraulic	2	RO
Hamilton, Ray, and Associates, Miller House	Harrison Cr. Circle Dist.	Fairbanks	Hydraulic-bulldozer	4)F M
Hanson, Barney, Eagle	Alder Cr. Eagle Dist.	Fairbanks	Bulldozer	2	INE
Hard & Uotila, Folger	Bear Cr. Innoko Dist.	Innoko	Dragline-bulldozer	9	ξΰ.
Hassel, Harold, Fairbanks	Ready Bullion Cr. Fairbanks Dist.	Fairbanks	Dragline-bulldozer-hydraulic	2	
Havenstrite Mining Co., Candle or 811 W. 7th St., Los Angeles 14, Calif. (Form- erly Benny Allen)	Candle Cr. Fairhaven Dist.	Fairhaven	Bulldozer-hydraulic-dragline	8	
Havilock, Harry, Rampart	Gunnison Cr. Rampart- Dist.	Rampart	Bulldozer	1	

Hayes & Whiteley, Douglas

*‡*Hayes & Whiteley, Douglas

Healy River Coal Corp., Suntrana

\$Helcolicon Mines, Inc., 3400 Sigg Drive, Reno, Nev. Helgesen, Chris, Kodiak

Hi Yu Mining Co., Fairbanks

Hoidahl, Anker, Fairbanks

Homer Coal Corp., Homer

‡Hosler, D. G. & Elmer, Anchorage

Houston, Alexander, Nome

[‡]Hovely, Otto, Hot Springs

Hubbard & McFarland, Box 995, Anchorage Hunter Creek Mining Co., Rampart

Iditarod Operating Co., Fairbanks

Ihly, Callahan and Panky, 1402 I St., Anchorage Innoko Dredging Co., Ophir

Jackson, Nels, Fairbanks

Jenkins, Fred F., Eagle

Johanssen, Ed., Chicken

Alaska Juneau dump Juneau Dist. Chichagof Mine Chichagof Island Dist. Suntrana Mine Bonnifield-Nenana Dist. Klery Cr. Kiana Dist. Terror Bay Kodiak Dist. Hi Yu Mine Fairbanks Dist. Upper Firth River Canning Dist. McNally property Nuka Bay-Homer Dist. Moose Cr. Kantishna Dist. Dahl Cr. Kougarok Dist. Cache Cr. Hot Springs Dist. Upper Little Cr. Innoko Dist. Upper Hunter Cr. Rampart Dist. Golden Cr. Melozitna Dist. Eldorado Cr. Valdez Creek Dist. Upper Ganes Cr. Innoko Dist. Totatlanika River Bonnifie¹d-Nenana Dist. Flume Cr. Eagle Dist. Ingle Cr. Fortymile Dist.

Juneau	Truck-shovel-sluice	2
Sitka	Re-milling tailings	8
Nenana	Subbituminous coal mine	85
Noatak-Kobuk	Gold dredge	15
Kodiak	Gold lode	3
Fairbanks	Gold lode	1
Fairbanks	Prospecting	1
Homer	Coal mine development	2
Fairbanks	Bulldozer	3
Cape Nome	Bulldozer-hydraulic	1
Hot Springs	Placer drift	1
Innoko	Bulldozer-hydraulic	8
Rampart	Bulldozer-hydraulic	3
Ft. Gibbon	Bulldozer-hydraulic	5
Talkeetna	Silver-lead prospect	3
Innoko	Gold dredge	14
Nenana	Bulldoezr-hydraulic	2
Fairbanks	Gold lode prospect	2
Fairbanks	Hydraulic	1

Johnson, Elmer, Ketchikan Ketchikan Dist. Johnson, H., Teller Johnson, Helmer, Fairbanks Johnson, Pete, Hot Springs Jones, R. H. & Harvey, C. K., Fairbanks Jurich, John & Carr, Tom, Livengood Kloss, Herman, Sunset Cove Knaack, Wiliam C., Seward Knorr, Vincent, Wiseman Koby, Jack, Pelican Kougarok Freight & Mining Co., Nome tKupoff, Nick, Fairbanks Landlow, Jens, Central Lane, Jacob, Anchorage Lanning, Tony, Hot Springs Lazeration, Charles & Jokela, Vern. Fairbanks Lee Bros. Dredging Co., Nome tLeov. Harry, Flat Leonard, H. H., Seward

Gold Run Cr. Port Clarence Dist. Cleary Cr. Fairbanks Dist. Lower Rhode Island Cr. Hot Springs Dist. Smith Cr. Koyukuk Dist. Lillian Cr. Tolovana Dist. Sunset Cove Windham Bay Dist. Kenai Lake Moose Pass-Hope Dist. Trail Cr. Koyukuk Dist. Glacier Bay-Idaho Inlet Juneau Dist. Buster Cr. Nome Dist. Pedro Cr. Fairbanks Dist. Switch Cr. Circle Dist. Fishhook Cr. Willow Creek Dist. Omega Cr. Hot Springs Dist. Pedro Dome Fairbanks Dist. Solomon Nome Dist. Malamute Pup Iditarod Dist. Skilak Lake Nuka Bay-Homer Dist.

Ketchikan Cape Nome	Prospecting Placer drift & shovel-in	1 1	56
Fairbanks	Bulldozer-hydraulic	4	
Hot Springs	Bulldozer-hydraulic	2	
Koyukuk	Hydraulic	2	
Fairbanks	Bulldozer-hydraulic	2	REF
Juneau	Gold-antimony lode	.1	0R
Seward	Antimony prospect	1	l C
Koyukuk	Shovel-in	1	00
Juneau	Prospecting	1	M
Cape Nome	Gold dredge	2	ISSI
Fairbanks	Bulldozer-hydraulic	2	
Fairbanks	Hydraulic	1	ER
Wasilla	Gold lode development	1	DF N
Hot Springs	Bulldozer-hydraulic	1	ÌÌ
Fairbanks	Gold lode	2	5
Cape Nome	Gold dredge	10	
Mt. McKinley	Hydraulic	2	
Seward	Antimony lode prospecting	2	
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Leroy Mining Co., Box 4011, Juneau, or 12715 Aurora Ave., Seattle Lillie, Angus, Tokeen Lindfors, Hugo & Bale, Max, Nome Lindfors, Hugo, Nome Lindquist & Carlson, Ophir

Little Minook Mining Co., Fairbanks

Lindgren, M. & Associates, Fairbanks

Loffstrom, William Longborg & Anderson, Box 523, Nome, or Unalakleet

Long Creek Mining Co., Ruby

Lost Chicken Hill Mines, Inc., Chicken

Lounsbury, Lloyd, Fairbanks

Lowman, Ted Lucky Seven Mine, Walter Roman, Miller House *Lyman, Bob; & Acheson, Dick, Crooked Creek McDaniels, Charles, Olga Bay ‡McMahan, C. J., Nelchina

1McGee, L., Hot Springs

*Margraf, O. E., Nome

Reid Inlet, Glacier Bay Juneau Dist. Prince of Wales Island Ketchikan Dist. Christian Cr. Nome Dist. **Kigluaik** Mountains Nome Dist. Victor Gulch Innoko Dist. Little Minook Cr. Rampart Dist. Coffee Dome & Bedrock Cr. Fairbanks Dist. Eagle Dist. 6 miles down Coast from Unalakleet Anvik-Nulato Dist. Long Cr. Ruby Dist. Lost Chicken Cr. Fortymile Dist. Tungsten Hill Fairbanks Dist. Fairbanks Dist. Mastodon Cr. Circle Dist. Donlon Cr. Tuluksak-Aniak Dist, Beach near Olga Bay Kodiak Dist. Albert Cr. Nelchina Dist. Sullivan Cr. and Tofty Gulch Hot Springs Dist. Glacial Lake & Vicinity Nome Dist.

Juneau Ketchikan Cape Nome Cape Nome Innoko Rampart Fairbanks Fairbanks Cape Nome Nulato Fairbanks Fairbanks Fairbanks Fairbanks Kuskokwim Kodiak Chitina Hot Springs Cape Nome

Gold lode 1 (Maintenance only) Prospecting 1 Bulldozer-hydraulic 1 Prospecting 1 Bulldozer-hydraulic $\mathbf{2}$ Dragline-bulldozer-pump $\overline{7}$ Gold lode prospects 2 0fg Prospecting 1 Coal mine 2 COMMISSIONER Dragline-bulldozer-hydraulic 2 Bulldozer-hydraulic $\mathbf{2}$ Tungsten prospecting 1 Prospecting 1 G Bulldozer 2 MINES Bulldozer $\mathbf{2}$ Beach placer 1 Bulldozer-hydraulic 2 Dragline-bulldozer-hydraulic 8 Prospecting 2

REPORT

Martin, Henry, Circle Hot Springs Martinson, Olaf, Teller Matheson, H. & Savage, P., Flat Maurer, Ernest, Fairbanks Meldrum, William, Chicken Midnight Sun Mining Co., Nome Miller, Frank & Sons, Wiseman Miscovich, P., & Sons, Flat [‡]Miscovich, P. & Sons, Fairbanks Moa, Arthur, Hyder Morrison-Knudsen Co., Inc., Fairbanks *Mrak Coal Co., Palmer *Myrtle Creek Mining Co., Fairbanks Narva, Felix, Idaho Inlet Native Bismuth, Inc., Nome Nesland, E., Wiseman New York-Alaska Gold Dredging Co., Nyac, or 41 Broad St., New York, N.Y. Nome Scheelite Exploration, Casimer C.

Cechowski, Nome, or Anchorage Noonan & Whitmore, R. H., Nome

North American Gold Dredging Co.,

Circle Dist.
Gold Run Cr.
Port Clarence Dist.
Spruce Cr.
Innoko Dist.
First Chance Cr.
Fairbanks Dist.
Chicken Cr.
Fortymile Dist.
Skookum Cr.
Kougarok Dist.
Sheep Cr.
Koyukuk Dist.
Otter Cr.
Iditarod Dist.
Flat Cr. & Timber Cr.
Ruby Dist.
Mountain View Property
Hyder Dist.
Nome Cr.
Tolovana Dist.
Near Eska
Willow Creek Dist.
Myrtle Cr.
Kovukuk Dist.
Chichagof Island
Chichagof Island Dist.
Charley Cr.
Nome Dist.
Vermont Cr.
Koyukuk Dist.
Bear Cr.
Tulaksak-Aniak Dist.
Nome Dist.
Kougarok River
Kougarok Dist.

Portage Cr.

Innoko	Dragline-bulldozer-hydraulic	3	
Fairbanks	Bulldozer-hydraulic	1	
Fairbanks	Bulldozer-hydraulic	1	ਸ਼
Cape Nome	Hydraulic	2	EPO O
Koyukuk	Bulldozer	3	ŔŢ
Mt. McKinley	Dragline-bulldozer-hydraulic	6	뎕
Nulato	Dragline-bulldozer-pump	6	l
Hyder	Lode exploration	1	
Fairbanks	Gold dredge	1	SIC
Palmer	Coal mine	3	NE
Koyukuk	Dragline-bulldozer-hydraulic	8	2 0
Sitka	Prospecting	1	A A
Cape Nome	Bismuth lode development	3	INE
Koyukuk	Bulldozer-hydraulic	2	0
Bethel	2 gold dredges, and dragline-	60	
Cape Nome	Lode scheelite prospecting	1	
Cape Nome	Dragline-bulldozer	4	

Groundsluice

Shovel-in

Fairbanks

Cape Nome

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Flat Northern Tin Co., c/o Wien Alaska Airline, Nome Novatney, Robert, Juneau
O'Brien, Jim & Dunsmuir, Jim, Seward
O'Keefe, Dennis, Wiseman
Olive Creek Mines, Fairbanks
Olsen, Henry T., Taku Harbor
O'Neill, Frank, Box 2000, Anchorage
Ott, Bill, Wiseman
P. R. & H., Mining Co., Fairbanks
Pade, Otto F., Skagway
Paolini, Q., & Associates, Fairbanks
*Pekovich, W. S., Box 529, Juneau
Peninsula Exploration Co., Old Harbor, Kodiak Island Peterson, Hans, Nome Phillips, Al, Hyder Philpott, L., Fairbanks
Dience Terros & Chavles

Fierce,	James	~	Oravey,	, Unaries	5,
Rai	mpart				
Pinell,	William	i, C	annery	Station	via
Ko	diak				
Pitts, F	red. Big	La	ke		

Otter Cr. Iditarod Dist. Buck Cr. Port Clarence Dist. Helm Bay Ketchikan Dist. Surprise Cr. Moose Pass-Hope Dist. Vicinity Twin Lakes Koyukuk Dist. Olive Cr. Tolovana Dist. Juneau and Admiralty Island Dists. Valdez Cr. Valdez Creek Dist. Smith Cr. Koyukuk Dist. Henry Cr. Kougarok Dist. Vicinity of Skagway Juneau Dist. Adler Property, Ester Dome Fairbanks Dist. Port Snettisham Juneau Dist. Sitkalidak Island Kodiak Dist. Dome Cr., trib. to Iron Cr. Hyder Dist. Upper Firth River Canning Dist. Hoosier Cr. Rampart Dist. Beach near Olga Bay Kodiak Dist. Lake Cr. Koyukuk Dist.

Mt. McKinley	Gold dredge
Cape Nome	Dragline-jigs, placer tin
Ketchikan	Lode gold development
Seward	Groundsluice & drift
Koyukuk	Prospecting
Fairbanks	Dragline-bulldozer
Juneau	Prospecting
Talkeetna	Prospecting
Koyukuk	Prospecting
Cape Nome	Bulldozer-hydraulic
Skagway	Prospecting
Fairbanks	Gold lode
Juneau	Iron lode development
Kodiak	Copper lode development
Cape Nome Hyder	Hydraulic Prospecting
Fairbanks	Sniping
Rampart	Bulldozer-sluice plate
Kodiak	Beach placer
Koyukuk	Hydraulic

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Porter, Wallace, Haycock Bear Cr. Fairhaven Bulldozer-hydraulic Fairhaven Dist. Price, Stanton, Windham Spruce Cr. Kodiak Beach placer Windham Bay Dist. Primer, Paul, Shungnak Lynx Cr. Noatak-Kobuk Hydraulic Shungnak Dist. Pringle, A. W., Hot Springs Rhode Island Cr. Hot Springs Bulldozer-hydraulic Hot Springs Dist. [‡]Purdy, Fred & Arthur, Chicken Myers Fork, & Atwater Bar Fairbanks Bulldozer-hydraulic Fortymile Dist. Purkeypile, I. W., Fairbanks Boulder Cr. Mt. McKinley Silver-lead prospect McGrath Dist. *Purkeypile, I. W., Fairbanks Tozimoran Cr. Fort Gibbon Placer tin prospecting Melozitna Dist. Radak, John, Livengood Ruth Cr. Fairbanks Hydraulic Tolovana Dist. Radovan, Martin, McCarthy Glacier Cr. McCarthy Copper lode prospecting Nizina Dist. Ragner, Joe, Fairbanks Head of Wolf Cr. Fairbanks Lode gold prospect Fairbanks Dist. Rainbow Mining Co., Box 266, Nome Goose Cr. Cape Nome Bulldozer-hydraulic Kougarok Dist. *Redig, William, & Haugdahl, M. C., Quail Cr. Rampart Bulldozer Fairbanks Rampart Dist. Red Mountain Mining Co. McCann Cr. Bethel Prospecting Goodnews Bay Dist. Reinosky, Frank J., Rampart Grouse Cr. Rampart Prospecting Rampart Dist. Rheims, J., & Wilke, J., Boundary Canyon Cr Fairbanks Bulldozer Fortymile Dist. Rice, C. F. Co., Teller Sunset Cr. Cape Nome Bulldozer-hydraulic Port Clarence Dist. Ricks, Dean, Fairbanks Goodpaster Dist. Fairbanks Prospecting Riverside Tungsten Mine, Hyder, or 81-Salmon River Hyder Tungsten, lode and mill 553 Granvile St., Vancouver, B. C. Hyder Dist. (Maintenance only) Roberts, George, Ketchikan Camaano Point Ketchikan

Ketchikan Dist.

Rosenbush, B., Franklin Savage, Patrick, Flat Schaeffer, Russel, Crooked Creek Schultz, Henry, McCarthy Schwaesdall, Andy, Wiseman Selawik Mining Co., Selawik Shaw, Frank, Bonanza or Ungalik Shimrock, Mike & Lawler, Ed, Hot Springs Silver Bow Mining Co., Herb Jenks, Nome Slocum Arm Mining Co., Cobel via Juneau Smith, Pitcher & Co., Ketchikan Snider, Ray, Hyder, 96 Group Soboleff, Simon, Central Stampede Mines, Fairbanks Stanich Bros., Fairbanks Stanton, Harold, Talkeetna \$Stock & Grove, Anchorage Stout, Earl, Central

Rosander T., Ophir

Yankee Cr. Innoko Dist. Fortymile River Fortymile Dist. Flat Cr. Iditarod Dist. Forty-seven Cr. Tuluksak-Aniak Dist. Nizina Dist. Midas Cr. Koyukuk Dist Headwaters of Selawik River Selawik Dist. Hopeful Gulch Koyuk Dist. Shirley Bar Hot Springs Dist. Coffee Cr. Kougarok Dist. Cox-Bolyan Mine Chichagof Island Dist. Salmon Bay Ketchikan Dist. Salmon River Hyder Dist. Deadwood Cr. & Boulder Cr. Circle Dist. Stampede Cr. Kantishna Dist. Porcupine Cr. Koyukuk Dist. Upper Falls Cr. Yentna-Cache Creek Dist. Geographic Bay Bristol Bay Dist. Boulder Cr. Circle Dist.

Innoko	Dragline-bulldozer-hydraulic	8
Fairbanks	Sniping	1
Mt. McKinley	Dragline-bulldozer-hydraulic	6
Kuskokwim	Bulldozer	1
McCarthy Koyukuk	Copper prospect development Bulldozer-hydraulic	1 1
Noatak-Kobuk	Prospecting & shovel-in	2
Cape Nome	Shovel-in	1
Hot Springs	Bulldozer-hydraulic	2
Cape Nome	Maintenance only	1
Sitka .	Gold lode development	2
Ketchikan	Lode prospecting	3
Hyder	Prospect development	1
Fairbanks	Lode prospecting	1
Fairbanks	Antimony lode and mill	3
Koyukuk	Bulldozer-hydraulic	2
Talkeetna	Hydraulic	1
Iliamna	Pumicite stripping and	6
Fairbanks	Placer prospecting	1

Antimony lode development

REPORT OF COMMISSIONER

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MINES

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REPORT

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COMMISSIONER

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MINES

Strandberg & Sons, Anchorage Utopia Cr. Fort Gibbon Dragline-bulldozer-18 Hughes Dist. washing plant Strandberg & Sons, Anchorage Candle Cr. Mt. McKinley Gold dredge 18 McGrath Dist. *Strandberg & Sons, Anchorage Eureka Cr. Hot Springs Dragline-bulldozer 5 Hot Springs Dist. Stuver, Jules, Flat Head of Happy Cr. Mt. McKinley Hydraulic 1 Iditarod Dist. Swanson Bros., Albert & Emil, Rampart Hunter Cr. Rampart Bulldozer-hydraulic 3 Rampart Dist. Swanson, Carl, Haycock Dime Cr. Cape Nome Placer drift 2 Koyuk Dist. Taraski, A. J., Talkeetna Cache Cr. Talkeetna Hydraulic 1 Yentna-Cache Creek Dist. Taylor Creek Placers, Fairbanks Taylor Cr. Kuskokwim Bulldozer-hydraulic 8 Tuluksak-Aniak Dist. Terrel, Fred, Big Lake Garnet Cr. Koyukuk Groundsluice 1 Koyukuk Dist. Thompson, Joe, Iliamna Kijik River Iliamna Lead-silver prospect 1 Bristol Bay Dist. Thunder Mines, Inc., Box 993, Anchorage Thunder Cr. Talkeetna Hydraulic & prospecting 3 Yentna-Cache Creek Dist. Tiger Talisman Placers, Houstan Dahl Cr. Cape Nome Bulldozer-hydraulic 1 Alexander, Nome Kougarok Dist. . Trinity Mining Co., Nome Trinity Cr. Cape Nome Bulldozer-hydraulic 2 Kougarok Dist. Tweet, N. B. & Sons, Teller Kougarok River Cape Nome Dragline-bulldozer 5 Kougarok Dist. Uhler Creek Mining Co., Box 674, Stonehouse Creek Bench Fairbanks Bulldozer 2 Fairbanks Fortymile Dist. Ulen, Joe & Pingalo, Sam, Wiseman Nolan Creek Bench Koyukuk Bulldozer-hydraulic 1 Koyukuk Dist. U. S. S. R. & M. Co., 75 Federal St., Fairbanks Dist. Fairbanks 6 gold dredges 550 Boston, Mass. U. S. S. R. & M Co. Nome Dist. Cape Nome 3 gold dredges 140 ‡U. S. S. R. & M. Co. Brooks Mountain Cape Nome Lode prospecting 10 Port Clarence Dist.

U. S. Tin Corp., Lost River, or 201 Jones Bldg., Seattle, Wash. Uotila & Hard, Ophir

.

‡Uotila & Ogriz, Flat

' Usibelli Coal Mine, Suntrana

Vogan, Barney, Teller

Wackowitz, Charles & Fred, Fairbanks

Wackowitz, Fred, Fairbanks

‡Wade Creek Dredging Co., Box 1108, Fairbanks Wade-Hampton Mining Co., Fortuna Ledge

Waldhelm, George, Nome

Wallin, George, Candle

Walter, Jimmy, Dot Lake

Wandve, John, Ketchikan ‡Warwick Mines, Fairbanks

Watkins, R. V., Fairbanks

Weaver, Vern, Chicken

‡Webb, Herman L., Chandalar

Weinard, Fred, Candle

Wells, John, Woodchopper

Cassiterite Cr. Port Clarence Dist. Ophir Cr. Innoko Dist. Slate Cr. Iditarod Dist. Healy Coal Field Bonnifield-Nenana Dist. Gold Run Cr. Port Clarence Dist. Bedrock Cr. Fairbanks Dist. Pedro Dome Fairbanks Dist. Wade Cr. Fortymile Dist. Disappoinment Cr. Marshall Dist. Atlas Cr. Kougarok Dist. Chicago Cr. Fairhaven Dist. Vicinity of Dot Lake Tok Dist. Ketchikan Dist. Gertrude Cr. Tolovana Dist. Faith Cr. Fairbanks Dist. Napoleon Cr. Fortymile Dist. Little Squaw Cr. Chandalar Dist. Jump Cr. Fairhaven Dist. Iron Cr. Circle Dist.

Cape Nome	Lode tin mine	55	
Innoko	Dragline-hydraulic-bulldozer	10	
Mt. McKinley	Dragline-bulldozer-hydraulic	6	
Nenana	Strip coal mine	45	
Cape Nome	Bulldozer-hydraulic	2	2
Fairbanks	Prospect development	2	ļ
Fairbanks	Lead-silver lode	1	1.11
Fairbanks	Bulldozers	5	18
Wade-Hampton	Bulldozer-hydraulic	3	
Cape Nome	Bulldozer-hydraulic	3	a la
Fairhaven	Coal mine	1	
Fairbanks	Lode prospects	1	
Ketchikan Fairbanks	Prospecting Buldozer-hydraulic	$1 \\ 2$	
Fairbanks	Bulldozer	3	
Fairbanks	Hydraulic	1	Į
Fairbanks	Placer drift	1	
Fairhaven	Buldozer-hydraulic	3	
Fairbanks	Hydraulic	ĩ	

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REPORT

OF

COMMISSIONER

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MINES

*West Coast Orient Co., 201 N. W. 2nd Ave., Portland, Ore. Westlake, Theodore, Kiana Wilkinson, Robert W., Miller House Willow Creek Mining Co., Marshall Wilson, S. A., Fanshaw Winder, J. S., Haycock Wiurm Bros., Nome Wolf, A. B., Ketchikan Wolff, Ernest, College Woodchopper Mining Co., Tofty Wolf Creek Mining Co., Fairbanks Wren, Waskey and Wolfe, Dillingham Yukon Mining Co., Anchorage Yukon Placer Mining Co., Fairbanks Zeiser, Clarence, Poorman Zenda Gold Mining Co., Norman Stines, Nome Zero Placers, Lyman Madden, Nome Zukoev, James, Fairbanks

1952 only.

Klery Cr.

Miller Cr.

Willow Cr.

Coffee Cr.

Sawlog Cr.

Wolf Cr.

Kako Cr

Cape Cr.

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