Report on Cooperation Between the Territory of Alaska and the United States in Making Mining Investigations and in the Inspection of Mines for the Biennium Ending March 31, 1929.

(Including a Report on the Operation of the Prospectors' Aid Act)

Juneau, Alaska,
March 1, 1929.

Sir:

I have the honor to submit herewith a report on cooperation between the Territory of Alaska and the United States in making mining investigations and in the inspection of mines for the biennium ending March 31, 1929, the work in connection with which was carried on in accordance with the terms of Chapter 63, Session Laws of 1927. Included therewith is a report on the operation of the Act commonly known as the Prospectors' Aid Act which has been administered by this office during the past biennium.

Respectfully yours,

B. D. STEWART,

Supervising Mining Engineer.

Honorable Geo. A. Parks,
Governor of Alaska,
Juneau, Alaska.

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ADMINISTRATIVE REPORT

STATEMENT AS TO THE COOPERATIVE ARRANGEMENT AND ITS PURPOSES

By its act approved May 6, 1927 the Alaska Legislature suspended for the biennium ending March 31, 1929, the law (Chapter 44, Session Laws of 1921) providing for the appointment of a Territorial Mine Inspector, and authorized the Governor on behalf of the Territory to cooperate with the Federal Government in making mining investigations and in disseminating information with a view to improving conditions in the mining, quarrying and metallurgical industries, and in providing for the inspection of mines and the protection of the lives of miners in the Territory. This Act also provided that the work contemplated by its terms should be carried on under the Supervising Mining Engineer of the Geological Survey and U. S. Bureau of Mines for Alaska.

This enactment continued in effect during the current biennium the method of providing various services, including mine inspection, designed to promote the welfare of the mining industry of the Territory that was adopted in 1922 and that has been ratified by each legislative assembly since that time. The objects in view when this method of procedure was adopted were the avoiding of duplication of activities and expenses by the Territory and the Interior Department and securing for the Territory improved service, particularly in the field of mining investigations and reports thereon and assistance to prospectors and small operators, but also in mine inspection and in safeguarding the lives and health of miners.

All the progressive mining States of the West maintain departments whose primary function is to gather and make available to the public and particularly to prospective investors in mining property, complete, authentic and detailed information regarding all mining properties and prospects and the progress of mine development within their borders. The biennial appropriations provided by the State of California for this purpose

have varied during the past ten years from $100,000 to $160,000. The Province of British Columbia in Canada likewise maintains an extensive Department of Mines devoted almost wholly to this type of work. This department issues annually a large volume containing detailed reports prepared from examinations made in the field by provincial mining engineers that set forth detailed descriptions of all prospects and mining properties discovered and developed during the year, and that indicate the economic significance of such discoveries and developments. These volumes issued over a period of years constitute the principal source of that information which is first sought by investors before acquiring interests in prospects and mining properties presented for their consideration.

The importance to the mining industry and the Territory of this type of work and of such reports, and the lack of an adequate organization for properly conducting such work in Alaska was recognized by the Alaska Legislature when it adopted House Joint Memorial No. 15, Session of 1921. By this memorial the President and the Congress were urged to provide a fund that would enable the U. S. Bureau of Mines to assign to service in Alaska three additional mining engineers to be engaged in the type of work above described.

The cooperative arrangement authorized by the Territory has contemplated the assignment, originally on the part of the U. S. Bureau of Mines and later on the part of the Geological Survey, of the mining engineers whose detail to duty in Alaska was sought by the Legislature in the memorial above cited. The understanding has been that the salaries of these engineers should be cared for out of Federal appropriations and that the Territory should contribute funds for field and office expenses incurred in connection with their field examinations and investigations in the Territory and in the preparation of their reports thereon. At each of its sessions the Alaska Legislature has been most liberal in providing means for rendering effective its share in the work to be done under the cooperative arrangement. Unfortunately, however, Federal appropriations and allotments made thereunder for the work of mining investigations and other assistance to the mining industry of the Territory have been insufficient during the past two biennia to maintain the personnel necessary to properly carry on the work.

ALLOTMENTS OF FUNDS BY THE INTERIOR DEPARTMENT FOR MINING INVESTIGATIONS IN ALASKA

The sum made available by the Interior Department for cooperative mining investigations and mine inspection work in Alaska for the year 1925 was $22,000. For the year 1926 this allotment was reduced to $19,500 and was designated for use in supervising operations in coal, oil, and other minerals on leased public lands in Alaska, instead of, as formerly, for mining investigations and mine inspection. For the year 1927 the fund was again allotted to supervising operations on leased lands and was reduced from $19,500 to $14,500. The difference, in the sum of $5,000, was transferred from the Alaska fund to the general leasing fund of the Survey and was used for supervising mineral leasing operations in the States, for which insufficient appropriations had been made.

For the year 1928 the sum of $14,500 was again allotted for all the work conducted under the direction of the supervising mining engineer in Alaska. In order to avoid the anomaly of employing in the making of mining investigations and in mine inspection funds appropriated for supervising operations under the mineral leasing act, as was necessary during the years 1926 and 1927, it was arranged that the fund of $14,500 for use in 1928 was appropriated under two separate items: namely, that providing for investigation of mineral resources in Alaska, and that providing for supervision of operations on leased mineral lands. The sum of $10,000 was allotted for the latter item, and the sum of $4,500 was made available for the investigation of mineral resources. The latter sum ($4,500) is the amount now strictly available for use in the work contemplated by the cooperative mining investigations, to assist in the expense of which the Alaska Legislature has, during each of the past two biennia, appropriated a fund of $20,000.

PERSONNEL AVAILABLE FOR COOPERATIVE MINING WORK

The personnel of the staff of mining engineers provided by the Interior Department for work in Alaska under the cooperative arrangement during the years 1925 and 1926 consisted of a supervising engineer, a placer mining engineer and from one

to three lode mining engineers. Two of the lode mining engineers and the placer mining engineer were engaged for only about six months of each year. They were available for field work during the summer season and devoted from two to three winter months to the preparation of reports on their field investigations. The third lode mining engineer was retained throughout the year. In addition to carrying on service work among prospectors, examining and sampling mining properties under development, and securing information as to the progress of mining work in the Territory, he served as assistant inspector of mines.

Reduction in the allotment of funds available for use in 1927 resulted in the withdrawal from work in Alaska of the placer mining engineer and two of the lode mining engineers, leaving available for the cooperative work only one lode mining engineer and such of the services of the supervising engineer as could be spared from other duties. In May, 1928 instructions were received by the supervising engineer to dispense with the services of the one remaining lode mining engineer on account of depletion near the end of the fiscal year of the fund from which his salary was derived. Authority was withheld for restoring this engineer to active status during the fiscal year ending June 30, 1929. Since May, 1928, therefore, the supervising mining engineer has been without technical assistants in conducting the work carried on in cooperation with the Territory.

EXPENDITURES FROM THE FUND PROVIDED BY THE TERRITORY IN THE ACT DESIGNATED AS CHAPTER 63, SESSION LAWS OF 1927

The following statement indicates the distribution of the expenditures made during the biennium, up to February 28, 1929, from the fund provided by the Territory for field and office expenses in connection with the work of conducting mining investigations and the inspection of mines in cooperation with the United States. It is estimated that the expenditure from this fund of an additional amount of approximately $600 will be required to cover the salary of clerk, contingent office expense, and printing of this report during the remainder of the biennium.

Expenditures from Territorial Fund as of February 28, 1929.	
Clerk hire	$4,600.00
Travel expenses	2,251.70
Office expenses, including printing	741.13
Field expenses (hire of packers, guides, etc.)	336.53
Total	$7,929.36

The total sum appropriated by the Territory for expenses of the above type during the biennium ending March 31, 1929 was $20,000. It thus appears that approximately the sum of $11,500 will be turned back into the Territorial treasury unused at the end of the biennium.

WORK PERFORMED DURING THE BIENNIUM IN COOPERATIVE MINING INVESTIGATIONS AND MINE INSPECTION

Field Work

Field examinations of prospects and other mining properties were sharply curtailed during 1927 and 1928 on account of the reduced personnel available for the work, as explained above in this report. It became necessary to drop almost entirely field investigations of development work in the placer mining industry. Field examinations of lode mining properties under development and of prospects were confined to Southeastern Alaska and the region immediately tributary to the Alaska Railroad, including the Fairbanks and Willow Creek districts.

While the development of coal properties, strictly interpreted, does not come within the scope of the work covered by the laws providing for cooperative mining investigations, certain phases of the examination of coal properties are closely related to that work. The policy has been adopted of rendering technical service to those who are developing coal prospects and who are not in a position to afford the cost of securing the services of private engineers. Services of this type were rendered by the supervising mining engineer at a number of coal prospects in the Nenana and Matanuska coal fields and on Admiralty Island during the current biennium.

In Southeastern Alaska examinations of prospects and other mining properties under development were made in the Hyder and Ketchikan districts, including the Chickamin River basin; in Taku River valley as far as the international boundary;

and in the Windham Bay district, on the mainland. Numerous examinations were also made of mining properties of various types on Chichagof and Admiralty Islands. In the Alaska Railroad belt nearly all the operating lode properties in the Fairbanks and Willow Creek districts were visited and the results of development work noted.

During the current biennium a total of approximately 50 lode properties were visited, as compared with about 150 during the previous biennium. Of these 50 properties about 30 were prospects which were examined and concerning which detailed information was gathered and placed on file. The remainder were operating mines where current development progress, improvements in equipment, etc., were noted and inspections made with special reference to safety conditions. The reduction that has taken place in the number and severity of injuries resulting from mine accidents in the Territory during the past five years as compared with previous records is set forth in a subsequent section of this report.

Office Work

During the biennium an increasing number of requests for data concerning mining properties in Alaska have been received from engineers and others representing important mining organizations in the States and Canada interested in opportunities for mining investments in Alaska. Numerous engineers sent into the Territory by such organizations have also visited the office of the supervising engineer in person and have been furnished information sought concerning mining properties and mineralized districts that had been presented for the consideration of their companies. Assistance was also rendered owners of mining properties under development and prospectors in various sections of the Territory by furnishing data in the form of reports, maps, and sketches helpful to them in presenting the merits of their properties to those they were endeavoring to interest either in purchasing the properties or in supplying funds for development work on them. A large number of prospectors have also either visited this office or have sent requests by mail for information desired by them in determining their choice of localities within which to seek for valuable minerals.

For the purpose of being able to supply to the public information of the above types files of all available authentic

information concerning mining properties and mine development in Alaska are maintained. These files are made up principally of reports, notes and maps prepared from data gathered in the field by the engineers assigned to cooperative mining investigations. For such reports and data to be of continuing value the field examinations on which they are based must be kept abreast of current mining development. Otherwise, reports on file concerning individual properties and districts may soon become incomplete, and information given out concerning them may fail to do them justice by not embracing results of development work accomplished since examinations were made.

Reports on matters relating to mining and mining development were prepared and furnished the Forest Service and Bureau of Public Roads, the Alaska Road Commission, and the Territorial Highway Engineer for use by them as a basis for allocating funds to various road and trail projects in mineralized regions. These reports are also used for justifying requests presented to Congress for the funds necessary for the construction of roads and trails throughout the Territory. It is also highly important that field investigations on which these reports are based should be kept abreast of current development of mining enterprises. Data on the progress of mining and conditions in the mining industry have also been prepared each year for inclusion in the annual published report of the Governor.

Correspondence and clerical work in connection with the administration of the Prospectors' Aid Act have demanded the expenditure of a great deal of time on the part of the clerk in the office of the supervising engineer. Office interviews with prospectors seeking information as to the operation of this Act have also been numerous, and much time has been devoted to that phase of the work.

Substantial additions have been made to the library of books on mining and related subjects that is maintained in the office of the supervising engineer. There has also been a material increase in the number of specimens of ores, minerals, and mineral-bearing rocks in the collection that is being made from all parts of the Territory. The library and mineral collection are available to prospectors and others for use and reference. Quite a large number have availed themselves of this privilege during the biennium.

REPORT OF THE COMMISSIONER OF TRANSPORTATION FOR PROSPECTORS

By the act that is designated Chapter 18, Session Laws of Alaska, 1927, approved April 25, 1927, and commonly known as the "Prospectors' Aid Act," the office of Commissioner of Transportation for Prospectors was created and a fund of $20,000 was appropriated to carry into effect during the ensuing biennium the provisions of the Act. It is stipulated in the Act that the Territorial Mine Inspector shall be ex-officio Commissioner of Transportation for Prospectors. By its Act approved May 6, 1927, the Legislature suspended for the biennium ending March 31, 1929, the law providing for the appointment of a Territorial Mine Inspector and authorized the Governor to cooperate with the executive departments of the United States in providing mine inspection service in Alaska, and other services designed to assist the mining industry of the Territory. In accordance with this authorization, the Supervising Mining Engineer appointed by the Interior Department, Geological Survey, and assigned to duty in Alaska, has cared for the duties of the office of Commissioner of Transportation, as well as other duties imposed by Territorial laws upon the Territorial Mine Inspector.

METHODS ADOPTED FOR ADMINISTERING THE PROSPECTORS' AID ACT

In order to safeguard properly expenditures from the fund provided for assisting prospectors, it was deemed necessary first to secure as complete and reliable assurance as possible that the applicants were bona fide prospectors and that they possessed the necessary qualifications set forth in the Act. To this end a blank form was prepared for the use of the prospector in initiating his claim for assistance. This form, when executed, provides a record for the office of the Commissioner of Transportation that shows the qualifications of each prospector as to eligibility for assistance under the Act and his proposed plans as certified to by the prospector himself and indorsed by two taxpayers of the Territory to whom the prospector is personally known. A copy of this application form is reproduced herewith.

Application Number.....

.....District

Territory of Alaska

Office of Commissioner of Transportation

Juneau, Alaska.

APPLICATION FOR ASSISTANCE TO PROSPECTOR

(Submit in duplicate)

To the Commissioner of Transportation:

Application is hereby made by the undersigned for assistance in transporting myself, supplies and equipment for the purpose of prospecting for valuable mineral substances in the Territory of Alaska in accordance with the provisions of Chapter 18, Session Laws of Alaska, approved April 25, 1927, and in a sum not in excess of $150.

CERTIFICATE OF PROSPECTOR

I hereby certify,

(1.) That I am a citizen of the United States, and have been an inhabitant of the Territory of Alaska for at least one year prior to the date of this application:

(2.) That it is my bona fide intention to proceed from .....(Give name of starting point)..... .....to.....(State definitely locality where prospecting is to be carried on)....., in the.....mining district, for the sole purpose of searching for and discovering valuable mineral substances:

(3.) That the means of transportation to be employed is as follows..... .....(Give method of transportation to be used; that is, railway, steamer, gasboat, etc.).....; that the distance necessary to be traveled is approximately.....miles; and that the probable cost of said transportation is estimated to be $.....which is the lowest rate obtainable between the points above named.

(4.) That within one year after receipt of assistance under this application, and in consideration thereof, I will render to the office of Commissioner of Transportation at Juneau, Alaska, a written report, which shall contain a description of the nature and exact location of the work accomplished in the operation for which aid is received, a statement as to any discovery of valuable mineral substances made, the nature of the mineralization found, and such additional facts as to the natural conditions observed in the areas covered as may be of aid to other prospectors.

Dated at .....(Place).....this.....day of.....192.....

.....Applicant.

ENDORSEMENTS

(Note: The endorsements of two taxpayers of Alaska are required)

I am personally acquainted with the applicant whose signature appears above, and being fully satisfied as to his bona fide intention to carry on prospecting operations as indicated in his above application, do hereby endorse his request for assistance under the terms of Chapter 18, Session Laws of Alaska, approved April 25, 1927.

Dated at .....(Place).....this ....day of .... 192.. ..

. ...Taxpayer of Alaska

....Taxpayer of Alaska

Recommended for approval. ... .

Local agent for Commissioner of Transportation

Date ...., 192.. ....

Approved.. .. ..

Commissioner of Transportation

Date.. . ..., 192.....

(Submit in duplicate)

In devising a plan for making payments to prospectors for transportation expenses an effort was made to follow as closely as possible the procedure already established for the settlement of all claims against the Territorial treasury. The form at first adopted was modeled after the voucher used by Territorial officials in claiming reimbursement for traveling expenses. This procedure made it necessary for the prospector to first advance his own money in paying for transportation. For this payment he was subsequently reimbursed upon submitting vouchers properly supported by receipts signed by parties to whom he had actually paid cash for transportation expenses. It was found that the provision requiring the prospector to first raise the money necessary to defray his expense worked a hardship in many cases. When this situation became evident a plan was adopted that enables the prospector to secure transportation without the necessity of making a cash outlay. By this plan the prospector is furnished a duplicate of his original application form which, after indorsement by the local agent for the Commissioner of Transportation in his district, serves as authorization to third parties to furnish transportation to the prospector at Territorial expense. Payment of claims under this plan is made direct to the parties furnishing the transportation upon submittal by them of vouchers attested by the prospector. A copy of the voucher form now in use and embodying the above described plan is herewith reproduced.

Application Number.....

.... .District

Territory of Alaska

Office of Commissioner of Transportation

Juneau, Alaska.

VOUCHER COVERING TRANSPORTATION OF PROSPECTOR

(Submit in duplicate)

Claim of..... ....

(Name of party claiming payment)

Post Office Address.. . ...

(If claim is made by prospector for cash paid out for transportation use Form 1).

(If claim is made by party who furnishes transportation to prospector use Form 2).

FORM 1. (To be used when claim for payment is made by prospector)

In accordance with the terms of Chapter 18, Session Laws of Alaska, 1927, claim is hereby made by the undersigned in the sum of $..... .. . .as reimbursement for cash paid for transporting myself, supplies and equipment amounting to..... .... .lbs., from . . ..to.. . . ..in the . ... mining district, a distance of. ... . .miles, for which account supporting receipts numbered from... .... to..... ...., inclusive, are attached hereto.

I hereby certify that the above claim is a true and correct charge against the Territory of Alaska, no part of which has been paid, and and that the sum claimed was expended by me in a bona fide search for valuable minerals.

Date. ....

(Prospector).

FORM 2. (To be used when claim is made by party who furnished transportation to prospector)

(NOTE: Before being furnished transportation prospector should be required to exhibit application form endorsed by the local agent of Commissioner of Transportation).

In accordance with the terms of Chapter 18, Session Laws of Alaska, 1927, claim is hereby made by the undersigned in the sum of $..... ...., covering transportation of ....(Name of Prospector)..... ....., his supplies and equipment, amounting to. ....lbs., by means of.... .....(Give type of transportation—steamer, rail, dog team, etc.) ....from ....to ....., in the..... ... . .mining district, a distance of .....miles at..... ..... per mile.

I hereby certify that the above claim is a true and correct charge against the Territory of Alaska, and that no part of same has been paid.

Date .. ..

(Signature of party furnishing transportation)

I hereby certify that the above described transportation has been furnished me as claimed, and that the total sum, including the above item, expended for me during the present calendar year from the fund provided by Chapter 18, Session Laws of 1927, does not exceed $150.

Date..... .....
(Prospector)

Recommended for approval. .....
Local agent for Commissioner of Transportation

Date ....., 192.....

Approved.....
Commissioner of Transportation

Date....., 192.....

I, the undersigned, do hereby certify to the correctness of the above account, amounting to $....., chargeable to the appropriation for Transportation Aid to Prospectors.

.....
Governor.

The following instructions to prospectors as to details of the procedure to be followed by them in securing assistance under the Prospectors' Aid Act have been prepared in the form of pamphlets, a supply of which has been sent to the local agents of the Commissioner of Transportation in various sections of the Territory.

INSTRUCTIONS TO PROSPECTORS AS TO PROCEDURE FOR OBTAINING ASSISTANCE IN TRANSPORTATION UNDER CHAPTER 18, SESSION LAWS OF ALASKA, 1927

Making Application for Assistance

1. Fill out as completely as possible and in duplicate the application form, which may be secured from the office of the Commissioner of Transportation or from his local agent in your district.

2. Secure the endorsement of two taxpayers as provided on the application form.

3. Ask the local agent for the Commissioner of Transportation in your district to approve your application as provided on the form. If no local agent has been designated in your district, ask the nearest U. S. Commissioner or Postmaster to approve your application in the space provided on the form

for approval by the local agent. If it is not practicable to have either of the above sign your application, submit it direct to the office of the Commissioner of Transportation with the reason for not obtaining the signature of the local agent.

4. Submit your application in duplicate to the Office of Commissioner of Transportation for Prospectors, Juneau, Alaska.

5. Submit a new application whenever the scene of your prospecting operations is materially changed and claim is made for transportation into the new locality.

6. Applications for assistance properly filled out should always precede or accompany claims for reimbursement.

Making Claims for Reimbursement for Transportation Expenses

After transportation has been furnished to the prospector, claim for reimbursement in a sum not to exceed $150 may be made in one of two ways:

1. In case the prospector has paid cash for his transportation, he himself, should make the claim for reimbursement in the space provided therefor and marked "Form 1," on the blank entitled "Voucher Covering Transportation of Prospector."

The prospector's claim should be accompanied by receipts for all cash payments made to other parties for transportation services. Separate blank forms entitled "Receipt for Transportation of Prospector" are available for this purpose. A separate receipt should be secured from each person to whom cash payments have been made. Separate claims should be made covering transportation of prospectors who are traveling as partners, and separate receipts should be taken by each for his share of the expenses.

2. In case transportation is furnished without cash payment, the party so furnishing transportation should claim payment therefor by filling in the space marked "Form 2," on the blank entitled "Voucher Covering Transportation of Prospector," and by securing the signature of the prospector to the certificate that appears at the bottom of the space.

In both of the above cases the claim should be submitted to the local agent for the Commissioner of Transportation for his

approval. If no local agent has been designated in your district, secure the approval of the claim by the nearest U. S. Commissioner or Postmaster.

Submit the completed claim in duplicate to the office of the Commissioner of Transportation for Prospectors, Juneau, Alaska. Claims should be transmitted as soon as possible after transportation has been furnished regardless of whether or not approved copy of application for assistance has been returned to applicant by Commissioner.

Miscellaneous Instructions

Claims may be made for reimbursement of sums paid for boat, railroad, truck or automobile, and airplane fares; for assistance in packing; for hire of dog teams or horses; for feed for dogs or horses, and gas and oil for boats, automobiles, and airplanes owned by claimant (in which cases the amount used, the cost thereof, and the mileage obtained therefrom should be shown on the voucher forms or in an accompanying signed statement). Claims cannot be allowed for purchases of equipment.

Section 4 of the application form which provides for a report by the prospector to be submitted within one year and covering the results of his prospecting work, etc., should be strictly complied with. The act providing funds for transportation assistance requires such reports. The information contained in them will afford the principal basis for gauging the success of the operation of the act and for determining the advisability of continuing it in the future.

Before being supplied with transportation or tickets covering same prospectors should be required to exhibit application form approved by local agent of Commissioner of Transportation or by local U. S. Commissioner or by postmaster.

OBSERVATIONS ON THE OPERATION OF THE PROSPECTORS' AID ACT: ADEQUACY OF THE FUND.

The Prospectors' Aid Act as it now stands contains a provision that "no more than one hundred and fifty dollars may be expended out of such funds during any calendar year for any one prospector." The biennium during which the fund appropriated by the act is available embraces one whole calendar year and parts of two others. Any one prospector may, therefore, under certain circumstances, properly claim a maximum sum of $450 during a biennium. During the past biennium seven prospectors have submitted legitimate claims in the sum of $300 each, or $150 for each of two calendar years. The claims of four other prospectors were allowed where the total amount per individual exceeded $150, but was less than $300. In 64 cases the total amounts claimed per prospector for the biennium were less than $150. The amounts of these claims ranged from $6 to $147.33 per prospector and averaged $73.79. The remaining 74 prospectors out of the total of 149 whose claims were allowed each claimed $150. The average amount claimed and allowed for each of the entire group of 149 prospectors was $126 for the biennium.

On February 15, 1929, ninety-four per cent of the total fund appropriated had been disbursed in payment of claims submitted by prospectors. Of the amount so disbursed, 3½ per cent was paid out during 1927; 88½ per cent was paid out during 1928; and the remaining 8 per cent was paid out during 1929. The small percentage of the fund claimed during the year 1927 is explained by the fact that the Act did not legally go into effect until 90 days after its approval, or until July 25, 1927, by which time the season during which prospectors are most active was far advanced; and by the further fact that during that year prospectors had not become generally informed of the availability of the fund and were not familiar with the procedure required in taking advantage of it.

Considering only the years 1928 and 1929, it appears that the average amount claimed per month during those two years has been approximately 7½ per cent of the total amount expended, or about $1,425 per month.

Assuming that claims are submitted at the same rate during the coming biennium and that the amount claimed per prospector averages the same as during the past biennium, a fund of about $35,000 will be required to meet the expense involved.

Outstanding Applications

On February 15, 1929, there were outstanding 56 approved applications made by 47 prospectors, covering which applications claims for payment had not been submitted. The total unpaid sum represented by these outstanding applications is estimated as being $5,922. This estimate is based on the average amount claimed in cases where settlement has already been made. Of the outstanding applications 4 were filed in the First Division; 29 in the Second Division; 14 in the Third Division; and 11 in the Fourth Division.

It is believed, however, that most of these are cases where prospectors have filed applications and subsequently have failed to carry out their contemplated plans for prospecting or, for other reasons, have decided not to claim the benefits of the Act.

Thirty-four of the 56 outstanding applications were filed more than six months prior to February 15, 1929 and 48 will have been on file more than 6 months at the expiration of the current biennium.

The situation with regard to outstanding applications suggests the advisability of a clause in the Act providing a time limit within which a prospector must file his claim after having secured the approval of his application for assistance.

Attitude of Prospectors in Filing Claims

The records filed in connection with claims for assistance during the past biennium indicate a general desire on the part of Alaskan prospectors to claim only such assistance from the Territory as is necessary in the conduct of their operations. The existence of this tendency is also borne out by statements received from local agents of the Commissioner of Transportation in various sections of the Territory. In nearly all cases where the full amount allowed by the law was claimed certificates made by the prospectors and receipts submitted indicated that the actual cost of the transportation involved was in excess

of that amount and in many instances several times as much. In nearly every case where application for assistance was disapproved, or claim for reimbursement was denied, the basis for such action was a misunderstanding on the part of the applicant as to the type of expenditures allowable under the terms of the Act.

The Work of the Local Agents of the Commissioner of Transportation for Prospectors

The Prospectors' Aid Act authorizes the Commissioner of Transportation for Prospectors to "appoint agents for the purpose of carrying out the work of the office," etc. Under this provision 16 agents were designated during the current biennium in the various localities throughout the Territory from which it was thought most likely that applications by prospectors would be received. The necessity is apparent of appointing as local agent in a given locality a person who possesses as wide an acquaintanceship as possible among the prospectors of that region. The Commissioner of Transportation is under the necessity of relying almost solely upon the recommendation of the local agent in passing upon the merits of individual applications for assistance submitted by prospectors. The vocation of the local agent should also be such that he is readily accessible to prospectors requiring his services. For these reasons it was deemed expedient in most cases to request United States Commissioners to act as local agents. The cordial responses received to all such requests have been most gratifying and indicate on the part of those who were asked to serve as local agents without remuneration a most commendable willingness to do their part in making a success of the administration of this Act. The amount of time devoted by some of the local agents in explaining to prospectors the provisions of the Prospectors' Aid Act and in helping them submit their applications and claims in proper form has been considerable. Consideration is suggested of the feasibility of including in the Act a clause providing for the payment of suitable fees for such services.

The Territory is indebted to the following persons who rendered gratuitously during the current biennium services as local agent for prospectors:

(First Division)

H. S. Bagley, U. S. Commissioner, Craig, Alaska.
C. Clausen, U. S. Commissioner, Petersburg, Alaska.
R. W. DeArmond, U. S. Commissioner, Sitka, Alaska.
J. W. Kehoe, U. S. Commissioner, Ketchikan, Alaska.
E. R. Stivers, U. S. Customs Inspector, Hyder, Alaska.

(Second Division)

George S. Maynard, Nome, Alaska.

(Third Division)

E. E. Chamberlin, U. S. Commissioner, McCarthy, Alaska.
J. J. Corey, Geological Survey, Anchorage, Alaska.
O. A. Nelson, U. S. Commissioner, Chitina, Alaska.
H. P. Nicholson, U. S. Commissioner, Dillingham, Alaska.
A. F. Parish, U. S. Commissioner, Cordova, Alaska.
J. L. Reed, U. S. Commissioner, Valdez, Alaska.

(Fourth Division)

William Growden, U. S. Commissioner, Ruby, Alaska.
I. M. Reed, Fairbanks, Alaska.
E. J. Ulen, Postmaster, Wiseman, Alaska.
W. T. Vanderpool, U. S. Commissioner, McGrath, Alaska.

DISTRIBUTION OF THE PROSPECTORS' AID FUND AS OF FEBRUARY 15, 1929:

On February 15, 1929, the total sum disbursed from the Prospectors' Aid fund in payment of claims for expenses of transportation of prospectors amounted to $18,736.49. The distribution of this sum among the several judicial divisions and mining precincts of the Territory is shown in the following tables:

Distribution by judicial divisions of expenditures from Prospectors' Aid fund as of February 15, 1929

Division	Amount expended for transportation of prospectors	Per cent of total
First Division	$ 2,781.74	14.9
Second Division	5,272.00	28.1
Third Division	3,023.92	16.1
Fourth Division	7,658.83	40.9
Totals	$18,736.49	100.0

Distribution by mining precincts of expenditures from Prospectors' Aid fund as of February 15, 1929

(First Division)

Mining precinct	Number of prospectors receiving assistance	Amount expended for precinct
Hyder	1	$ 114.00
Juneau	4	328.50
Ketchikan	7	710.79
Petersburg	5	181.30
Sitka	5	522.90
Skagway	9	676.25
Wrangell	1	248.00
Totals for First Div.	32	$2,781.74

(Second Division)

Cape Nome	22	$2,718.35
Council	3	328.65
Fairhaven	—	—
Koyuk	3	425.00
Noatak-Kobuk	12	1,800.00
Port Clarence	—	—
St. Michael	—	—
Wade Hampton	—	—
Totals for Second Div.	40	$5,272.00

(Third Division)

Aleutian Islands	2	$ 300.00
Bristol Bay	—	—
Chitina	4	256.00
Cordova	—	—
Iliamna	2	300.00
Kayak	—	—
Kenai	1	44.60
Knik	2	240.11
Kodiak	—	—
Kvichak	—	—
McCarthy	5	396.50
Seldovia	—	—
Talkeetna	7	1,006.71
Valdez	4	330.00
White River	1	150.00
Totals for Third Div.	28	$3,023.92

(Fourth Division)

Bethel	—	$ —
Chandalar	5	425.90
Circle	2	450.00
Eagle	3	355.00
Fairbanks	2	235.35
Ft. Gibbon	9	1,743.50
Forty Mile	—	—
Hot Springs	1	56.35
Innoko	—	—

Kantishna	4	600.00
Koyukuk	18	2,700.00
Kuskokwim	—	—
Mt. McKinley	2	300.00
Nenana	—	—
Nulato	1	150.00
Otter	—	—
Rampart	1	71.50
Tanana	4	421.23
Tolovana	1	150.00
Totals for Fourth Div.	53	$7,658.83

EXPENSE OF ADMINISTRATION:

The Prospectors' Aid Act provides that not to exceed 5 per cent of the fund appropriated, or $1,000 in the case of the existing fund, may be paid for clerk hire and other contingent office expenses necessary for the administration of the Act. Up to February 15, 1929 the total sum disbursed for administrative expenses during the biennium amounted to $179.87. This sum represents an expense of 61 cents per year or $1.21 for the biennium per prospector benefited.

The distribution of the administrative expense was as follows:

Printing blank forms	$163.30
Cable service	11.07
Postage	5.50
Total	$179.87

RESULTS OBTAINED FROM THE OPERATION OF THE PROSPECTORS' AID ACT:

Localities Prospected by Those Who Received Assistance

During the current biennium prospectors who received assistance from the Territory in their transportation expenses conducted prospecting work in 107 separate localities which were distributed through 33 of the 49 mining precincts of the Territory. Eighty-eight per cent of all claims paid to prospectors were for transportation within the judicial division in which the prospectors claimed residence. Prospectors were transported during the biennium from one judicial division to another in 18 cases, or 12 per cent of the total number. Of these 18 prospectors 9 were transported from Fairbanks to the Second Division, principally to the headwaters of the Noatak and Kobuk rivers; 2 were transported from Fairbanks to the Third Division, Chitina

precinct; 4 were transported from the Third to the Fourth Division, Tanana and Ft. Gibbon precincts; 2 were sent from the First to the Fourth Division, Nenana and Fairbanks precincts; and 1 was transported from the First to the Third Division, Chitina precinct. Of the three prospectors who were transported from Juneau to the Third and Fourth Divisions, two have submitted reports indicating that they made discoveries of sufficient merit to justify them in continuing work upon them another year.

The following is a summary of the number of localities where prospecting was done by those receiving assistance from the Territory during the current biennium, and their distribution within the several judicial divisions:

Division	Number of localities prospected	Number of prospectors engaged	Number of mining precincts where prospecting was conducted
First Division	22	31	7
Second Division	28	42	4
Third Division	23	27	9
Fourth Division	34	49	13
Totals	107	149	33

Below is given a list of the several localities in which prospecting was carried on by prospectors who received assistance in transportation expenses, together with the number of such prospectors in each locality:

LOCALITIES PROSPECTED

(By judicial divisions and mining precincts)

Precinct	Locality	Number of prospectors
	(First Division)	
Hyder	West fork of Texas Creek	1
Juneau	Berners Bay	1
	Montana Creek	2
	Endicott River	1
	Piledriver Cove	1
Ketchikan	Chickamin River	2
	Caamano Point, Cleveland Peninsula	1
	Noyes and Cone Islands	1
	Unuk River	1
	Leduc River	1
	Nutkwa Inlet	1
Petersburg	Coronation Island	2
	Farragut Bay	3
Sitka	Baranof Island	3
	West coast of Chichagof Island	2

Precinct	Locality	Number of prospectors
	Hooniah Sound	1
	Tenakee Inlet	2
Skagway	Bear Creek (Porcupine District)	4
	Sullivan River	1
	Katzehin River	2
Wrangell	Aaron Creek	1
	(Second Division)	
Cape Nome	Dewey Creek	1
	Glacier, Sunset, and Monument Creeks	2
	Rock Creek	1
	W. Fork Kuzitrin River	1
	Iron Creek	2
	Slate Creek	1
	Shelton	2
	Macklin Creek	1
	Dexter and King Mountains	3
	Saturday and Boulder Creeks	3
	Lillian Creek	1
	Nome River and Nugget Divide	2
	U. S. Roadhouse	1
Council	Casadepaga River	1
	Eureka Creek	1
Koyuk	Koyuk River	1
	Tabutulik River	1
	Rabbit Creek and Peace River	1
Noatak-Kobuk	Headwaters of Kobuk River	5
	Headwaters of Noatak River	2
	Headwaters of Colville River	1
	Easter Creek (trib. of Colville River)	1
	Anvil Creek	1
	Reed River (trib. of Kobuk River)	2
	(Third Division)	
Aleutian Islands	Chernofski and Unimak Islands	2
Chitina	Chetaslina River	1
	Meiers	1
	Dry Tok River	1
	Headwaters Chistochina River	1
Iliamna	Tanalian Point (Lake Clark)	2
Kenai	Stormy and Mills Creeks (Sunrise Dist.)	1
Knik	Chickaloon (Nelchina)	1
	Aspen Creek	1
McCarthy	Tebay River	2
	Hanagita River	1
	Glacier Creek (Nizina R.)	1
	Upper Chitina River	1
Talkeetna	Alder Creek (Ruth Glacier)	2
	Disappointment Creek	1
	Fairview (Cache Creek)	1
	Peters Hills (Cache Creek)	1
	Indian R., Gold and Jack Long Creeks	1
	Iron Creek (Talkeetna River)	1
Valdez	Port Wells	2
	Mineral Creek	1
	Tiekel River	1
White River	White River	1

Precinct	Locality	Number of prospectors
	(Fourth Division)	
Chandalar	E. Fork Chandalar River	1
	Headwaters of Firth River	2
	Beaver Bend	1
Circle	Harrison Creek	1
	Mystery Creek (Birch Creek area)	1
Eagle	Headwaters of Charlie River	3
Fairbanks	Upper Chena	1
Ft. Gibbon	South Fork Koyukuk R. and Alabam Creek	3
	Moraine Creek	2
	Hughes	2
	Mason Creek	2
Hot Springs	Hot Springs	1
Kantishna	Bearpaw and Toklat Rivers	1
	Teklanika River	3
Koyukuk	Jim pup Creek	1
	Confederate Creek	1
	Emma Creek	2
	Wiseman	2
	Bettles River	4
	North Fork Koyukuk River	3
	California Creek	1
	Garnet Creek	1
	Minnie Creek	1
	Head of Wild River	1
	Gold Creek	1
Mt. McKinley	Moore Creek	1
	Head of Tatlathna River	1
Nulato	Kaiyuh Mountains	1
Rampart	Hess Creek	1
Tanana	Salcha District	2
	Rapids	1
	Jarvis Creek	1
Tolovana	Upper Tolovana	1

REPORTS FROM PROSPECTORS:

The Prospectors' Aid Act provides that every prospector who receives any assistance under the provisions of the Act shall file with the Commissioner within one year after such assistance was received a written report of the results of the operations for which he receives aid. In order to assist prospectors in rendering such reports a blank form was prepared for their use in assembling the desired data. A copy of this form is reproduced herewith:

REPORT OF PROSPECTOR

(In compliance with the terms of Chapter 18, Session Laws of 1927 and of the application filed with the Commissioner of Transportation.)

Date .....

Name of Prospector.....

Address of Prospector.....

The following is a report of the prospecting work done by me between the..... day of....., 19.....and the..... day of....., 19....., for which transportation assistance was rendered by the Territory, and a statement of the results of said work:

1. Locality where prospecting work was carried on:.....

(Give exact location as definitely as possible by reference to streams, etc., and give name of district.)

2. Type of prospecting conducted: .....

(State whether search was made for lode or placer deposits and for what minerals.)

3. Description of work done: .....

(Describe your operations and method of work, stating amount of tunnel, shaft, opencut, trenching, etc., or amount of drilling done and the means employed.)

4. Minerals discovered: .....

(State what minerals were discovered and describe the nature and extent of the deposits.)

5. Formations examined: .....

(Give a brief description of the types of bedrock observed and their relation to mineral deposits found. Also nature and depths of gravels prospected for placer.)

6. Topography, etc.: .....

(Describe briefly the nature of the country—whether rugged, hilly, smooth, etc., and whether bedrock is exposed or concealed. Give other items of interest bearing on prospecting and mining conditions in the district such as accessibility, water supplies, timber resources, fuel, etc.)

7. Conclusions: .....

(State your conclusions as to the importance of the district as a field for prospecting and the possibility of its yielding minerals of commercial importance.)

8. Miscellaneous remarks: .....

Signed: .....

Prospector.

(Note: Use separate sheets if necessary)

On November 30, 1928, there was mailed to each prospector to whom assistance had been rendered under the provisions of the Act a copy of this form, together with a stamped and self-addressed reply envelope, and a request for an immediate report on his work. The number of responses that had been received on February 15, 1929, and their distribution are shown in the following table:

Summary of reports received from prospectors as of February 15, 1929
(By judicial divisions)

Judicial division	Number of localities prospected	Number of prospectors	Number of reports received
First Division	22	31	22
Second Division	28	42	8
Third Division	23	27	15
Fourth Division	34	49	5
Totals	107	149	50

As is indicated by the above table reports of the results of their work have been received from only one-third of the prospectors assisted. Many of the reports already received contain very interesting and some valuable material, but sufficient data are not yet in hand to form a comprehensive basis for judging the results achieved. It will be noted that the table shows that 70 per cent of the reports received have been submitted by prospectors working in the First and Third Divisions, while only 39 per cent of the prospectors assisted were prospecting in those divisions.

The principal result accomplished in the First Division was the examination by experienced prospectors of several regions concerning which nothing has been published heretofore and about which very little was known. Such regions include the Leduc River valley in the Ketchikan precinct, the Farragut River valley in the Petersburg precinct, the drainage basins of the Endicott and Sullivan Rivers on the west side of Lynn Canal and that of the Katzehin River on the east side. While no specific discoveries of economic importance were reported from these regions, valuable information was given as to where further prospecting seems to be best warranted in the several areas, the types of bedrock that are exposed, the nature of such mineralization as was observed and its location, timber and other resources available for use in mining, the topography of the country penetrated and conditions affecting travel and accessibility.

Reports were also received concerning several regions in the Third Division about which specific information has not heretofore been available. A discovery of copper ore that seems to be of possible importance was made in the Third Division by a prospector whose outfit was transported to the site with the assistance of the Territorial fund. The property located on this discovery is now held under option by one of the large mining companies of the Territory. The prospector who located this property states that he could not have proceeded this year with the work necessary to expose his ore without the assistance in transportation that was given by the Territory. The discovery was reported of low grade tin ore in the upper Hanagita valley. The same prospector reports that he also found in the same region a vein carrying lead, zinc and gold, but states that the ore is of low grade. The bedrock is described as being limestone, schist, and gneiss in contact with pegmatite granite.

A report from the Fourth Division indicates the discovery of tin placer associated with gold on a creek north of the Yukon near Kallands. There is no record of previous knowledge of the occurrence of tin in this region. The development work done by the prospectors who made this discovery has been sufficient to enable them to interest in their property representatives of eastern capital. They state they would not have been able to carry on their work uninterruptedly without the help they received from the Territory. Without this help they would have had to leave the property for many months in order to accumulate another grubstake.

The remainder of the few reports received from the Second and Fourth Divisions indicate that while no other discoveries of significance have been made, a large number of holes have been sunk in the search for placer and in most cases encouraging results have been obtained.

A pleasing and valuable feature of a number of reports already submitted by prospectors is the frankness with which they admit that their work has yielded results of no importance when such was the case.

FIELD EXAMINATIONS OF WORK DONE BY PROSPECTORS

In order for the Prospectors' Aid Act to accomplish the maximum of beneficial results arrangements should be provided whereby the work done by prospectors in the field may be examined by mining engineers representing the Territory. Obviously, manifold benefits both to the prospectors and to the Territory would result from such examinations. Under the conditions that have obtained during the current biennium, as explained above in this report, the services of such engineers were not available.

METHODS OF TRAVEL AND TRANSPORTATION EMPLOYED BY PROSPECTORS, AND TRANSPORTATION COSTS

The means employed by prospectors in reaching their several destinations embraced every type of transportation facility available in the Territory, from "necking" a sled and back-packing to the use of one of the most up-to-date models of airplane.

On Seward Peninsula dog teams and horse teams were employed in the majority of cases, and quite a number of prospectors made use of the Nome-to-Shelton tramroad. Poling boats and river boats with outboard motors were used in cases where river transportation was employed.

It is not feasible to make general statements as to average rates of transportation owing to the variety of means of hauling employed and the lack of unifomity in the bases used in determining rates. It appears that transportation charges in the Koyukuk district are particularly high, as is also the cost of supplies and equipment necessary in prospecting. The hire of a horse team in that distict is stated to cost $40 per day. The retail price of sugar in the stores at Wiseman is 26 cents per pound. The current wage scale for labor is $1.00 per hour when employment is to be had. The local agent in the Koyukuk district states that the assistance rendered by the Territory to prospectors during the past biennium has been the principal factor enabling them to remain at work in their costly operations. He suggests a provision in the law allowing a larger allotment of funds to prospectors in regions where transportation costs are abnormally high.

Transportation by airplane for both prospectors and their outfits including dog teams, was employed in the Third and Fourth Judicial Divisions. The following table shows the extent of the use of this means of transportation. In all but one of the trips listed no landing fields existed at the points of destination. No accidents were reported to have occurred in making these landings on the terrain in its natural state.

Number of prospectors receiving assistance from Territory who traveled by airplane

Division	Number of prospectors	From	Destination
Second	2	Fairbanks	Headwaters of Colville R.
	7	Fairbanks	Headwaters of Kobuk R.
	5	Fairbanks	Noatak River
Third	2	Anchorage	Ruth Glacier
Fourth	2	Fairbanks	Wiseman
	2	Fairbanks	North Fork Koyukuk R.
	1	Wiseman	Bettles River

MINE ACCIDENTS

FATALITY AND INJURY RATES DEFINED

In comparing fatalities and injuries resulting from accidents during separate periods of time, in various branches of an industry or in different regions, it is customary to state the number of persons killed or injured compared with the total number employed. In order to arrive at a proper basis for comparison, however, the length of time must be considered during which employees are engaged in their various occupations and are thereby exposed to the accident hazards involved in their work. This procedure is particularly necessary when considering an occupation of a seasonal nature, such as placer mining, in comparison with a full-time occupation such as most lode-mining. The fatality and injury rates used in the following statements and tables are based on the number of "300-day" workers engaged in the industries dealt with. This number is determined by dividing by 300 the total number of days of labor or "man-shifts" performed during the year. The number of fatalities and the number of injuries occurring within the year divided by the number of thousands of "300-day" workers employed determines the fatality and injury rates, respectively, for that year. This procedure is followed by the U. S. Bureau of Mines in their reports on mine accidents in the United States. This fact enables a proper comparison to be made between Alaska and the United States as a whole in the matter of mine accidents.

FATALITIES

Rate of Mine Fatalities in Alaska Compared with that in the States

Available statistics covering a period of 17 years show that the number of men killed per 1,000 full-time workers in the mining industry of Alaska is nearly 30 per cent less than among mine workers employed throughout the United States. This favorable condition is largely due, however, to two features of the mining industry in Alaska that are unique and are im-

portant in their bearing on the mine-accident rate. The first and most important of these features is the high percentage of the total number of mine workers in the Territory who are employed in the placer mining branch of the industry, in which the accident hazard is materially less than in other branches. During the 7-year period ending with 1927 the rate of fatalities per 1,000 full-time workers in the placer industry was less than one-fourth the corresponding rate for the lode mining industry of the Territory and only about one-eighth of that for the lode gold-mining group. During this period about 40 per cent of all full-time mine workers were engaged in connection with placer mining.

The second feature tending to reduce the fatality rate in Alaska is the high percentage of mine workers who speak and understand English and whose general intelligence and experience in mining is above that of similar workers in the States. It has been determined that in some of the major mining areas of the States nearly 50 per cent of the workmen are non-English-speaking foreigners and that among them the fatality rate is exceedingly high when compared with sections where mine employees are English-speaking. The reasons for this are obvious.

Men Killed at Alaska Mines During the Period from 1913 to 1927, Inclusive

During the 15-year period ending with the year 1927 the total number of men killed at all Alaska mines was 232. Of this total, 164 were killed prior to 1921 and 68 were killed since 1921. The average annual fatality rate for the entire period was 3.48 men killed per 1,000 full-time workers. A comparison of the statistics for the two halves of this period shows that the average fatality rate for the first half was 3.93 and that for the last half 2.77, which is a reduction of 30 per cent. The average rate for the entire period was exceeded in five of the years of the first half and in only one year of the second half which year was characterized, moreover, by a major disaster whereby 5 men were killed in the same accident.

It thus appears that the fatality record for the period from 1921 to 1927 shows a quite marked improvement compared with

that for the preceding eight years. During the past decade mine operators, particularly at the larger mines, have been giving much more attention to safety conditions at their mines than they did theretofore. Each of the major mining companies in the Territory now fosters a local safety organization whose purpose is to promote safe practices and reduce hazards in all departments of the company's operations.

Since 1921 the U. S. Bureau of Mines has maintained in Alaska a mine safety service through which a continuous program of training in first aid, mine rescue, and safe mining practices is carried on among the miners of the Territory. Much of the credit for the 30 per cent decrease in mine fatalities above noted undoubtedly belongs to these two types of activity in safety work. There is still much that can be done, however, to make the mines of Alaska safer places in which to work than they are at present. That the burden of reducing mine accidents to a minimum rests upon the operator and his responsible representatives is a principle that is receiving increasing recognition among large mining companies throughout the United States. At many important mines the Department of Safety is as thoroughly organized and continuously active as any other branch of the mine organization. In every such case the beneficial results are clearly evident in the reduction of mine accident rates, often of striking proportions. It is also now well recognized that the savings resulting from reduced injury compensation expenditures more than meets the cost of maintaining an effective safety department.

Comparison of Fatality Rates at Various Types of Mines in Alaska

The most striking features revealed by a consideration of the fatality records of various types of mines in Alaska for the period 1921-1927 are the exceptionally low fatality rate for coal mines and the very high fatality rate for gold-lode mines. Considering the natural hazards that coal mines are usually thought to possess, the record made at the coal mines of Alaska during the past decade is remarkable. For the entire 7-year period ending with 1925 these mines were operated with an average crew of 207 full-time workers and without a single fatality.

The following summary provides the data for comparing the fatality rates of different types of mines in the Territory:

Comparison of fatality rates at different types of mines in Alaska, 1921 to 1927, inclusive.

	Average fatality rates per 1,000 "300-day" workers
All mines	2.77
Lode mines	4.37
Gold mining group	8.50
Copper mining group	2.89
Placer mines	1.08
Coal mines	1.59

Corresponding fatality rates for similar types of mines throughout the United States for the period from 1911 to 1919, inclusive, which is the latest period for which data are available, were as follows:

	Fatality rates per 1,000 "300-day" workers	
	Lowest	Highest
All metal mines	3.97	4.92
Gold mining group (lodes)	3.83	4.79
Copper mining group	3.45	5.18
Placer mines	Not available	
Coal mines (year 1918 only)		3.94

The Causes of Mine Fatalities

Accident records covering the period from 1921 to 1927, inclusive, show that 69 per cent of the fatalities during that time occurred underground and 31 per cent occurred on the surface and in and about milling plants. The causes of the accidents that were responsible for the fatalities during this period are summarized in the following table:

Summary of fatalities at all mines by causes, 1921 to 1927, inclusive.

Underground:	Number	Per cent
1. Run of ore from bulldozing chamber, chute or pocket	14	29
2. Persons falling down shaft, raise, chute, or stope	11	23
3. Explosives:		
Blasts	6	
Suffocation by gas from	3	18
4. Haulage:		
Mechanical	6	
Hand	1	14
5. Falls of rock or ore from roof or wall	5	10
6. Electricity	1	2
7. Struck by objects falling down shaft, etc.	1	2
8. *Miscellaneous:*		
Suffocation by gas from wood fire in prospecting shaft	1	2
Total underground	49	100

Surface, mills, etc.:	Number	Per cent
1. Haulage (including tramways)	5	23
2. Struck by falling and swinging objects	5	23
3. Machinery (conveyors, etc.)	4	18
4. Electricity	3	14
5. Other causes:		
Suffocation in ore bin	1	4
Snowslides	3	14
Collapse of bunkhouse in storm	1	4
Total on surface	22	100

NON-FATAL INJURIES

Whereas the fatality rates at some types of mines in Alaska are much higher than those for mines of similar type throughout the United States, the non-fatal injury rates at Alaska mines, with the exception of gold-lode group, are considerably lower, as is shown by the following table. The rates given in this table for the United States as a whole are for the period from 1911 to 1919, inclusive, and include the metal mining group only.

Table of non-fatal injury rates

	Number injured per 1,000 "300-day" workers	
	Alaska	United-States
All mines	98.68	211.54
Lode-gold group	176.38	143.5
Copper group	170.89	293.66
Placer mines	95.95	No figures available
Coal mines	95.62	No figures available

The relatively high injury rate for copper mines throughout the United States shown in the above table may be partly accounted for by the fact that more complete reports of minor injuries have been rendered by the copper group than for mines of other groups.

MINE ACCIDENTS DURING THE BIENNIUM 1927-1928

FATALITIES

The average fatality rates at various types of mines in Alaska during the biennium 1927-1928 are given in the following tabulation. A comparison of these figures with those given in the table on page 36, which shows corresponding data for the preceding 8-year period, will serve to indicate the trend of mine fatalities. Such a comparison shows that the fatality rate for the lode-gold mining group during the current biennium was only a little over half that for the preceding 8-year period; that for the copper mining group was reduced from an average of 2.89 for the 8-year period to an average of 1.99 for the biennium; and that for the placer mining group increased from 1.08 for the 8-year period to 1.74 for the biennium. The single fatality that occurred in the coal mining group gives that group an abnormally high fatality rate for a single year because of the small number of men engaged in the industry. The increased fatality rate for the placer industry during the biennium was due largely to the extra hazards introduced by the extensive construction work carried on by the Fairbanks Exploration Company, a situation that is of a temporary nature.

Fatality rates at various types of mines in Alaska during the biennium 1927-1928.

	Average fatality rates per 1,000 "300-day" workers		
	1927	1928	Average for the biennium
All mines	2.95	2.60	2.77
Lode mines	3.78	3.22	3.50
Gold mining group	4.05	5.14	4.59
Copper mining group	2.48	1.42	1.99
Placer mines	1.43	2.02	1.74
Coal mines	8.61	0.00	4.44

NON-FATAL INJURIES

The following table shows the number of non-fatal injuries per 1,000 "300-day" workers at various types of mines during the biennium. Corresponding data for the 8-year period ending

with 1927 are shown in the table on page 37, above. It will be noted that only two minor non-fatal injuries occurred at coal mines during 1928.

Non-fatal injury rates at Alaska mines during the biennium 1927-1928.

	Average fatality rates per 1,000 "300-day" workers		
	1927	1928	Average for the biennium
All mines	132.7	131.8	132.3
Lode-gold group	137.6	185.0	161.1
Copper group	146.8	173.8	159.3
Placer mines	127.7	102.3	114.6
Coal mines	111.9	18.3	66.7

SUMMARY OF MINE ACCIDENTS OCCURRING IN ALASKA DURING 1927.

NUMBER OF MINES	GROUP	Number of men employed	Number shifts worked	Results of accidents: fatal	serious	slight	Total time lost (days)
	*PLACER MINES:						
—	Dredges	1,045	252,635	1	55	122	3,260
—	Hydraulic	480	57,600	0	0	1	7
—	Others	800	108,000	1	0	0	0
—	Sub-total	2,325	418,235	2	55	123	3,267
6	COAL MINES:						
	Underground	69.5	20,853	1	8	3	302
	Surface	45	14,062	0	2	0	143
6	Sub-total	114.5	34,915	1	10	3	445
	LODE MINES:						
31	Gold	751	221,700	4	45	61	2,347
4	Copper	452	165,303	2	44	69	1,834
1	Non-metal	77	17,495	1	2	3	141
36	Sub-total	1,280	404,498	7	91	133	4,322
	MILLS:						
11	Gold	218	74,799	0	12	18	478
2	Copper	204	75,858	0	0	5	19
13	Sub-total	422	150,657	0	12	23	497
	GRAND TOTAL	4,141.	1,008,305	10	168	282	8,531

*No data were obtained as to the number of placer operations in 1927 and the number of men employed and shifts worked are necessarily estimated. All accidents were reported by some of the larger operations but there may have been a few slight accidents at small or isolated operations which were not reported to this office.

SUMMARY OF MINE ACCIDENTS OCCURRING IN ALASKA DURING 1928.

NUMBER OF MINES	GROUP	Number of men employed	Number shifts worked	Results of accidents fatal	serious	slight	Total time lost (days)
	*PLACER MINES:						
—	Dredges	954.5	270,507	1	29	114	1,849
—	Hydraulics	480	67,200	0	3	6	199
—	Others	800	108,000	2	0	0	0
	Sub-total	2,234.5	445,707	3	32	120	2,048
7	COAL MINES:						
	Underground	64	19,792	0	0	2	19
	Surface	45	12,974	0	0	0	0
7	Sub-total	109	32,766	0	0	2	19
	LODE MINES:						
32	Gold	747	222,917	4	41	112	2,440
4	Copper	388	140,311	1	56	60	2,520
2	Non-metal	146.44	56,461	0	2	1	63
38	Sub-total	1,281.44	419,689	5	99	173	5,023
	MILLS:						
14	Gold	199	68,949	1	11	13	806
2	Copper	187	70,443	0	3	3	152
16	Sub-total	386	139,392	1	14	16	958
	GRAND TOTAL	4,011	1,037,554	9	145	311	8,048

*No data were obtained as to the number of placer operations in 1928 and the number of men employed and shifts worked are necessarily estimated. All accidents were reported by some of the larger operations but there may have been a few slight accidents at small or isolated operations which were not reported to this office.

Causes of Mine Fatalities Occurring During 1927

During the year 1927 a total of ten fatalities occurred in and about the mines and metallurgical plants of Alaska.

Four fatalities occurred at gold lode mines, two at copper mines, two at placer mines, one at coal mines, and one at a quarry.

The causes that led to the fatalities reported for the year 1927 were as follows:

1.	Struck by falling rock	4
2.	Struck by walking-beam of Keystone drill	1
3.	Struck by falling boom	1
4.	Came in contact with high-power line	1
5.	Picked into missed shot	1
6.	Overcome by gas from wood fire at bottom of shaft	1
7.	Run of loose coal from rib	1
	Total	10

Causes of Mine Fatalities Occurring During 1928

During the year 1928 a total of nine fatalities occurred in and about the mines and metallurgical plants of Alaska.

Four fatalities occurred at gold lode mines, three at placer mines, one at a copper mine, and one at a gold mill.

The causes that led to the fatalities reported for the year were as follows:

1.	Struck by falling rock	2
2.	Struck by runaway tram bucket	1
3.	Fall from roof of truck	1
4.	Premature explosion	1
5.	Falling down shaft	1
6.	Struck by tramway bucket	1
7.	Crushed by crane in mill	1
8.	Struck by falling pipe	1
	Total	9

LIST OF

FATAL ACCIDENTS OCCURRING AT THE MINES AND ORE DRESSING PLANTS OF ALASKA DURING THE YEAR 1927. WITH STATEMENTS BY EMPLOYERS AND FELLOW EMPLOYEES REGARDING THE ACCIDENTS

(Gold Lode)

January 24.—ELMER CARTER, bulldozer, American, aged 50 years, employed by the Alaska Juneau Gold Mining Company, was killed when a rock came from the stope striking him and throwing him through the grizzly bars into the chute.

The following description of the accident is contained in an affidavit by Charles R. Lesher, fellow employee of Carter:

Mr. Lesher says: "That he is an employee of the Alaska Juneau Gold Mining Company in the Alaska Juneau Mine as a bulldozer.

"That at or about 6:50 o'clock P. M. on the 24th day of January, 1927, he was standing within a few feet of Elmer Carter, when a rock came from the stope and struck Elmer Carter on the left side about the lower part of his chest, throwing him down and through the grizzly bars and in the chute a distance of about fifteen feet.

"Affiant immediately called for help and the injured was taken out of the chute and taken to the hospital."

(Gold Placer)

February 9.—CHARLES GRISELL, Keystone churn driller, Swedish, aged 50 years, employed by the Hammon Consolidated Gold Fields, was killed instantly when srtuck by walking beam of Keystone drill.

The following account of the accident was furnished by the management of the company:

"The deceased and his helper after finishing hole had lowered string of tools to ground and slackened the drilling rope, leaving walking beam up and intermediate shaft running.

"The helper then went to rear of the drill to prepare to shut off the engine. Soon thereafter, without hearing an outcry, he saw the walking beam drop suddenly and an instant later saw body of deceased entangled in sprocket at end of shaft.

"It is indicated that deceased stepped upon front wheel of drill and stood directly under the walking beam, (for what purpose it is not clear) and that the walking beam fell, striking him in the back of the head, causing death at once, and throwing the body onto the revolving sprocket, causing some mutilation to left foot and leg."

(Marble Quarry)

April 22.—WILLIAM A. SIMPSON, machine runner, American, aged 49 years, employed by the Vermont Marble Company, was killed instantly when the boom and mast fell into the quarry striking Simpson.

The following description of the accident was furnished by the superintendent of the quarry where Simpson was killed:

"While pulling a block in keyway weighing about 4 tons on April 22, 1927, about 9:30 A. M. No. 14 Quarry of the Vermont Marble Company, Tokeen, Alaska, the guy ring casting on top of the derrick broke and let the mast and boom fall into the quarry.

"W. A. Simpson, a machine runner and Henry Anderson, derrickman, were standing near the north wall of quarry and keyway, watching the operation of pulling blocks. When the casting broke, Mr. Simpson and Mr. Anderson ran in an easterly direction, directly under the falling boom. Simpson was killed instantly and Anderson had a collar bone fractured. Mr. Simpson's body was not pinned under any of the derrick. For this reason it is hard to determine just what part of the rigging hit him. His right hand was nearly severed at the wrist. We believe that his hand was caught between the boom and channeller track.

"Owing to the fact that the nearest hospital is at Wrangell, 96 miles away, our boat left at once with Mr.

Simpson's body and Mr. Anderson. The boat arrived at Wrangell at 8:50 P. M. and Mr. Anderson was taken to the Wrangell General Hospital where he was given medical attention by Dr. Storey."

(Gold Lode)

May 9.—FRANCISCO MARENO, bulldozer, Mexican, aged 42 years, employed by the Alaska Juneau Gold Mining Company, was killed when a hang-up, which he was trying to break, came loose and jammed him against the wall.

The accident is described in the following affidavit by Romey Sullivan, fellow employee of Mareno:

Mr. Sullivan says: "That he has been an employee of the Alaska Juneau Gold Mining Company, in the Alaska Juneau Mine, as a bulldozer during the past five years.

"That at or about 8:30 o'clock P. M. on the 9th day of May, 1927, he went by Francisco Mareno, who was bulldozing at No. 9 bulldoozing chamber, to No. 8 bulldozing chamber and at the time he passed Francisco Mareno there was a hang-up in the neck of the draw and Francisco Mareno was looking at it to see what was best to do to break it down. In about ten minutes after affiant got to No. 8 bulldozing chamber he heard hollering and groaning at No. 9 bulldozing chamber, and upon going there immediately, saw Francisco Mareno in a sitting position and he appeared to be badly injured. Affiant immediately notified Victor Beslow who was at No. 7 bulldozing chamber and they got a stretcher and he was taken to the hospital.

"That it appears that when the hang-up broke loose some of the rocks struck the injured man and jammed him against the wall of the bulldozing chamber."

(Copper Lode)

June 16.—MASON C. FARRAR, electrician, American, aged 50 years, employed by the Kennecott Copper Corporation at Kennecott, Alaska, was electrocuted while working on the power line.

The accident is described in the following affidavit by E. G. Preisach who was working with Farrar at the time of his death:

"Farrar and I were working on a new power pole near the Kennecott Depot. Farrar had connected the three 440 volt power lines on this pole the day previous, and was connecting a fire signal line on the same pole. Farrar knew there was power in the 440 volt line and that he had to keep in the clear.

"While making his last connection, he in some way touched the 440 line with one of his hands. He had his hand on the 440 volt line about five seconds. He straightened up and then fell clear of the lines against his safety belt. The power was immediately shut off and Farrar reached the hospital within ten minutes. He was given artificial respiration for 80 minutes, but there was no sign of life."

(Gold Lode)

July 13.—LEONARD KLEMOLO, machine man, American, aged 27 years, employed by the Riverside Mining & Milling Company, was killed when he picked into a missed shot.

The following description of the accident is contained in a report by J. G. Shepard, deputy inspector, who investigated the premises where the accident occurred:

"At 2:30 in the morning when the shift was going off the crew in No. 400 drift composed of B. Perovich and Leonard Klemolo, machine man, blasted the round and waited for the shots. There were two missed holes. After waiting 15 minutes Perovich and Klemolo returned to the face. Klemolo took a pick and while picking at the face picked into a missed lifter. Both men were badly injured.

"Patrick Calahan, another miner, went to investigate when the two men did not show up and discovered the accident. He immediately got the foreman, Oscar Larsen, and a taxi was called which transported the injured men to the Stewart hospital. It is estimated that about one hour elapsed between the time of accident and the time when medical attention was given. Klemolo died the following day in the hospital. Perovich is still in the hospital, but will recover without permanent injury."

(Gold Lode)

August 2.—AXEL ANDERSON, miner, employed by Bartholf & Horning at the Mabel Mine, near Wasilla, Alaska, was killed by fall of rock from the hanging wall.

The following description of the accident is contained in a report by the management of the Mabel Mine:

"While sitting on foot wall of stope on second level, a fall of rock came from the hanging wall striking deceased on the groin and stomach. Anderson had shot out two stulls and had been ordered to replace them at once, but did not do so."

(Gold Placer)

September 5.—MIKE MARIANOVICH, prospector, about 55 years of age, was suffocated by gas from a wood fire which he and his partner had built in the bottom of their shaft to thaw the gravel. The accident happened at a place, known as the Promised Land, about 25 miles from Livengood.

The following description of the accident was received from the U. S. Commissioner at Livengood:

"It appears from all the evidence in this case that Mike Marianovich and Ole Neime were prospecting with wood fires. They had a prospect hole down about 25 to 30 feet. It seems to have been their habit to build a wood fire in the bottom of the prospect hole at night, and to cover it over with a galvanized tub with a hole in the center to keep the sloughing from putting out the fire. On the morning of September 5 they went to the prospect hole as usual and Mike Marianovich was lowered down the prospect hole. He hooked the galvanized iron tub on the windlass rope, and Neime began to hoist. Before he got the tub to the surface he heard Marianovich groan. After landing the bucket he kept calling to Marianovich but could get no answer. He immediately started for Livengood to get help, that being the closest place any people were living. He reported the accident about 6 P. M. that same day after traveling the 25 miles. The next day the body of Marianovich was taken out of the prospect hole, but of course he could not be brought to life. The gas from the wood fire had evidently accummulated under the tub, and when Marianovich lifted the tub, or at least after the tub was lifted by the windlass rope, he was overcome with the wood-gas."

(Copper Lode)

October 26.—FRANK GRAMOS, mucker, Greek, aged 38 years, employed by the Kennecott Copper Corporation at the Bonanza Mine, was killed instantly by a fall of rock from the hanging wall of the stope.

Descriptions of the accident are contained in the following statements by Philip Spanos, who was working with Gramos at the time of the accident, and Hans Tjelle, shift boss on duty at that time:

Mr. Spanos says: "Frank Gramos and I were picking down together near 1052 chute in 1090 stope in Bonanza Mine. About fifteen minutes after we started to work a large slab of rock slipped down from the wall of the stope without any warning. It fell on Frank Gramos and killed him instantly.

"From where we were working there was no apparent crack in the wall of the stope or any indication of any loose rock."

Mr. Tjelle says: "About 1:15 P. M. on the 26th day of October, 1927, I received a phone call from Philip Spanos to the effect that Frank Gramos had been killed in 1090 stope in Bonanza Mine. I went to 1090 stope and there found the body of Frank Gramos under a large slab rock near 1052 chute. The body was badly crushed and it was evident that he had been killed instantly.

"I assisted in recovering the body and examined the spot where Gramos had been killed. I found that a large slab of rock had slipped from the wall of the stope about ten feet above where it had struck the deceased.

"I had examined that wall on the morning of the same day and could find no cracks or any indications of any loose rocks in the wall of the stope."

(Coal Mine)

December 22.—THEODORE CARLSON KONSMO, miner, American, aged 42 years, employed by the Healy River Coal Corporation at Suntrana, Alaska, was killed instantly when some loose coal slipped from the rib striking him.

The following description of the accident is contained in a report submitted by the superintendent of the mine who was the first man to get to the deceased after the accident happened:

"This accident occurred at about 3:10 P. M. on the 22nd day of December, 1927, in Room No. 25, west side,

and the 3rd crosscut above the counter on the left of the room, from a fall of coal giving away on the upper rib of crosscut.

"I came out of the crosscut at about 3:10 P. M. and was in the act of crossing No. 25 chute on my way back to the deceased, when I heard the coal giving way, so I fell back and about a ton of coal rushed past me. I shouted to them at once but only got an answer from Martin Erceg (Konsmo's partner), and he said that the deceased had been thrown down the chute. I went down about twenty-five feet, but could not see any sign of him, so I ran back up the wing chute, but the coal was piled up very high, and we could not disturb same, and I could not see any sign or a murmur there, so I called the miners from the No. 26 room and ran up No. 24 room and told one of the miners to call on the miners from room No. 23. I took the other miner from room No. 24, by the name of Fred Ciaccia, and got back in the crosscut and could see the deceased about thirty feet from the right hand side of room No. 24 in the 3rd crosscut. The only part that was visible was the feet and a portion of the left leg. He had about two ton of coal in two large lumps on him. We got the coal off him in about ten minutes, but there was no sign of life, the right side of his head having struck the solid coal on the lower side of the crosscut, and the chunk of coal had crushed the left side of the head. The head was bleeding from two cuts; one on the back of the neck and one on the left side of the head. His neck and both collar bones were broken, and the left side of the chest badly crushed. Death was instantaneous, as we would have heard him if it had not been."

LIST OF

FATAL ACCIDENTS OCCURRING AT THE MINES AND ORE DRESSING PLANTS OF ALASKA DURING THE YEAR 1928, WITH STATEMENTS BY EMPLOYERS AND FELLOW EMPLOYEES REGARDING THE ACCIDENTS

(Copper Lode)

January 10.—PETER JACOBSON, contract miner, Norwegian, aged 32 years, employed by the Mother Lode Coalition Mines Company, was killed instantly when the hoist cable broke allowing the truck to run back down the incline striking him.

The following description of the accident is contained in an affidavit by Fred Pearson and John Wilson, fellow employees of Jacobson:

"We were working in the bottom of the Mother Lode Shaft with Peter Jacobson. We had finished drilling and were blowing out the holes. We sent the car up with one barrel of water which we had baled from the bottom. The first we knew of the accident, we heard a noise and saw a streak of fire. We jumped in the clear and Pete tried to hold himself on the back holes. He fell down and the car struck him on the side. When we got to the 2500 Level we found the cable had broken about twenty-five feet from the truck. So far as we know the cable was in first class condition, and we do not know the cause of its breaking."

(Gold Placer)

March 2.—ALOIS FRIEDRICH, carpenter, Bavarian, aged 59 years, employed by the Fairbanks Exploration Company, was killed when he fell from the roof of a portable step-down sub-truck.

The following description of the accident is contained in an affidavit by C. E. Mattson and Leo Essen, fellow employees of the deceased and eye witnesses of the accident:

"On the 2nd day of March, 1928, Alois Fredericks was working for the Fairbanks Exploration Company, at Fairbanks, Alaska as carpenter and I (Mattson) was working as his helper. We were building a truck structure out in the company's yard. Across the top of the structure, a distance of 17 feet from the ground, were several 6 x 6 timbers which were held to the side timbers by bolts running from the under side to the upper side where the nut was. Mr. Fredericks decided to put in some braces and in order to fit them so the same bolt could hold the timber and brace he had me take the bolt nuts off the bolts holding the second timber. He sat on the first timber and put the brace over the bolt hole and marked the timber by hitting the bolt head underneath knocking the bolt against the brace. The timber remained in place though the nuts of the bolts had been removed. After marking the brace Mr. Fredericks stood up and evidently forgetting that the nuts of the bolts on the second timber had been removed, he stepped on to the second timber. His weight pulled the timber off the bolts and Mr. Fredericks and the timber fell to the ground, he striking his head on the truck floor then bounding off and hitting his head on a piece of heavy timber lying near the truck."

(Gold Lode)

March 19.—JOHN PAVICH, bulldozer, Austrian, aged 32 years, employed by the Alaska Juneau Gold Mining Company, was killed instantly when some blasting powder which he was carrying exploded.

The following account of the accident is contained in an affidavit by Jack Turkovich, bulldoze boss in immediate charge of the work in which Pavich was engaged at the time of the accident:

"At or about 5:55 o'clock on the 19th day of March, 1928, he (Turkovich) was at No. 5 grizzly at No. 3 Cone in the Alaska Juneau Mine and saw John Pavich digging with a bar in the muck, preparing to place a blast there. Affiant then went to No. 2 level for a bar and he returned to No. 5 grizzly in about five minutes and it was full of powder smoke. Affiant met Mike Sheveloff, who works at No. 4 grizzly, and he asked affiant where the blast went off, and said that it must have been in No. 5 grizzly as it was full of smoke, and also asked affiant whether or not he had seen John Pavich, to which he answered no. Affiant then went to where Adolph Prato was working at the powder station. Prato told affiant that he saw John Pavich going to No. 5 grizzly carrying five or six sticks of blasting powder tied together with a long fuse hanging from it, and in a few seconds after he passed Prato heard a blast go off.

"Affiant then went to No. 5 grizzly where he found John Pavich's cap and lamp near the edge of the grizzly. He immediately telephoned to the mine office, to the shift boss, and then affiant went to the main level to No. 4110 chute. John Pavich's body was drawn from the chute, cut, and broken up in pieces."

(Gold Lode)

March 28.—EMIL RIEGO, bulldozer, Filipino, aged 38 years, employed by the Alaska Juneau Gold Mining Company, was killed when a rock came from the stope and knocked him into the chute.

The following description of the accident is contained in an affidavit by Roy Carson, fellow employee, who is familiar with the circumstances:

"Affiant states that at or about 8:45 o'clock A. M. on the 28th day of March, 1928, he saw Emil Riego at No. 15 chute, No. 4 Cone in the Alaska Juneau Mine, with about seven sticks of blasting powder tied to the end of a blasting stick, going towards the collar; and about the same time he heard something like a rock falling down and affiant went into No. 15 chute and he saw fuse burning and he returned immediately and just as he got away from the chute the blast went off. He returned again to No. 15 chute and he saw Emil Riego's lamp near the edge of the grizzly and a large rock alongside of the grizzly. He immediately notified the bulldoze boss that Emil Riego fell down the chute.

"Affiant is of the opinion that when he heard the something like rock falling down, that a rock came from the stope and struck Emil Riego, throwing him down in the chute.

"Emil Riego was taken out at the bottom of the chute a few minutes later, still alive."

(Gold Placer)

April 14.—WILLIAM WICKLUND, miner, Norwegian, aged 41 years, fell down a 50-foot shaft while working on Poorman

in the Ruby district, which caused injuries resulting in his death. No data are available as to the cause of this accident.

(Gold Lode)

May 25.—TOM PERPICH, tramway lineman, Jugoslav, aged 49 years, employed by the Premier Southern, Inc., was struck by tramway bucket and knocked from tower, receiving injuries which caused his death some hours later.

The following account of the accident is contained in an affidavit by Mr. F. W. Fisher, superintendent of the tramway on which the accident occurred:

"On May 25th I was advised of an accident on the tramway near Fish Creek, of which tramway I was superintendent. I went immediately to Fish Creek and found Tom Perpich had been seriously injured. I was present at the time of his death which occurred a few hours later.

"Before dying Perpich made the statement that he was on one of the towers near the angle station when a bucket struck him, catching his clothes in such a way that it dragged him over the tower and knocked him to the ground, which was some thirty feet below. He did not know just how he had been struck, but seemed to remember definitely falling from the tower and striking the ground. There were no eye-witnesses to the accident so it is impossible to send their statements."

(Gold Mill)

June 13.—CLINTON F. MACK, painter, American, aged 29 years, employed by the Alaska Juneau Gold Mining Company, was caught between a crane and one of the columns in the Alaska Juneau mill, receiving injuries from which he died three days later.

The following account of the accident is contained in an affidavit by Don C. Tobias, fellow employee of Mack:

"Affiant states that at or about 1:55 P. M. on the 13th day of June, 1928, he was on the ball mill floor of the Alaska Juneau mill and Clinton F. Mack went up inside of the mill and was making a block and tackle fast to one of the beams opposite the crane to raise up a barrel of paint. The operator of the crane was not notified that Mack was where he was and the crane operator moved the

crane and it appears that Mack was caught between the crane and one of the columns. The crane operator was so placed that he could not see Clinton F. Mack from where he was.

"Affiant further states that he was on the ball mill floor at the time of the accident and that he heard Mack call out, then he called to the crane operator and the crane stopped. The injured was immediately taken to St. Ann's Hospital."

(Gold Placer)

June 29.—ROBERT LINDSAY, was injured while mining near Chatanika when a heavy pipe fell on him. He died two days after being taken to the hospital at Fairbanks. No other details are available regarding this accident.

(Gold Lode)

December 1.—SAM TAMOFF, bulldozer, Russian, aged 36 years, employed by the Alaska Juneau Gold Mining Company, was injured when a rock came from the stope bruising his left leg between the knee and ankle. At the time of the accident the injury was not thought to be serious, but septic poisoning set in and on December 23 Tamoff died from the effects of the poison.

LIST OF ALL ACCIDENTS REPORTED FROM PLACER MINES OF ALASKA FOR THE YEAR 1927, CLASSIFIED AS TO CAUSES AND RESULTS

	CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
					Time lost more than 14 days	Time lost less than 14 days	
	Underground						
	Number Killed or Injured by—						
1.	Fall of rock or ore from roof or wall	....	....	....	1	..	1
2.	Rock or ore while loading at working face or chute	....	....	..	....	...	....
3.	Timber or hand tools	....	....	....	..	....	....
4.	Explosives	....	....	..	..	....	....
5.	Haulage (mine cars, mine locomotives, breakage of rope, etc.)	....	....	....	....	....	....
6.	Persons falling down chute, winze, raise, or stope	..	....	....	....	....	....
7.	Run of ore from chute or pocket	....	....		...	....	....
8.	Drilling (by machine or hand drills)	..	....	....	....	....	....
9.	Electricity	....	....	....	....	....	....
10.	Machinery (other than locomotives or drills)	....	....	....	....	....	....
11.	Mine fires	....	..	....	....	....	....
12.	Suffocation from natural gases	....	....	...	....	....	....
13.	Inrush of water	....	....	....	....	....	....
14.	Nails and splinters	....	..	....	...	....	....
15.	Other causes	....	..	....	1	3	4
	Total number killed or injured underground	....	....	....	2	3	5
	Shaft Accidents						
	Number Killed or Injured by—						
16.	Falling down shaft	....	....	....	....	....	....
17.	Objects falling down shaft	....	....	....	..	....	....
18.	Breaking of cables	....	....	....	....	....	....
19.	Overwinding	....	....	....	....	....	....
20.	Cage, skip or bucket	....	....	....	....	....	....
21.	Other causes	1	....	....	....	....	1
	Total number killed or injured by shaft accidents	1	....	....	....	....	1
	Surface Accidents						
	(At surface yards and shops)						
	Number Killed or Injured by—						
22.	Mine cars or mine locomotives, gravity or aerial trams	...	..	...	3	....	3
23.	Railway cars and locomotives	....	....	....	1	....	1
24.	Run or fall of ore in or from ore bins	....	....	....	....	....	....
25.	Falls of persons	....	....	....	7	14	21

26.	Nails and splinters	....	....	....	1	14	15
27.	Hand tools, axes, bars, etc	....	..	....	4	12	16
28.	Electricity	....	....	...	....	..	..
29.	Machinery	1	....	3	13	9	26
30.	Other causes	..	....	1	17	62	80
	Total number killed or injured by surface accidents	1	....	4	46	111	162
	Dredging						
	Number Killed or Injured by—						
31.	Machinery	...	....	....	2	....	....
32.	Electricity	..	..		....	...	....
33.	Boiler explosions or bursting steam pipes	....	....	....	...	....	...
34.	Falls of persons	....	....	....	....	2	2
35.	Tools	....	....	....	....	2	2
36.	Other causes	..	....	....	1	4	5
	Total number killed or injured by dredging accidents	..	....	...	3	8	9
	Hydraulicking						
	Number Killed or Injured by—						
37.	Cave of bank	....	....	..	..	.	..
38.	Explosives	....	..	...	..	...	.
39.	Hydraulic giants	....	.	....	..	1	1
40.	Falls of persons	....	....	..	..	....	..
41.	Rock while handling	....	....	.	..	..	..
42.	Tools	..	....	...		.	....
43.	Machinery, derricks, etc.	....		....		....	....
44.	Other causes	....	....	....	....	..	..
	Total number killed or injured by hydraulic accidents	....	....	..	..	1	1
	*GRAND TOTAL	2	....	4	51	123	180

*There were probably several minor accidents that are not included in the above table which occurred at small or isolated operations and were not reported to this office.

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed on dredges during 1927	1,045
Average number of men employed hydraulicking	480
Average number of men employed other placer methods	800
Total number of shifts, dredging	252,635
Total number of shifts, hydraulicking	57,600
Total number of shifts, other methods	108,000
Total time lost on account of all accidents	3,267

Note: The number of men employed and the shifts worked are necessarily estimates as no placer mining engineer was available to visit operations and obtain data.

LIST OF ALL ACCIDENTS REPORTED FROM COAL MINES OF ALASKA FOR THE YEAR 1927, CLASSIFIED AS TO CAUSES AND RESULTS.

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Underground						
Number Killed or Injured by—						
1. Falls of roof (coal, rock, etc.)	....	....	....	1	1	2
2. Falls of face or pillar coal	1	..	..	..	...	1
3. Mine cars and locomotives	..	....	.	1	....	1
4. Gas explosions and burning gas	....	....	....	2	....	2
5. Coal-dust explosions (including gas and dust combined)	..	....	....	....	....	....
6. Explosives	....	....	....	1	....	1
7. Suffocation from mine gases	....	....	....	....	....	....
8. Electricity	....	....	....	....	....	....
9. Animals	....	....	....	....	....	....
10. Mining machines	....	..	....	....	....	....
11. Mine fires (burned, suffocated, etc.)	....	....	....	....	....	....
12. Other causes	..	....	1	2	2	5
Total number killed or injured underground	1	....	1	7	3	12
Shaft						
Number Killed or Injured by—						
13. Falling down shafts or slopes	....	....	....	....	....	....
14. Objects falling down shafts or slopes	....	....	...	....	....	....
15. Cage, skip, or bucket	....	....	....	....	....	....
16. Other causes	....	....	....	....	....	....
Total number killed or injured by shaft accidents	....	....	....	....	....	....
Surface Shops and Plants						
Number killed or injured by—						
17. Mine cars and locomotives	....	....	....	....	....	....
18. Electricity	....	....	....	....	....	....
19. Machinery	....	....	1	....	....	1
20. Boiler explosions or bursting steam pipes	....	...	..	....	....	....
21. Railway cars and locomotives	....	....	..	....	....	....
22. Other causes	....	....	....	1	....	1
Total number killed or injured by surface accidents	....	....	1	1	....	2
GRAND TOTAL	1	....	2	8	3	14

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed underground	69.5
Average number of men employed on the surface	45
Total number of shifts underground	20,853
Total number of shifts on the surface	14,062
Total time lost on account of all accidents	445 days

LIST OF ALL ACCIDENTS REPORTED FROM GOLD MINES OF ALASKA FOR THE YEAR 1927, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Underground						
Number killed or injured by—						
1. Fall of rock or ore from roof or wall	3	....	1	14	24	42
2. Handling rock or ore:						
(a) Loading at face	....	....	....	....	....	....
(b) Loading at chute	....	....	....	1	1	2
(c) Sledging	....	....	....	....	....	....
3. Timber or hand tools	....	....	....	3	2	5
4. Explosives:						
(a) Transportation	....	....	....	....	....	....
(b) Charging	....	....	....	....	....	....
(c) Suffocation	....	....	....	....	....	....
(d) Drilling into old holes	....	....	....	....	....	....
(e) Striking into loose rock	....	....	....	....	....	....
(f) Thawing	....	....	....	....	....	....
(g) Caps, detonators, etc.	....	....	....	....	....	....
(h) Unguarded shots	1	....	1	3	2	7
(i) Returned too soon	....	....	....	....	....	....
(j) Premature shot	....	....	....	....	....	....
(k) Miscellaneous	....	....	....	....	....	....
5. Haulage:						
(a) Hand and animal	....	....	....	....	1	1
(b) Mechanical	....	....	....	3	2	5
6. Persons falling down chutes, winze, raise or stope	....	....	....	....	....	....
7. Run of ore from chute or pocket	....	....	....	1	7	8
8. Drilling (by machine or hand drills)	....	....	....	2	1	3
9. Electricity:						
(a) Direct contact with trolley wire	....	....	....	....	1	1
(b) Tool or bar striking trolley wire	....	....	....	....	....	....
(c) Contact with motor	....	....	....	....	....	....
(d) Others	....	....	....	....	2	2
10. Machinery other than 5 and 8	....	....	....	....	....	....
11. Mine fires	....	....	....	....	....	....
12. Suffocation from natural gases	....	....	....	....	....	....
13. Inrush of water	....	....	....	....	....	....
14. Nails and splinters	....	....	....	....	1	1
15. Other causes:						
(a) Falling objects, other than 1 and 2	....	....	....	1	2	3
(b) Flying objects other than 2c	....	....	....	....	3	3

(c) Burns	....	....	....	1	....	1
(d) Miscellaneous	....	....	....	3	4	7
Total number killed or injured underground	4	....	2	32	53	91
Shaft Accidents						
Number killed or injured by—						
16. Falling down shaft	....	....	....	....	....	....
17. Objects falling down shaft	....	....	....	....	....	....
18. Breaking of cables	....	1	....	....	....	1
19. Overwinding	....	....	....	....	....	....
20. Cage, skip, or bucket:						
(a) Runaway	....	....	....	....	....	....
(b) Riding with rock or ore	....	....	....	....	....	....
(c) Riding with timber or tools	....	....	....	....	....	....
(d) Struck by	....	....	....	....	....	....
21. Other causes	....	....	....	....	....	....
Total number killed or injured by shaft accidents	....	1	....	....	....	1
Surface Accidents						
(At surface plants and shops)						
Number killed or injured by—						
22. Haulage:						
(a) Hand and animal	....	....	....	....	....	....
(b) Mechanical	....	....	....	....	....	....
23. Railway cars and locomotives	....	....	....	....	....	....
24. Run or fall of ore in or from ore bins	....	....	....	....	....	....
25. Falls of persons	....	....	....	1	2	3
26. Nails and splinters	....	....	....	....	....	....
27. Hand tools, axes, bars, etc.	....	....	....	....	1	1
28. Electricity:						
(a) Direct contact with trolley wire	....	....	....	....	....	....
(b) Tool or bar striking trolley wire	....	....	....	....	....	....
(c) Contact with motor	....	....	....	....	....	....
(d) Others	....	....	....	....	1	1
29. Machinery	....	....	....	1	....	1
30. Other causes:						
(a) Falling objects	....	....	....	4	1	5
(b) Flying objects	....	....	....	2	....	2
(c) Burns	....	....	....	....	....	....
(d) Miscellaneous	....	....	....	2	3	5
Total number killed or injured by surface accidents	....	....	....	10	8	18
GRAND TOTAL	4	1	2	42	61	110

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Gold Mines during 1927	751
Total number of shifts underground	138,394
Total number of shifts on surface	83,306
Total time lost on account of all accidents at Gold Mines	2,347 days

LIST OF ALL ACCIDENTS REPORTED FROM COPPER MINES OF ALASKA FOR THE YEAR 1927, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Underground						
Number killed or injured by—						
1. Fall of rock or ore from roof or wall	1	....	1	2	8	12
2. Handling rock or ore:						
(a) Loading at face	....	....	....	....	....	....
(b) Loading at chute	....	....	....	3	2	5
(c) Sledging	....	....	....	....	2	2
3. Timber or hand tools	....	....	....	....	3	3
4. Explosives:						
(a) Transportation	....	....	....	....	....	....
(b) Charging	....	....	....	....	....	....
(c) Suffocation	....	....	....	....	....	....
(d) Drilling into old holes	....	....	....	....	....	....
(e) Striking in loose rock or ore	....	....	....	....	....	....
(f) Thawing	....	....	....	....	....	....
(g) Caps, detonators, etc.	....	....	....	....	....	....
(h) Unguarded shots	....	....	....	....	....	....
(i) Returning too soon	....	....	....	....	....	....
(j) Premature shot	....	....	2	....	....	2
(k) Miscellaneous	....	....	....	1	....	1
5. Haulage:						
(a) Hand and animal	....	....	....	1	....	1
(b) Mechanical	....	....	....	4	2	6
6. Persons falling down chute, winze, raise, or stope	....	....	....	....	1	1
7. Run of ore from chute or pocket	....	....	....	1	....	1
8. Drilling (by machine or hand drills)	....	....	....	3	6	9
9. Electricity:						
(a) Direct contact with trolley wire	....	....	....	....	....	....
(b) Tool or bar striking trolley wire	....	....	....	....	....	....
(c) Contact with motor	....	....	....	....	....	....
(d) Others	....	....	....	....	....	....
10. Machinery other than 5 and 8	....	....	....	2	....	2
11. Mine fires	....	....	....	....	....	....
12. Suffocation from natural gases	....	....	....	....	....	....
13. Inrush of water	....	....	....	....	....	....
14. Nails and splinters	....	....	....	....	1	1
15. Other causes:						
(a) Falling objects, other than 1 and 2	....	....	....	3	5	8
(b) Flying objects, other than 2c	....	....	....	....	5	5

	(c) Burns	....	...	....	....	....	...
	(d) Miscellaneous	....	....	....	10	14	24
	Total number killed or injured underground	1	..	3	30	49	83
	Shaft Accidents						
	Number killed or injured by—						
16.	Falling down shaft	....	....	....	..	....	....
17.	Objects falling down shaft	....	....	....	....	....	....
18.	Breaking of cables	....	....	....	....	....	....
19.	Overwinding	..	....	....	....	....	....
20.	Cage, skip or bucket:						
	(a) Runaway	....	....	....	....	..	....
	(b) Riding with rock or ore	....	....	....	....	..	.
	(c) Riding with timber or tools	....	....	....	....	....	....
	(d) Struck by	....	....	....	....	....	....
21.	Other causes	....	....	....	....	....	
	Total killed or injured by shaft accidents	....	....				
	Surface Accidents						
	(At surface plants and shops)						
	Number killed or injured by—						
22.	Haulage:						
	(a) Hand and animal	....	..	..	..	..	.
	(b) Mechanical	....	...	....	4	....	4
23.	Railway cars and locomotives	....	....	....	....	....	....
24.	Run or fall of ore in or from ore bins	....	....	....	....	....	....
25.	Falls of persons	....	....	....	2	2	4
26.	Nails and splinters	....	....	....	....	1	1
27.	Hand tools, axes, bars, etc.	....	....	....	1	2	3
28.	Electricity:						
	(a) Direct contact with trolley wire	..	....	....	....	....	....
	(b) Tool or bar striking trolley wire	....	....	....	....	....	....
	(c) Contact with motor	....	....	....	....	....	....
	(d) Others	1	....	....	....	....	1
29.	Machinery	....	....	....	1	....	1
30.	Other causes:						
	(a) Falling objects	....	....	....	....	2	2
	(b) Flying objects	....	....	....	....	1	1
	(c) Burns	....	....	....	....	1	1
	(d) Miscellaneous	....	....	....	3	11	14
	Total killed or injured by surface accidents	1	....	....	11	20	32
	GRAND TOTAL	2	..	3	41	69	115

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Copper Mines during 1927	452
Total number of shifts underground	108,740
Total number of shifts on surface	56,563
Total time lost on account of all accidents at Copper Mines during 1927	1,834

LIST OF ALL ACCIDENTS REPORTED FROM GOLD MILLING PLANTS OF ALASKA FOR THE YEAR 1927, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Ore-Dressing and Milling Accidents						
Number killed or injured by—						
1. Haulage system:						
(a) Cars and motors	....	....	....	2	.	2
(b) Mechanical conveyors	....	....	....	....	....	....
2. Railway cars and locomotives	....	....	....	....	....	....
3. Crushers, rolls, or stamps	....	....	....	1	....	1
4. Tables, jigs, etc.	....	....	....	....	....	....
5. Other machinery	....	....	....	1	2	3
6. Falls of persons	....	....	....	1	5	6
7. Suffocation in ore bins	....	....	....	....	....	....
8. Falling objects (rocks, timbers, etc.)	....	....	....	3	3	6
9. Cyanide or other poisoning	....	....	....	....	....	....
10. Scalding (steam or water)	....	....	....	....	....	....
11. Electricity	....	....	....	....	....	....
12. Hand tools, axes, bars, etc.	....	....	....	1	.	1
13. Nails, splinters, etc	....	....	....	....	2	2
14. Flying pieces of rock from sledging or crushing	....	....	....	....	1	1
15. Other causes	....	....	....	3	5	8
Total number killed or injured at mills	....	....	....	12	18	30
Auxiliary Works Accidents (Yards, shops, construction, etc.)						
Number killed or injured by—						
16. Haulage systems, cars, motors, etc.	....	....	....	....	....	....
17. Railway cars and locomotives	....	....	....	....	....	....
18. Falls of persons	....	....	....	....	....	....
19. Falling objects (rocks, timber, etc.)	....	....	....	....	....	....
20. Nails, splinters, etc.	....	....	....	....	....	....
21. Hand tools, axes, bars, etc.	....	....	....	....	....	....
22. Electricity	....	....	....	....	....	....
23. Machinery	....	....	....	....	....	....
24. Failure of ladder, scaffold, or other support	....	....	....	....	....	....
25. Handling hot materials	....	....	....	....	....	....
26. Other causes	....	....	....	....	....	....
Total number killed or injured by shop and yard accidents	....	....	....	....	....	....
GRAND TOTAL	....	....	....	12	18	30

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Gold Mills during 1927	218
Total number of shifts worked	74,799
Total time lost on account of all accidents at Gold Mills	478

LIST OF ALL ACCIDENTS REPORTED FROM COPPER MILLING PLANTS OF ALASKA FOR THE YEAR 1927, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Ore-Dressing and Milling Accidents						
Number killed or injured by—						
1. Haulage system:						
(a) Cars and motors	....	....	....	....	....	....
(b) Mechanical conveyors	....	....	....	....	....	....
2. Railway cars and locomotives	....	....	....	....	....	....
3. Crushers, rolls, or stamps	....	....	....	....	....	....
4. Tables, jigs, etc.	....	....	....	....	....	....
5. Other machinery	....	....	....	....	....	....
6. Falls of persons	....	....	....	....	1	1
7. Suffocation in ore bins	....	....	....	....	....	....
8. Falling objects (rocks, timber, etc.)	....	....	....	....	1	1
9. Cyanide or other poisoning	....	....	....	....	....	....
10. Scalding (steam or water)	....	....	....	....	....	....
11. Electricity	....	....	....	....	....	....
12. Hand tools, axes, bars, etc.	....	....	....	....	2	2
13. Nails, splinters, etc.	....	....	....	....	....	....
14. Flying pieces of rock from sledging or crushing	....	....	....	....	....	....
15. Other causes	....	....	....	....	1	1
Total number killed or injured at mills	....	....	....	....	5	5
Auxiliary Works Accidents (Yards, shops, construction, etc.)						
Number killed or injured by—						
16. Haulage systems, cars, motors, etc.	....	....	....	....	....	....
17. Railway cars and locomotives	....	....	....	....	....	....
18. Falls of persons	....	....	....	....	....	....
19. Falling objects (rocks, timber, etc.)	....	....	....	....	....	....
20. Nails, splinters, etc.	....	....	....	....	....	....
21. Hand tools, axes, bars, etc.	....	....	....	....	....	....
22. Electricity	....	....	....	....	....	....
23. Machinery	....	....	....	....	....	....
24. Failure of ladder, scaffold, or other support	....	....	....	....	....	....
25. Handling hot materials	....	....	....	....	....	....
26. Other causes	....	....	....	....	....	....
Total number killed or injured by shop and yard accidents	....	....	....	....	....	....
GRAND TOTAL	....	....	....	....	5	5

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Copper Milling Plants during 1927	204
Total number of shifts worked	75,858
Total time lost on account of all accidents at Copper Mills during 1927	19 days

LIST OF ACCIDENTS REPORTED FROM QUARRIES OF ALASKA FOR THE YEAR 1927, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Number killed or injured by—						
1. Falls or slides of rock	..	....	....	....	....	..
2. Explosives	....	....	....	..	....	....
3. Haulage	....	....	..	....	....	....
4. Steam shovels	....	.	...	...	....	..
5. Falls of persons	..	....	....	....	1	1
6. Falls of derricks, booms, etc.	1	....	....	1	....	2
7. Machinery (other than 3 and 4)	....	....	....	....	1	1
8. Electricity	....	....	....	....	....	....
9. Hand tools	....	....	..	....	....	....
10. Other causes	..	...	..	1	1	2
Total number killed or injured by quarry accidents	1	.	...	2	3	6

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at quarries during 1927	77
Total number of shifts worked	17,495
Total time lost on account of all accidents at quarries in 1927	141

LIST OF ALL ACCIDENTS REPORTED FROM PLACER MINES OF ALASKA FOR THE YEAR 1928, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Underground						
Number Killed or Injured by—						
1. Fall of rock or ore from roof or wall	....	....	....	...	4	4
2. Rock or ore while loading at working face or chute	....	....	..	.	..	..
3. Timber or hand tools	....	....	..	....	.	....
4. Explosives	....	....	.	..		
5. Haulage (mine cars, mine locomotives, breakage of rope, etc.)	....	....	....	....		
6. Persons falling down chute, winze, raise, or stope	....	....	....	....		
7. Run of ore from chute or pocket	...	....	....	....		
8. Drilling (by machine or hand drills)	...	....	..	....		
9. Electricity	....	....	....	....		
10. Machinery (other than locomotives or drills)	....	....	..	....		
11. Mine fires	....	....	....	....		
12. Suffocation from natural gases	....	. .	...	....		
13. Inrush of water	....	....	....	...		
14. Nails and splinters	....	....	....	....		
15. Other causes	....	..	..	..		
Total number killed or injured underground	....	....	....	....	6	6
Shaft Accidents						
Number Killed or Injured by—						
16. Falling down shaft	1	.	....	.	...	1
17. Objects falling down shaft	....	..	....	...	..	..
18. Breaking of cables	....	....	....	..	..	..
19. Overwinding	....	..	....	.	.	.
20. Cage, skip or bucket	....	....	....	..	.	....
21. Other causes	....	....	....	....	1	1
Total number killed or injured by shaft accidents	1	....	...	...	1	2
Surface Accidents (At surface yards and shops)						
Number Killed or Injured by—						
22. Mine cars or min : locomotives, gravity or aerial trams	...			1	....	1
Railway cars and locomotives	....			....	....	....
Run or fall of ore in or from ore bins	....			....	....	....

25. Falls of persons	1	....	....	5	15	21
26. Nails and splinters	....	....	....	1	6	7
27. Hand tools, axes, bars, etc	....	....	....	1	10	11
28. Electricity	....	....	....	....	1	1
29. Machinery	....	....	1	2	5	8
30. Other causes	1	....	....	16	31	48
Total number killed or injured by surface accidents	2	....	1	26	68	97
Dredging						
Number Killed or Injured by—						
31. Machinery	....	....	1	....	5	6
32. Electricity	....	....	....	....	....	....
33. Boiler explosions or bursting steam pipes	....	....	....	....	....	....
34. Falls of persons	....	....	....	....	9	9
35. Tools	....	....	....	....	6	6
36. Other causes	....	....	....	3	19	22
Total number killed or injured by dredging accidents	....	....	1	3	39	43
Hydraulicking						
Number Killed or Injured by—						
37. Cave of bank	....	....	....	1	....	1
38. Explosives	....	....	....	....	....	....
39. Hydraulic giants	....	....	....	....	....	....
40. Falls of persons	....	....	....	....	....	....
41. Rock while handling	....	....	....	....	1	1
42. Tools	....	....	....	1	1	2
43. Machinery, derricks, etc.	....	....	....	....	1	1
44. Other causes	....	....	....	1	3	4
Total number killed or injured by hydraulic accidents	....	....	.	3	6	9
*GRAND TOTAL	3	....	2	32	120	157

*There were probably several minor accidents that are not included in the above table which occurred at small or isolated operations and were not reported to this office.

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other condition permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed on dredges during 1928	954.5
Average number of men employed hydraulicking	480
Average number of men employed other placer methods	800
Total number of shifts, dredging	270,507
Total number of shifts, hydraulicking	67,200
Total number of shifts, other methods	108,000
Total time lost on account of all accidents	2,048 days

Note: The number of men employed and the shifts worked are necessarily estimates as no placer mining engineer was available to visit operations and obtain data.

LIST OF ALL ACCIDENTS REPORTED FROM COAL MINES OF ALASKA FOR THE YEAR 1928, CLASSIFIED AS TO CAUSES AND RESULTS.

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	(C) Disability Temporary: Time lost more than 14 days	(C) Disability Temporary: Time lost less than 14 days	Total Injured
Underground						
Number Killed or Injured by—						
1. Falls of roof (coal, rock, etc.)	....	....	....	....	....	....
2. Falls of face or pillar coal	....	....	....	....	....	....
3. Mine cars and locomotives	....	....	....	....	....	....
4. Gas explosions and burning gas	....	....	....	....	....	....
5. Coal-dust explosions (including gas and dust combined)	....	....	....	....	....	....
6. Explosives	....	....	....	....	....	....
7. Suffocation from mine gases	....	....	....	....	....	....
8. Electricity	....	....	....	....	....	....
9. Animals	....	....	....	....	....	....
10. Mining machines	....	....	....	....	....	....
11. Mine fires (burned, suffocated, etc.)	....	....	....	....	....	....
12. Other causes	....	....	....	....	2	2
Total number killed or injured underground	....	....	....	....	2	2
Shaft						
Number Killed or Injured by—						
13. Falling down shafts or slopes	....	....	....	....	....	....
14. Objects falling down shafts or slopes	....	....	....	....	....	....
15. Cage, skip, or bucket	....	....	....	....	....	....
16. Other causes	....	....	....	....	....	....
Total number killed or injured by shaft accidents	....	....	....	....	....	....
Surface Shops and Plants						
Number killed or injured by—						
17. Mine cars and locomotives	....	....	....	....	....	....
18. Electricity	....	....	....	....	....	....
19. Machinery	....	....	....	....	....	....
20. Boiler explosions or bursting steam pipes	....	....	....	....	....	....
21. Railway cars and locomotives	....	....	....	....	....	....
22. Other causes	....	....	....	....	....	....
Total number killed or injured by surface accidents	....	....	....	....	....	....
GRAND TOTAL	....	....	....	....	2	2

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed underground	64
Average number of men employed on the surface	45
Total number of shifts underground	19,792
Total number of shifts on the surface	12,974
Total time lost on account of all accidents	19

LIST OF ALL ACCIDENTS REPORTED FROM GOLD MINES OF ALASKA FOR THE YEAR 1928, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Underground						
Number killed or injured by—						
1. Fall of rock or ore from roof or wall	2	..	..	10	25	37
2. Handling rock or ore:						
(a) Loading at face	..	...	....	....	....	....
(b) Loading at chute	..	...	....	3	10	13
(c) Sledging	..	....	....	....		..
3. Timber or hand tools	..	..	....	4	9	13
4. Explosives:						
(a) Transportation	....	....	....	....	..	....
(b) Charging	....	....	....	....	..	....
(c) Suffocation	..	....	....	....	1	1
(d) Drilling into old holes	.	....	....	....	....	..
(e) Striking into loose rock	....	...	....	....	..	..
(f) Thawing	....	....	....	....	....	.
(g) Caps, detonators, etc.	..	....	....	....	....	.
(h) Unguarded shots	....	....	..	..	....	
(i) Returned too soon	....	....	....	4	....	4
(j) Premature shot	1	....	....	..	....	1
(k) Miscellaneous	....	....	....	..	3	3
5. Haulage:						
(a) Hand and animal	....	....	....	....	..	.
(b) Mechanical	....	....	....	4	4	8
6. Persons falling down chutes, winze, raise or stope	....	....	.	1	..	1
7. Run of ore from chute or pocket	....	...	..	...	..	...
8 Drilling (by machine or hand drills)	..	....	....	..	4	4
9. Electricity:						
(a) Direct contact with trolley wire	....	....	....	....	..	....
(b) Tool or bar striking trolley wire	....	....	..	..	..	..
(c) Contact with motor	....	....	....	....	....	....
(d) Others	....	...	..	....	2	2
10. Machinery other than 5 and 8	....	....	1	....	...	1
11. Mine fires	....	..	..	....	....	..
12. Suffocation from natural gases	....	....	....	....	....	....
13. Inrush of water	....	....	....	...	..	....
14. Nails and splinters	....	....	....	....	3	3
15. Other causes:						
(a) Falling objects, other than 1 and 2	....	..	....	3	12	15
(b) Flying objects other than 2c	....	....	....	....	6	6
(c) Burns	....	..	....	....	....	....
(d) Miscellaneous	....	....	....	4	19	23
Total number killed or injured underground	3	....	1	33	98	135

Shaft Accidents

	Number killed or injured by—					
16.	Falling down shaft					
17.	Objects falling down shaft					
18.	Breaking of cables					
19.	Overwinding					
20.	Cage, skip, or bucket:					
	(a) Runaway					
	(b) Riding with rock or ore					
	(c) Riding with timber or tools					
	(d) Struck by			1		1
21.	Other causes					
	Total number killed or injured by shaft accidents			1		1

Surface Accidents

(At surface plants and shops)

	Number killed or injured by—					
22.	Haulage:					
	(a) Hand and animal					
	(b) Mechanical	1			1	2
23.	Railway cars and locomotives				1	1
24.	Run or fall of ore in or from ore bins			1		1
25.	Falls of persons			1	3	4
26.	Nails and splinters				2	2
27.	Hand tools, axes, bars, etc.					
28.	Electricity:					
	(a) Direct contact with trolley wire					
	(b) Tool or bar striking trolley wire					
	(c) Contact with motor					
	(d) Others					
29.	Machinery					
30.	Other causes:					
	(a) Falling objects			2	2	4
	(b) Flying objects			1	1	2
	(c) Burns					
	(d) Miscellaneous			1	4	5
	Total number killed or injured by surface accidents	1		6	14	21
	GRAND TOTAL	4	1	40	112	157

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Gold Mines during 1928	747
Total number of shifts underground	143,929
Total number of shifts on surface	78,988
Total time lost on account of all accidents at Gold Mines	2,440

LIST OF ALL ACCIDENTS REPORTED FROM COPPER MINES OF ALASKA FOR THE YEAR 1928, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Underground						
Number killed or injured by—						
1. Fall of rock or ore from roof or wall				3	7	10
2. Handling rock or ore:						
(a) Loading at face				1		1
(b) Loading at chute				3		3
(c) Sledging				1	1	2
3. Timber or hand tools				1	2	3
4. Explosives:						
(a) Transportation						
(b) Charging						
(c) Suffocation						
(d) Drilling into old holes			1			1
(e) Striking in loose rock or ore						
(f) Thawing						
(g) Caps, detonators, etc.						
(h) Unguarded shots						
(i) Returned too soon						
(j) Premature shot						
(k) Miscellaneous						
5. Haulage:						
(a) Hand and animal					1	1
(b) Mechanical				5	3	8
6. Persons falling down chute, winze, raise or stope				2		2
7. Run of ore from chute or pocket				1		1
8. Drilling (by machine or hand drills)				3	2	5
9. Electricity:						
(a) Direct contact with trolley wire						
(b) Tool or bar striking trolley wire						
(c) Contact with motor						
(d) Others						
10. Machinery other than 5 and 8			1	4		5
11. Mine fires						
12. Suffocation from natural gases						
13. Inrush of water						
14. Nails and splinters						
15. Other causes:						
(a) Falling objects other than 1 and 2				5	6	11
(b) Flying objects, other than 2c			1	1	5	7
(c) Burns					1	1
(d) Miscellaneous				14	19	33
Total number killed or injured underground			3	44	47	94

Shaft Accidents

	CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C): Time lost more than 14 days	Temporary Disability (C): Time lost less than 14 days	Total Injured
	Number killed or injured by—						
16.	Falling down shaft	....	....	....	....	....	....
17.	Objects falling down shaft	....	....	....	....	....	....
18.	Breaking of cables	....	....	....	....	....	....
19.	Overwinding	....	....	....	....	....	....
20.	Cage, skip or bucket:						
	(a) Runaway	1	....	....	....	....	1
	(b) Riding with rock or ore	....	....	....	....	....	....
	(c) Riding with timber or tools	....	....	....	....	....	....
	(d) Struck by	....	....	....	....	....	....
21.	Other causes	....	....	....	1	....	1
	Total killed or injured by shaft accidents	1	....	....	1	....	2

Surface Accidents

(At surface plants and shops)

	Number killed or injured by—						
22.	Haulage:						
	(a) Hand and animal	....	....	....	....	....	....
	(b) Mechanical	....	....	....	1	1	2
23.	Railway cars and locomotives	....	....	....	....	....	....
24.	Run or fall of ore in or from ore bins	....	....	....	....	....	....
25.	Falls of persons	....	....	....	1	1	2
26.	Nails and splinters	....	....	....	....	....	....
27.	Hand tools, axes, bars, etc.	....	....	....	....	1	1
28.	Electricity:						
	(a) Direct contact with trolley wire	....	....	....	....	....	....
	(b) Tool or bar striking trolley wire	....	....	....	....	....	....
	(c) Contact with motor	....	....	....	....	....	....
	(d) Others	....	....	....	....	1	1
29.	Machinery	....	....	....	1	3	4
30.	Other causes:						
	(a) Falling objects	....	....	....	3	2	5
	(b) Flying objects	....	....	....	....	1	1
	(c) Burns	....	....	....	1	3	4
	(d) Miscellaneous	....	....	....	1	....	1
	Total killed or injured by surface accidents	....	....	....	8	13	21
	GRAND TOTAL	1	....	3	53	60	117

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Copper Mines during 1928	388
Total number of shifts underground	88,245
Total number of shifts on surface	52,066
Total time lost on account of all accidents at Copper Mines	2,520

LIST OF ALL ACCIDENTS REPORTED FROM GOLD MILLING PLANTS OF ALASKA FOR THE YEAR 1928, CLASSIFIED AS TO CAUSES AND RESULTS

	CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C): Time lost more than 14 days	Temporary Disability (C): Time lost less than 14 days	Total Injured
	Ore-Dressing and Milling Accidents						
	Number killed or injured by—						
1.	Haulage system:						
	(a) Cars and motors	....	....	....	3	....	3
	(b) Mechanical conveyors	....	....	....	1	....	1
2.	Railway cars and locomotives	....	....	....	1	....	1
3.	Crushers, rolls, or stamps	....	....	....	....	....	....
4.	Tables, jigs, etc.	....	....	....	....	....	....
5.	Other machinery	1	....	....	2	2	5
6.	Falls of persons	....	....	....	....	3	3
7.	Suffocation in ore bins	....	....	....	....	....	....
8.	Falling objects (rocks, timbers, etc.)	....	....	....	....	4	4
9.	Cyanide or other poisoning	....	....	....	....	....	....
10.	Scalding (steam or water)	....	....	....	....	....	....
11.	Electricity	....	....	....	....	....	....
12.	Hand tools, axes, bars, etc.	....	....	....	....	3	3
13.	Nails, splinters, etc.	....	....	....	....	....	....
14.	Flying pieces of rock from sledging or crushing	....	....	....	2	1	3
15.	Other causes	....	....	....	2	....	2
	Total number killed or injured at Mills	1	....	....	11	13	25
	Auxiliary Works Accidents						
	(Yards, shops, construction, etc.)						
	Number killed or injured by—						
16.	Haulage systems, cars, motors, etc.	....	....	....	....	....	....
17.	Railway cars and locomotives	....	....	....	....	....	....
18.	Falls of persons	....	....	....	....	....	....
19.	Falling objects (rocks, timber, etc.)	....	....	....	....	....	....
20.	Nails, splinters, etc.	....	....	....	....	....	....
21.	Hand tools, axes, bars, etc.	....	....	....	....	....	....
22.	Electricity	....	....	....	....	....	....
23.	Machinery	....	....	....	....	....	....
24.	Failure of ladder, scaffold, or other support	....	....	....	....	....	....
25.	Handling hot materials	....	....	....	....	....	....
26.	Other causes	....	....	....	....	....	....
	Total number killed or injured by shop and yard accidents	....	....	....	....	....	....
	GRAND TOTAL	1	....	....	11	13	25

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight. paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Gold Mills during 1928	199
Total number of shifts worked	68,949
Total time lost on account of all accidents at Gold Mills	806

LIST OF ALL ACCIDENTS REPORTED FROM COPPER MILLING PLANTS OF ALASKA FOR THE YEAR 1928, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Ore-Dressing and Milling Accidents						
Number killed or injured by—						
1. Haulage system:						
(a) Cars and motors	....	....	....	....	....	....
(b) Mechanical conveyors	....	....	....	....	....	....
2. Railway cars and locomotives	....	....	....	....	....	....
3. Crushers, rolls, or stamps	....	....	....	....	....	....
4. Tables, jigs, etc.	....	....	....	....	....	....
5. Other machinery	....	....	1	....	....	1
6. Falls of persons	....	....	....	....	....	....
7. Suffocation in ore bins	....	....	....	....	....	....
8. Falling objects (rocks, timbers, etc.)	....	....	....	1	....	1
9. Cyanide or other poisoning	....	....	....	1	....	1
10. Scalding (steam or water)	....	....	....	....	....	....
11. Electricity	....	....	....	....	....	....
12. Hand tools, axes, bars, etc.	....	....	....	....	1	1
13. Nails, splinters, etc.	....	....	....	..	....	....
14. Flying pieces of rock from sledging or crushing	....	....	....	....	..	
15. Other causes	....	....	...	....	2	2
Total number killed or injured at mills	..		1	2	3	6
Auxiliary Works Accidents						
(Yards, shops, construction, etc.)						
Number killed or injured by—						
16. Haulage systems, cars, motors, etc.	....	....	....	....	..	..
17. Railway cars and locomotives	....	....	....	....	....	.
18. Falls of persons	....	....	....	....	....	..
19. Falling objects (rocks, timber, etc.)	....	....	....	....	....	...
20. Nails, splinters, etc.	....	....	....	....	....	...
21. Hand tools, axes, bars, etc.	....	....	....	....	....	..
22. Electricity	....	....	....	....	....	...
23. Machinery	....	....	....	....	...	....
24. Failure of ladder, scaffold, or other support	....	....	....	....	....	....
25. Handling hot materials	....	....	....	....	....	....
26. Other causes	....	....	....	....	....	....
Total number killed or injured by shop and yard accidents	....	....	....	....	....	....
GRAND TOTAL	....	....	1	2	3	6

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at Copper Milling plants during 1928	187
Total number of shifts worked	70,443
Total time lost on account of all accidents at Copper Mills	152

LIST OF ACCIDENTS REPORTED FROM QUARRIES OF ALASKA FOR THE YEAR 1928, CLASSIFIED AS TO CAUSES AND RESULTS

CAUSES	Killed	Permanent total Disability—(A)	Permanent partial Disability—(B)	Temporary Disability (C)		Total Injured
				Time lost more than 14 days	Time lost less than 14 days	
Number killed or injured by—						
1. Falls or slides of rock	....	....	....	....	....	....
2. Explosives	....	....	....	....	....	....
3. Haulage	....	....	....	....	....	....
4. Steam shovels	....	....	....	....	....	....
5. Falls of persons	....	....	....	....	....	....
6. Falls of derricks, booms, etc.	....	....	....	1	....	1
7. Machinery (other than 3 and 4)	....	....	....	....	....	....
8. Electricity	....	....	....	....	....	....
9. Hand tools	....	....	....	1	....	1
10. Other causes	....	....	....	....	1	1
Total number killed or injured by quarry accidents	....	....	....	2	1	3

(A)—Permanent total disability.—Loss of both legs, or arms, one leg and one arm, total loss of eyesight, paralysis or other conditions permanently incapacitating workman from doing any work of a gainful occupation.

(B)—Permanent partial disability.—Loss of one foot, leg, hand, eye, one or more fingers, one or more toes, any dislocation where ligaments are severed or any other injury known in surgery to be permanent partial disability.

(C)—Under this head are included only those accidents which cause a loss of time more than the balance of the day or shift upon which the accident occurred.

Average number of men employed at quarries during 1928	146.44
Total number of shifts worked	56,461
Total time lost on account of all accidents at quarries	63

LIST OF ALASKA MINES

The following list of mining operators in Alaska includes all those whose activities have been reported to the office of the Supervising Mining Engineer. The list of placer mining operators is based mainly on field investigations carried on from the year 1922 to 1926, inclusive, during which time the engineer engaged in that work visited 55 separate placer mining districts. Some changes have probably been made since 1926 in the personnel of partnerships; some operators listed have probably discontinued active work or their properties may have been acquired by others; and there may be some active operations that have not been reported to this office and are therefore not included. It is believed, however, that the list is over 90 per cent complete and accurate.

ACTIVE LODE MINES AND QUARRIES IN ALASKA

Alaska-Dano Mines Co., Funter, Alaska.
Admiralty Alaska Gold Mining Co., Funter Bay, Alaska.
Alaska Hills Mining Co., Nuka Bay via, Seward, Alaska.
Alaska Juneau Gold Mining Co., Juneau, Alaska.
Apex El Nido Mining Co., Juneau, Alaska.
Babcock & Downey, Seward, Alaska.
Big Four Mine, Valdez, Alaska.
Chichagoff Mines, Ltd., Chichagof, Alaska.
Elmes Gold Mining Co., Fairbanks, Alaska.
Ethel Mining Co., Valdez, Alaska.
Eva Quartz Co., Fairbanks, Alaska.
Fern Mining Co., Wasilla, Alaska.
Golden Bear Mining Co., Wasilla, Alaska.
Heaston Mine, Moose Pass, Alaska.
Hirst Chichagof Mining Co., Chichagof, Alaska.
Hi Yu Mining Co., Fairbanks, Alaska.
Inspiration Point Mining Co., Skagway, Alaska.
Jacob Marty Mines, Windham, Alaska (Inactive 1928).
Kassan Gold Co., Hollis, Alaska.
Kennecott Copper Corporation, Kennecott, Alaska.
Kennecott Copper Corporation, Latouche, Alaska.
Lucky Strike Mine, Hope, Alaska (John Hirshey).
Mabel Mine, Wasilla, Alaska.
Marion Twin Gold Mining Co., Wasilla, Alaska.
L. J. McCarty, Fairbanks, Alaska.
Mohawk Mining Co., Fairbanks, Alaska.
Monarch Mining Co., Anchorage, Alaska.
Mother Lode Coalition Mines Co., Kennecott, Alaska.
Mountain View Mining Co., Hyder, Alaska.
Nixon Fork Mine, Medfra, Alaska (Chas. Mespelt).
Pacific Coast Cement Co., View Cove—Dall Island, Alaska.
Peerless Con. Mines, Inc., Ketchikan, Alaska.

Premier Border Gold Mining Co., Hyder, Alaska.
Quigley Mine, Kantishna, Alaska.
Ramsey-Rutherford Mine, Valdez, Alaska.
Rhoads-Hall Mine, Fairbanks, Alaska.
Spaulding Mine, Fairbanks, Alaska (Heath & Kearns).
Vermont Marble Co., Tokeen, Alaska.
Chas. Williams, Hawk Inlet, Alaska.
Willow Creek Mines Co., Wasilla, Alaska.
Wyoming Mine, Fairbanks, Alaska.

ACTIVE COAL MINES IN ALASKA

Admiralty Island Coal Co., Juneau, Alaska.
Alaska Matanuska Coal Co., Anchorage, Alaska.
Healy River Coal Co., Suntrana, Alaska.
Evan Jones Coal Co., Anchorage, Alaska.
Pioneer Coal Mining Co., Moose Creek via Anchorage, Alaska.
Premier Coal Mining Co., Moose Creek via Anchorage, Alaska.

PRODUCTIVE OIL WELLS IN ALASKA

Chilkat Oil Co., Katalla, Alaska.

PLACER MINES IN ALASKA EMPLOYING FIVE OR MORE MEN

Dredges

Alaska Kougarok Dredging Co., J. Kelliher, Mgr., Breslin Hotel, N. Y. City.
American Creek Dredging Co., Hot Springs, Alaska.
Bangor Dredging Co., 602 Underwood Bldg., San Francisco, Calif.
Behring Dredging Corp., 51 Wall St., New York City.
C. J. Berry Dredging Co., 600 Monadnock Bldg., San Francisco, Calif.
Cache Creek Dredging Co., Talkeetna, Alaska.
Candle Creek Dredging Assn., 629 Pioneer Bldg., Seattle, Wash.
Casadepaga Mining Co., Nome, Alaska.
Chatham Gold Dredging Co., Cleary City, Alaska.
Chicken Creek Mining Co., Flat, Alaska.
Crooked Creek Dredging Co., Nome, Alaska.
Dexter Creek Dredging Co., Nome, Alaska.
Dime Creek Dredging Co., Haycock, Alaska.
Dry Creek Dredging Co., Nome, Alaska.
Englehorn & Co., Talkeetna, Alaska.
Fairbanks Exploration Co., Fairbanks, Alaska.
Fairbanks Gold Dredging Co., Meehan, Alaska.
Flume Dredge Co., Tacotna, Alaska.
Golden Center Mines Co., Candle, Alaska.
Goldsmith Dredging Co., 824 Old National Bank Bldg., Spokane, Wash.
Guinan & Ames Dredging Corp., Tacotna, Alaska.
Hammon Consolidated Gold Fields, Nome, Alaska.
Thos. D. Harris & Co., 2700 Humboldt Ave., Oakland, Calif.
Innoko Dredging Co., Tacotna, Alaska.
Keewalik Mining Co., E. J. Matthews, 1500 Ist Ave., Seattle, Wash.
Kuskokwim Dredging Co., 8th Floor Balfour Bldg., San Francisco, Calif.
Lomen Reindeer & Trading Co., Nome, Alaska.
Melsing Creek Dredge, Council, Alaska.
New York Alaska Gold Dredging Co., 120 Broadway, New York City.
Nome Creek Dredging Co., Fairbanks, Alaska.
North American Dredging Co., Flat, Alaska.
Northern Alaska Dredging Co., Flat, Alaska.
Northern Light Mining Co., Gilbert Russell, 1064 Mills Bldg. San Francisco, Calif.
Ophir Gold Dredging Co., Nome, Alaska.

Riley Investment Co., Flat, Alaska.
Scott, Newberg & McCarthy, Nome, Alaska.
Shovel Creek Dredging Co., Solomon, Alaska.
Solomon Valley Dredging Co., O. A. Nielson, 82 Marion St., Seattle, Wash.
Tanana Valley Gold Dredging Co., Ltd., Fairbanks, Alaska.

Hydraulic Mines

Alaska Middle Fork Mining Co., John Malone, Colman Bldg., Seattle, Wash.
Joe Anderson, Talkeetna, Alaska.
John Anderson, Miller House, P. O. via Circle, Alaska.
John E. Andrus, 1180 N. Broadway, Yonkers, N. Y., or McCarthy, Alaska.
Babe Mining Co., Hope, Alaska.
C. J. Berry, 600 Monadnock Bldg., San Francisco, Calif.
Blanker & Edgar, Fortuna Ledge, Alaska.
C. A. Bryant, Eagle, Alaska.
Canyon Creek Development Co., N. O. Anderson, Mgr., Skamania, Wash.
Chesna, McGuire & Miller, Fairbanks, Alaska.
Chititu Mines (Chititu & Rex Creeks), McCarthy, Alaska.
Cleveland & Howell, Hot Springs, Alaska.
A. V. Cordovado, Nome, Alaska.
Dan Creek Hydraulic Mining Co., Louis Levensaler, Hoge Bldg., Seattle, Wash.
Dick Creek Mining Co., Nome, Alaska.
F. R. Ferguson & Sons, Shungnak, Alaska.
Frolich, Kummer, Ott & Scheele, Eagle, Alaska.
Gold King Hydraulic Mining Co., Fairbanks, Alaska.
Guis & Co., Fairbanks, Alaska.
Hudson, C. W., Livengood, Alaska.
Iverson, Knutsen, Fursath, Deadwood via Circle, Alaska.
July Creek Placer Co., Nation via Eagle, Alaska.
Lee & Swanberg, Nome, Alaska.
Loranger & Co., Flat, Alaska.
Mathison Mining Co., Hope, Alaska.
A. McIntosh & Co., Fairbanks, Alaska.
J. Murray, Talkeetna, Alaska.
Nicolai Placer Mines (Dan Creek), McCarthy, Alaska.
Porcupine Mining Co., Haines, Alaska.
E. W. Quigley, Solomon, Alaska.
Roslund & Co., Flat, Alaska.
Rylander, Nass & Co., Haycock, Alaska.
Slate Creek Mining Company (Chistochina), Gulkana, Alaska.
Harry Stevens, Flat, Alaska.
Chas. Swanson, Rampart, Alaska.
Valentine & Porter, Haycock, Alaska.
Geo. J. Waldhelm, Nome, Alaska.
Walker Fork Corporation, Jack Wade, Alaska.
A. Zimmerman & Co., Fairbanks, Alaska.

Drift Mines

Aarvik & Sjoberg, Fairbanks, Alaska.
H. Benson, Berry, Alaska.
Blake & Hilty, Chatanika, Alaska.
Bostrom & Co., Livengood, Alaska.
Dennis Coyle, Ruby, Alaska.
Dimnick, Albrecht & Millianic, Tofty, Alaska.
Tom Donnelly & Co., Berry, Alaska.
Eaton, Wanamaker & Co., Wiseman, Alaska.
Wm. Ferry, Poorman, Alaska.
Grosse & Conta, Olnes, Alaska.

Hansen & Litti, Chatanika, Alaska.
Kinney & Gillis, Fairbanks, Alaska.
Julius Larsen, Livengood, Alaska.
Mohawk Association, Tofty, Alaska.
O. J. Nicholson, Beaver, Alaska.
O'Connor & Kelly, Livengood, Alaska.
Olsen Bros., Haycock, Alaska.
Oregon Mining Co., Chatanika, Alaska.
Peterson & Anderson, Fairbanks, Alaska.
Max Rigler, Ruby, Alaska.
Sather & Co., Meehan, Alaska.
Sjoberg & Everman, Fairbanks, Alaska.
Andrew Soderland, Livengood, Alaska.
Toole & Eagan, Meehan, Alaska.

Other Placer Mines

Allen Mining Co., c/o W. R. Allen, Blaine, Wash.
Berg & Meier, Ophir, Alaska.
H. J. Christensen, Teller, Alaska.
Collins & Hard, Ophir, Alaska.
H. D. Cowden, 227 Colman Bldg., Seattle, Wash.
O. A. Lundburg, Candle, Alaska.
Frank Manley, 8th Floor Balfour Bldg., San Francisco, Calif.
Marsh, Wirem & Co., Fortuna Ledge, Alaska.
M. Murray, Tofty, Alaska.
Vibe & Cameron, Ophir, Alaska.
James Wilson, Cripple via Ophir, Alaska.