Marked Increase In Idaho's Precious Metal Output.

Special Correspondence.

WASHINGTON, D. C., Dec. 14.—From the forthcoming report of the production of gold and silver during the calendar year 1902, the following is taken concerning production in Idaho. It was prepared by J. W. Cunningham, assayer in charge United States assay office at Boise, Idaho.

Annual reports covering a period of years show a marked steadiness in the mineral output of the state—a steadiness not equalled in any other material production. There have been, to be sure, considerable fluctuations from year to year, in the production of individual mines and of mining districts, but the gains and losses resulting from these fluctuations have so nearly balanced each other that when the reports from all over the state are brought together, but little change appears in the total.

The year 1902 was noted for general activity in the mining industry throughout the state. Development work in the opening up of ledges has been carried on steadily, and mills and machinery have been added where the showings seemed to justify their purchase. As a result, several additions have been made to the list of producing mines.

Favorable reports are being received from the newly discovered districts, some of which have attracted attention throughout the country. These districts lie far back in the mountains and, at present, are inaccessible during half of the year, and the development of the mines will be slow, owing to the difficulty in transporting machinery and supplies.

The old placer districts continue to yield in amounts governed mainly by the amount of water supply. The supply was small and the season short in 1902, as a result of the light snow-fall in the winter of 1901-2.

Dredges operated by steam, or electric power, and, therefore, independent of the water supply, which is the sole reliance of the hydraulic miner, are working successfully in several of the old placer districts.

GOLD PRODUCTION.

The production of gold in Idaho has not increased so rapidly as in many other states, but the prospect now is that there will be a pronounced revival in the industry in the immediate future and that this state will become one of the largest producers in the country.

In passing, it will be interesting to review past conditions, as these serve to show why it is that Idaho has been so backward in its gold mining development. While the silver mining industry of the state has attained very large proportions, gold mining has lagged behind for many years.

It is somewhat surprising to many inquirers to find that the state of Idaho has been so slow in the development of its gold resources. They know that the state, then a territory, came into prominence as a producer of placer gold forty years ago. They also know that there was much lode mining in Idaho at that time and during a long period thereafter. It is therefore difficult for such persons to understand why it is that Idaho has not kept pace with some other states. The placer gold discoveries, dufing the pioneer days, brought numbers of miners into this region. They were very rich and produced enormously for a number of years. In time, however, the richest placers were worked out. This left a vast army of miners to drift elsewhere. These scoured the mountains and valleys of Idaho, searching for placers and lodes, and eventually took their departure. In the minds of all such persons leaving the state there was little, or no doubt that the mines had been exhausted. They did not expect to see important mining developments in the future, and they did not hesitate to spread that impression among mining men in all parts of the country where they appeared.

PLACER MINING.

While the placer mining work was going on, many lode mining discoveries were made and these were worked with a great deal of vigor. It developed, however, that the veins were free milling only near the surface where the ore had been oxidized. When development had penetrated into those portions of the leads that had not been changed by the action of the air, the ore taken out could no longer be worked by the processes that were then employed. Methods of handling base ores economically had not been discovered. It was impossible to transport ores to distant markets and, consequently, a great many such mines had to be closed down. This added to the widespread impression that Idaho had nothing to offer in a mining way.

LACK OF RAILWAYS.

Again, the state has been seriously deficient in railway transportation facilities. Such lines as existed within its borders were generally constructed solely with the view of finding the shortest and most available route to points on the coast. These lines were not built through sections that were capable of much mining development; nor have the companies constructed many feeders into the mining sections. Idaho is a very large state and a great portion of it has been almost unexplored. Much of that unexplored region shows indications of being rich in the precious metals, but those sections have been so far removed from railway points that there was little or no encouragement for prospectors to go into them for the purpose of developing the leads. Under all these conditions mining development in Idaho has been backward. The attention of miners has been drawn to other sections where better facilities were afforded and which were more diligently brought to the attention of the public. Though the gold-bearing area of this state is greater probably than that of any other of the Union, other states have been developed while Idaho has remained practically a virgin field to be explored by a later generation of operators.

A BRIGHT OUTLOOK.

The state, however, is now drawing to itself a much larger measure of attention than ever before and there is much reason to believe that some of the most interesting mining developments of future years will be recorded here. The work that has been done during the past two or three years has sufficed to demonstrate the fact that gold is very widely distributed in paying quantities throughout these mountains, and it is the confident belief of those best qualified to judge of such matters that the future will witness a pronounced revival of gold mining in Idaho, and that the state will take a very high place for its production of that metal.

THUNDER MOUNTAIN.

Undoubtedly, the chief features in attracting increased attention to Idaho has been the wide publicity given to the Thunder Mountain section. That is one of the most interesting mining localities that the state has and there are many reasons supporting the belief of those who hold that it will fully bear out all the early predictions respecting its wealth. At any rate, the discoveries that were made in that section were of such a character that they aroused public interest. The interest thus aroused has benefited all sections of the state and the opening of a number of new districts is directly traceable to this Thunder Mountain movement. Not only have other new districts been found, but capital has come forward prepared to take hold of properties that were worked in the early days, and that were abandoned because of the baseness of the ore encountered when deep mining was undertaken.

Thunder Mountain is in a most inaccessible location. Broadly speaking, it is that section of country east of the middle fork of the Salmon river that is drained by Big Creek. More specifically, it is a portion of the region drained by Monumental creek, a tributary of Big creek. It was on Mule creek, which flows into Monumental, near the head of the latter stream, that the original Thunder Mountain discovery was made. That discovery was on what is known as the Dewey property. It is a somewhat singular fact that, though it is a lode mining claim, the discoverers worked it for a number of years as a placer, not realizing the character of the deposit they had met with. Annually, those men marketed gold taken from the surface of the ground during the short season in the spring, while the melting snow gave them a supply of water with which to work.

In 1900, the property attracted the attention of persons who realized that it was a lode mine of very interesting possibilities. They secured a bond on it and set about its development. While that development was in progress the original owners, under the terms of the agreement of sale, continued the placer mining operations on the surface and, in the spring of 1901, they uncovered a remarkable body of very rich quartz. It was this discovery that attracted the boom which was at its height in the winter of 1901 and 1902.

During the succeeding year there was very little development of mines in the district. Prospectors were looking everywhere for such pockets of gold as had been found on the surface of the Dewey. Moreover, it was the general belief that the entire mass of many large porphyry dykes was gold-bearing ore. These dykes were found in every direction and the country was covered with mining claims for miles.

During the year of 1902, however, several companies that had secured property in the district set about its exploration. These kept men at work during the past winter and, in a number of instances, very important results have followed. The Dewey mine has been shown to carry a large vein of ore that will bear treatment. While statements as to its value vary widely, there seems to be no doubt that the mine will prove highly profitable. Similar developments have occurred on the Sunnyside property, and at several other points ores of the same general character have been disclosed. Altogether, the developments have been so encouraging that all the companies interested there are arranging to prosecute work without interruption, and some are arranging for large milling plants. A small mill of 10 stamps has been at work on the Dewey. It is to be increased to 50 stamps, possibly 100, during the present season, and the owners of the Sunnyside have a 40 stamp plant on the way to that property. Several smaller mills, it is said, have been arranged for by other corporations.

This machinery cannot reach the mine until a wagon road 70 miles long shall have been completed. The state legislature, at its last session, made an appropriation of $20,000 for this road. The amount was duplicated by owners of Thunder Mountain property and the road is now being constructed.

OTHER DEVELOPMENTS.

Prospectors attracted to the Thunder Mountain country expended the known limits of the mineral-bearing district by exploration of the country to Big creek. That region is of an entirely different character from Thunder Mountain proper. Its veins are well defined fissures, such as are familiar to prospectors in all lands. They are, however, of phenomenal proportions. It has been stated by many mining men qualified to express an opinion on the subject, that there is no other section of country with such extensive mineral indications. The veins are not only very large, but are numerous and appear to be mineralized throughout their entire width. In some instances, the outcroppings of these ledges have been found to be fully 300 feet in width. A large number of these veins have passed into the control of eastern people by whom they are being developed. It is yet too early to venture a prediction respecting their future, but it seems altogether probable that a number of very important mines will be opened in that section.

It will be impracticable, however, for these Big creek mines to become large producers until better transportation facilities be afforded. There may be some exceptions, possibly some of them will be found to be largely free milling, but in most instances the ores appear to be base, and it s not likely that the concentrates will be sufficiently high grade to bear wagon transportation to present railway points. Possibly, some of the product will yield to the cyanide process, but as a rule the ores do not seem of the kind amenable to that method of treatment.

It is an interesting fact, however, that the railway people are attracted by the possibilities of large tonnage afforded by these veins, and are now engaged in surveying a line of railway to reach that section. The road as proposed will pass through Custer and Lemhi counties and down the middle fork of the Salmon.

BOISE GOLD BELT.

One of the most interesting developments of recent years has been on what is designated as the Boise Gold belt. This is a mineralized zone reaching from Neal to Pearl and passing through the foothills within a few miles of the capital city. It was not supposed, until within a few years, that valuable ore deposits existed so near Boise, but it has now been demonstrated that portions of that belt are of very great importance. This is particularly true of Pearl, northwest of Boise. In that district a number of valuable properties have been opened up, and the indications are that it will become the scene of great activity in the future. The lands upon which the mines were discovered there, were formerly used as pasture for sheep and it was thought very absurd when it was first announced that gold had been discovered in such a section. Work has been going on for several years and the district has now attained such importance that numbers of mining men are securing property for the purpose of development.

In a recent article on Pearl, which is also known as the Westview mining district, Hon. Robert Bell, state mine inspector, makes some very interesting statements, some of which are as follows:

"Commencing at the Lincoln mine, the mineral-bearing zone extends almost due northeast for seven miles to the United mines and Osborne group, right down on the bank of the Payette river, and is fully a mile and a half wide. This entire belt is blocked out solidly with continuous locations and, it is safe to say that every location covers a fissure vein and some of them a series of veins, containing more or les gold-bearing ores.

"Bearing on the probable permanency of the veins and their values with depth, in this district, there are numerous physical features that are quite conclusively in its favor. The most conspicuous of these are the results obtained by the development of the Checkmate mine, which is now explored to a depth of 500 feet on the dip of the vein and, it is a matter of record that every succeeding level developed in this mine has shown a gradually expanding volume of ore, and every succeeding year of its operation has shown a steadily increasing value of gold bullion produced, a most encouraging result, to say the least.

"The sum of the practical mining experience of all the world is, that the richest and best ore bodies are found in regions of deep fissures and are almost invariably associated with an excessive development of igneous dyke rock. In this respect, then, the Westview district, with its great veins and dyke systems, is especially well supplied with the ideal conditions necessary for the development of extensive and profitable mines, and, given the same formations and ore combinations that have poven so immensely profitable in other fields, I see no reason to doubt that like results may be anticipated here."

OWYHEE.

The Owyhee section has been famous since the early days of Idaho as a producer of gold. It first came into prominence as a rich placer district. Later, the lode mines situated on War Eagle mountain produced great quantities of gold, and the district was one of the most prosperous in the west. As depth was gained it became increasingly costly to operate these mines and they were finally closed through financial difficulties of their owners, occasioned by the failure of the Bank of California. Two years ago a tunnel was started to open the ledges at a depth considerably greater than the old workings has reached. This tunnel is some 2100 feet beneath the cone of the mountain and 700 feet under the old workings. Work on the tunnel has been suspended for some time but it is understood it will soon be resumed. That is a very important project because of the ore chutes should be found as rich as they were above, these mines would add largely to the production of the state.

COUER D'ALENE.

The mining district of Idaho that always holds a large place in the eye of the mining world and that always contributes very largely to the production of the state, is that section known as the Coeur d'Alene. The principal mines there produce lead and silver. Their output during the past year was very large, production being maintained on a basis of the best of past records. An important feature of those mines is, that they are thoroughly dependable. There is no variation as depth is gained upon the veins. Year after year the companies have gone deeper and deeper into the bowels of the earth but the ore shoots are always found unchanged and thus, these properties continue to make records of production that entitles them to stand forth in the front rank among the mines of the west. The ores of the lead-silver mines are all treated by concentration, the concentrates being shipped to smelters at outside points. During the past year a very important project has been launched, which has in view a lowering of cost for power for the operation of the mines and mills of that section. Steam plants are to give place to electricity, in many instances, the power being brought from Spokane. Though there is abundance of water power in the immediate vicinity, it has been deemed more desirable to build a long transmission line and utilize power generated at the falls of the Spokane river. The plant, at the latter point, is very large, furnishing electrical energy for the city of Spokane, and much of the surrounding country; consequently, the company controlling it is in a position to furnish the Coeur d' Alene mines with power under conditions that could not be duplicated by a local plant.

OLD DISTRICTS.

It is a very interesting and important fact that many of the old districts in the state are again showing signs of activity. In numerous instances properties that have long been closed down are again being worked and, generally, with gratifying results. This is true of the Atlanta district, in Elmore county. In the early days of Idaho mining, this was one of the important centers of the industry. It became impracticable, however, to work the ores that were mined at depth, and the mines were all closed down—remaining so for years. With improved facilities it is now possible to treat those ores, and mining investors are taking hold of the properties with the view of opening them up extensively. In Rocky Bar, in Elmore county, there is a similar movement. That section produced heavily thirty years ago, but has been inactive during recent years. Some of the old mines there are about to be started up again, and there is reason to believe that the camp will once more be very active. In Lemhi county there are numerous old mining camps, all of which appear to share the revival that is in progress throughout the state. The same is true of Custer county. The latter has a number of mines that have been regular producers for a number of years, but there are several other districts that have been lying dormant. These all show indications of revival and the probabilities are that the mining interests of that county will become much more important in the near future than they eveh were in the past. Similar conditions are met with in Blaine county, in Washington county, in Idaho county, and in Boise county.

SALMON RIVER.

The great section drained by the Salmon river is practically all gold bearing, and a very large proportion of it is yet unexplored further than by such cursory examination as has been made by prospectors passing through in search of rich placer ground. The stream rises in the mountains of Custer and Lemhi counties, flows northward to the north end of the latter and then turns westward across the state. Gold is found on all the tributaries in the two counties named, and many valuable quartz properties have been opened. Some of these were discovered years ago and are in the list of old properties now being reopened. Many leads have been discovered since the inauguration of the new era of prospecting following the discovery of Thunder Mountain. Probably the most important of these new discoveries are those on Loon Creek. In the early days rich placer mines were worked there, and last year the lode from which the gold probably came was discovered. The ore is very rich, much of it carrying values as high as $200 a ton, and the deposits appear to be large.

The mines at all points in Lemhi are giving great promise and the prospect is, that that section will be found well in the front with respect to production of gold hereafter. The same is true of Custer county, though there is not so much newly discovered mining territory in that section.

Crossing the state, the Salmon passes through a succession of canyons. The affluent streams generally come in through similar canyons. These conditions have made the exploration of that region very difficult, but much progress has been made, particularly since the discovery of Thunder Mountain; and a number of promising discoveries have been reported from the mountain in which these streames take their rise.

At the old camp of Warren, near the western border of the state, there has been small production for years, but now there is much greater activity. At other points in that section discoveries have been made, notably at Marshall Lake, and the development in all that region is likely to be interesting. On the north side of the Salmon the old placer camp of Florence is again attracting attention both for hitherto unworked gravel deposits and for lode mines that are being opened. Black Lake district, in Washington county, and Rapid River, in Idaho county, are in the Salmon River region and both are important. At Black Lake a large plant has been erected during the past two years, employing the cyanide process, and it has now begun the production of bullion. On the Snake river, above its junction with the Salmon, and some 75 miles from Lewiston, a copper region known as the Imnaha district, is being developed. A steamboat with high power engines has been put on to carry supplies to that district from Lewiston and transport ores to that place.

CLEARWATER RIVER.

Another great stream that flows through a large section of Idaho that is almost unexplored, is the Clearwater. It rises in the Bitter Root mountains and flows westward through the state to a junction with the Snake at Lewiston. There is little known of the region where the river rises, but it is believed to be well mineralized. Farther along on its course, the river passes through a country that has been proved to be very rich in gold. That section was scoured for placer gold in the early history of the state, and at mainy points the miners met with exceedingly rich rewards. Pierce City is one of the sections that yield rich harvests to those pioneer miners. Its placers are still being worked, large areas of lean ground having been left by the miners of the past generation because they would not pay at that time. But in that section important lode mines are being developed. Some of these have become very profitable and, each season adds to the number of promising mines. Pierce is the center of a very large gold-bearing section embracing a number of districts and the developments in progress give promise of there being many very valuable mines in addition to those already opened.

One of the most important districts of that portion of the state is Buffalo Hump. It is one of the new districts, having been discovered only a few years ago. The district has passed through an experience that is common with nearly all new mining sections. Promising discoveries led to a stampede during which the district enjoyed a great deal of notoriety. Then came a reaction. The throng that rushed in, expecting to gather a fortune, quickly receded and, for a time, the district attracted but little attention. But practical men who had securd a foothold, went to work to develop their holdings, ond now, the district is beginning to produce considerably. Mines that started with small plants, are enlarging their capacity and the outlook is that the Hump, as it is designated, will become a permanent camp of more than average importance.

SNAKE RIVER.

The possibilities of placer mining along the Snake river, throughout nearly its entire course in the state, have always been most alluring. Immense areas of gravel are found to be liberally sprinkled with flour gold that is very difficult to save. It has often been estimated that these gravels carry enough of the precious metal to pay the national debt, but those who have endeavored to mine the ground on a large scale have failed. While men make good wages at many points in working with rockers and other small apparatus, numerous extension plants, erected at different times, have been abandoned, because the gold could not be saved when working under such conditions. There have been a few exceptions, but the rule has been as stated. This year a new pattern of dredge is being erected on the river, and those interested in it claim that it certainly will save all the gold carried by the sand. That has been claimed for every other dredge, but the public is always glad to believe that the next one will accomplish what it aims at. In this latest enterprise there are some features entirely new, which seem to have interesting possibilities, should it prove that the problem of saving such gold has been solved, the shores of the Snake will hereafter contribute much to the aggregate production of the state.

COPPER MINING.

For several years there has been promise that the mining of copper would become an established industry in Idaho. So far there has been no production worth speaking of, but it is quite probable that hereafter, the state will contribute considerably to the production of that metal.

At Mackay, in Custer county, a large property is being developed which gives promise of being highly valuable A large plant has been erected for the reduction of the ores, and the management is confident that it will be handling some 400 tons of ore daily in its furnaces, before the close of the year. Should this hope be realized, copper mining will be established on a reasonably permanent basis in the state.

A few years ago it seemed that the copper mines of the Seven Devils' district, in Washington county, were about to be operated permanently. A railway was built part of the way to them and it was promised the line would be completed the following year. A smelter was erected, but, about this time the companies interested became involved in financial difficulities and work closed down. It is understood there is now a good prospect that those at the head of the enterprise there will soon be able to resume operation. If the railway should be extended to the mines it would bring the copper ores of that district into the market, either through the local smelter that has been established, or through those at other points.

From reports received from mine owners and operators and from estimates made in cases where accurate information was unobtainable, I am able to submit the following figures for the year 1902:

SOURCES OF THE DEPOSITS AT THE UNITED STATES ASSAY OFFICE, BOISE, IDA., FOR THE CALENDAR YEAR 1902.

County.	Gold. Standard Ounces.	Gold. Value.	Silver. Standard Ounces.	Silver. Value.	Total Value.
Ada	240.468	$ 4.473.62	72.84	$ 84.76	$ 4.558.58
Bannock	378.379	7,039.61	53.63	62.40	7,102.01
Bingham	235.241	4,376.58	24.13	28.08	4,404.65
Blaine	112.123	2,216.24	26.34	30.65	2,248.89
Boise	11,226.925	208,873.02	3,018.22	3,512.11	212,395.13
Canyon	132.524	2,465.56	31.92	37.15	2,502.71
Cassia	1,580.476	29,404.20	93.82	109.17	29,513.37
Custer	352.251	6,553.51	190.67	221.87	6,775.36
Elmore	2,554.978	47,534.48	1,095.07	1,274.26	48,808.74
Idaho	4,346.140	80,858.42	1,263.89	1,470.71	82,328.13
Lemhi	2,265.485	42,148.56	491.07	571.43	42,719.99
Lincoln	1,524.794	28,368.26	163.58	190.35	28,556.61
Oneida	579.776	10,786.53	84.11	97.87	10,884.40
Owyhee	14,313.976	266,306.53	11,129.96	12,951.23	279,257.76
Shoshone	2,747.086	51,108.58	968.81	1,010.98	52,119.56
Washington	130.181	2,421.97	65.86	76.40	2,498.37
Total	42,727.803	794,935.87	18,673.72	21,729.42	816,665.29
Montana	7,057.728	131,306.56	1,991.75	2,317.67	133,624.23
Oregon	29,137.986	542,102.08	9,392.16	10,929.06	553,031.14
Utah	10.449	194.39	2.21	2.57	196.96
Washington	156.991	2,920.76	24.61	26.64	2,940.40
Total	79,090.957	1,471,453.66	30,684.45	35,007.36	1,306,467.02

Distribution of the gold and silver product of Idaho for the calendar year 1902 as to sources of productions—

Gold—	Fine ounces.
Quartz	38,500
Placer	34,547
Silver—	
Lead ores	5,228,922
Quartz	715,786

TOTAL PRODUCT OF IDAHO DURING CALENDAR YEAR 1902.

Metal.	Quantity	Value.
Gold, fine ounces	73,047	$ 1,510,015
Silver, fine ounces	5,942,714	7,683,509
Lead, pounds	128,606,458	5,787,290
Total value		$14,980,814

GOLD AND SILVER PRODUCED IN IDAHO DEPOSITED WITH GOVERNMENT INSTITUTIONS DURING THE CALENDAR YEAR 1902.

Mints and Assay Offices.	Gold. Standard Ounces.	Gold. Value.	Silver. Standard Ounces.	Silver. Value.	Total Value.
Mints—					
San Francisco	622.282	$ 11,577.34	154.14	$ 179.36	$ 11,756.70
Philadelphia	693.535	12,902.22	485.80	542.02	13,445.00
Denver	343.141	6,384.02	87.36	101.65	6,485.67
Assay Offices—					
Boise	42,727.803	794,935.87	18,673.72	21,722.42	816,665.29
Helena	8,920.385	165,960.65	2,353.04	2,738.08	168,698.73
New York	34.792	647.10	20.88	24.30	671.40
Seattle	807.509	15,023.42	238.38	277.39	15,300.81
Total	54,149.437	$1,007,431.36	21,995.32	$25,692.22	$1,033,023.60

PRODUCT OF GOLD AND SILVER IN IDAHO, BY COUNTIES, DURING CALENDAR YEAR 1902.

County.	Gold. Weight Fine ounces.	Gold. Value.	Silver. Weight. Fine ounces.	Silver. Coining Value.	Total Value.
Ada	715	$ 14,780	297	$ 384	$ 16,164
Bannock	631	13,044	101	121	13,175
Bingham	579	11,969	79	102	12,071
Blaine	725	14,987	110,544	142,926	157,913
Boise	16,461	340,692	4,770	6,167	346,859
Canyon	255	5,271	73	94	5,365
Cassia	1,890	39,070	170	220	39,290
Custer	668	13,809	85,545	110,603	124,412
Elmore	4 100	84,755	1,844	2,384	87,139
Idaho	7,596	157,023	3,464	4,479	161,502
Lemhi	10,787	222,987	2,844	3,677	226,664
Lincoln	1,850	38,243	214	277	38,520
Oneida	750	15,090	147	190	15,280
Owyhee	20,938	432,827	698,574	903,207	1,336,034
Shoshone	4,761	98,419	5,033,923	6,508,513	6,606,932
Washington	341	7,049	120	155	7,204
Total	73,047	$1,510,015	5,942,714	$7,683,509	$9,193,524

THE SAILOR'S WEDDING.

Max Adler, as Charles Heber Clark, the humorous writer, likes to be called, once told at a dinner of the Manufacturers' club of Philadelphia a story apropos to the tariff.

Mr. Clark has strong views on the tariff. In his speech he condemned the advocates of certain half-way measures, opposed to his views, as follows:

"These people remind me of a sailor who took his sweetheart to church and asked the minister to marry them.

"The minister would have married them readily enough, only the man was half drunk, and even the woman, it was evident, had been drinking. Besides, they admitted they had only known each other two days.

"'Oh, I can't marry you,' the minister said. Then, to give an inoffensive reason for his refusal, he asked:

"'Have you got a guinea?'

"'No, indeed,' said the sailor, 'nor nothing like it.'

"'Then to marry you is out of the question, for you haven't enough money to pay me,' said the other.

"The sailor took out a quarter, and squeezed it, with a wink, into the minister's hand.

"'Just marry us as far as that'll go, boss,' he said."

Banner Year of The Great Tintic District

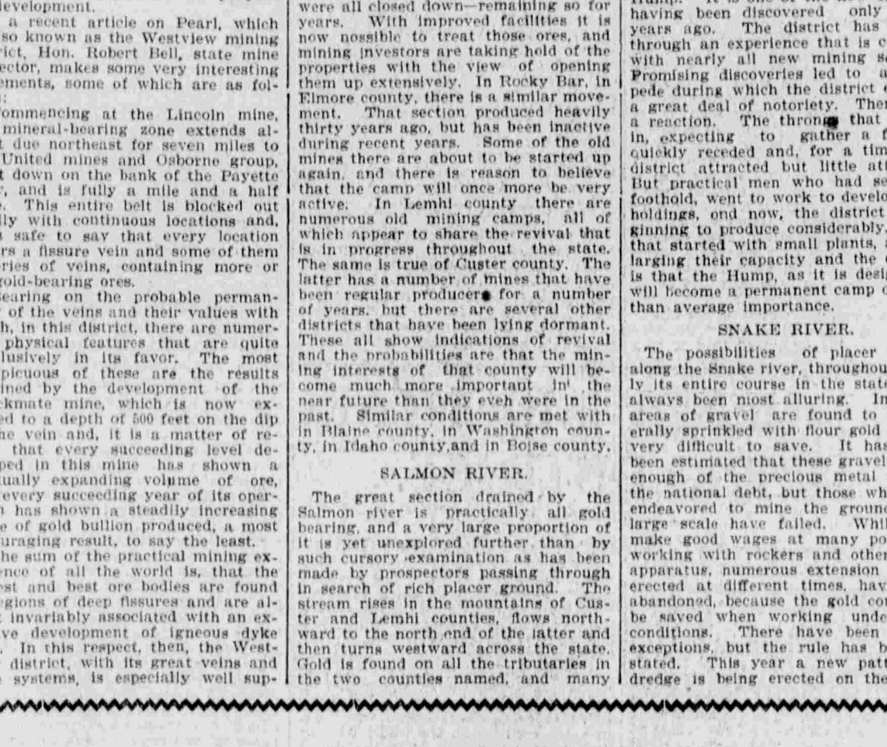
(Continued from page twenty-one.)

year has made it possible for mine owners in this section to market ore which a couple of years ago they could not have handled at a profit. Legal difficulties and a suspension of work at the Centennial Eureka mine pending the erection of the large smelter, caused the output for the year 1902 to be much lighter than it would otherwise have been.

Following are the comparison figures:

ORE SHIPMENTS FOR 1903. ORE SHIPMENTS FOR 1902.

Name of Mines.	No. Cars	No. Tons.	Name of Mines.	No. Cars	No. Tons.
Ajax	39	1,170	Ajax	58	1,450
Bullion Beck	220	6,600	Alaska	10	250
Black Jack (iron ore)	161	4,830	A. T. Simmons	1	25
Centennial Eureka	1,481	44,430	Bullion Beck	224	5,600
Carissa	115	3,450	Boss Tweed	1	25
Dragon Iron mine	931	27,930	Carissa	247	6,175
Eureka Hill	86	2,580	Boston and Tintic	1	25
Eagle and Blue Bell	67	2,010	Centennial Eureka	97	2,425
Gemini	427	12,810	Dragon Iron mine	410	10,250
Grand Central	1,033	30,990	Crown Point	7	175
Joe Bowers	3	90	Eureka Hill	61	1,525
Lower Mammoth	155	4,650	Eagle and Blue Bell	133	3,325
La Clede	20	600	Grand Central	323	8,075
Little Chief	3	90	Gemini (Keystone)	456	11,400
Mammoth	392	11,760	Godiva	7	175
Mordue (iron ore)	1	90	Jensen and Milo	2	50
May Day	17	510	Lower Mammoth	144	3,600
Martha Washington	23	690	Mammoth	316	7,900
Noon's Iron mine	65	1,950	May Day	44	1,100
Rising Sun	1	30	Mordue (iron ore)	11	275
Richmond and Anaconda	2	60	Martha Washington	3	75
Rabbit Foot	1	30	Rabbit Foot	2	50
Star Cons.	92	2,760	Swansea	31	775
Swansea	42	1,260	South Swansea	122	3,050
South Swansea	59	1,770	Sunday mine	1	25
Uncle Sam	90	2,700	Sioux Utah (lease)	8	200
Victor	124	3,720	Star Cons.	40	1,000
United Sunbeam	15	450	Tetro	2	50
Whiting (iron ore)	4	120	Tesora	51	1,275
John Moore (Tesora lease)	1	30	Undine	1	25
Tetro	30	900	Uncle Sam Cons.	94	2,350
Yankee Cons.	224	6,720	Utah	1	25
			Victor	51	1,275
Total for 11 months of '03	5,924	177,720	W. F. Ercanbrack	1	25
			Yankee Cons.	317	7,925
			Total for year of 1902	3,278	81,950



LOWER MAMMOTH MINE.

Showing Entrance to Main Tunnel Inside of Which is the Electric Hoist.

CONCENTRATE SHIPMENTS FOR 1903. CONCENTRATE SHIPMENTS FOR 1902.

Name of Mill or Jigg.	No. Cars	Name of Mill or Jigg.	No. Cars
May Day mill	2	Alaska jiggs	2
May Day jiggs	20	Mammoth mill	47
South Swansea jiggs	1	May Day mill	10
		May Day jiggs	18
Total for 11 months of 1903	23	Tesora mill	42
		Total for 1902	119

In this table it is figured that there are 30 tons to the carload, this being the best average. In the shipment of ore from the Tintic mines this year a great many of the new steel cars have been used and some of these have been loaded to their full capacity (about 60 tons), and it will be readily seen that an average of 30 tons to the car is no more than fair. In that part of the comparative table which refers to the year 1902 the writer figured on an average of 25 tons to the carload.

The shipments for the year 1903 only go to Nov 30, and it is estimated that the output for the month of December will amount to about 500 carloads or 15,000 tons.

MOTOR-CAR SERVICE IN TROPICS.

The motor car is playing an important part in the development of Madagascar, where its advantages have been fully recognized by the French authorities. Mr. Sauzier, the British consul at Tamatave, writes that there is now a regular service between that place and the capital—Antananarivo. Passengers take the railway as far as Foudrona (seven and a half miles), then embark on small steamers through the lakes to Mahatsara. There they arrive the same night, and go on by motor car to Antananarivo, where they are landed, four days later, at a much less cost and with much less fatigue than by the old system of palanquin transport.—Unidentified.

OCCUPATION AND LONGEVITY.

With regard to the occupations which insure longevity, it is the universal testimony that clergymen reach the highest age, being close run by gardeners and vinedressers. Ordinary agricultural laborers, although their occupation is so largely in the open air, are not conspicuous as long livers, except in France, Sweden and England. People working with wood are longer lived than those whose occupations are with metals, and both attain a higher age than textile workers and workers in chemical industries. The shortest-lived people are miners, except in England, where the superior mining regulations and admirable sanitary arrangements have a beneficial effect. In England and Norway sailors and fishermen live a far greater age than in Germany and France.—Tit-Bits.

HOW TO DO WITHOUT SERVANTS

It behooves all house mothers to meet the question of how to do without servants. And in order to keep up the standard of mental, spiritual and physical excellence in women, they must be willing to consider that it would be better to live on plainer food, to have fewer ornaments to dust in their homes, to wear less elaborate gowns, and to have more time to read with their children, to walk out under the beneficient skies of this fair land and to reflect on these things that are so abundantly set before the citizens of the twentieth century; that will make for an elevation of class, an entire leveling of conditions that depend on the grade of mind that meets them.—Florence Jackson Stoddard, in Sunset Magazine.