

REPORT

OF THE

DIRECTOR OF THE MINT

UPON

PRODUCTION

OF THE

PRECIOUS METALS IN THE UNITED STATES

DURING THE

CALENDAR YEAR 1887.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1888.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

The report of the Director of the Mint upon the statistics of the production of the precious metals in the United States for the calendar year 1887.

JULY 20, 1888.—Referred to the Committee on Coinage, Weights, and Measures and ordered to be printed.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, D. C., July 17, 1888.

SIR: I have the honor to transmit herewith the report of the Director of the Mint upon the statistics of the production of the precious metals in the United States for the calendar year 1887.

Very respectfully,

C. S. FAIRCHILD,
Secretary.

Hon. J. G. CARLISLE,
Speaker of the House of Representatives.

LETTER OF TRANSMITTAL.

TREASURY DEPARTMENT,
BUREAU OF THE MINT,
Washington, D. C., July 17, 1888.

SIR: I have the honor to forward herewith for transmittal to Congress my report as Director of the Mint on the "Production of the Precious Metals in the United States for the calendar year 1887," being my third report, and the eighth of the same series prepared by this Bureau under annual appropriations, and, under the above title, printed by order of Congress.

The editorial and statistical labors of this report have been shared, the same as the last two years, with Mr. E. O. Leech, of the Bureau of the Mint, computer of bullion.

Respectfully yours,

JAMES P. KIMBALL,
Director of the Mint.

HON. C. S. FAIRCHILD,
Secretary of the Treasury.

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PART I.

GENERAL REPORT.

GENERAL REPORT.

PRODUCTION OF GOLD IN THE UNITED STATES.

The product of gold from the mines of this country during the calendar year 1887 amounted to 1,596,375 fine ounces (49,654 kilograms), of the value of \$33,000,000. The sources of the product, as well as in part the basis of the above estimate, are exhibited in the following table:

ELEMENTS OF THE ESTIMATE OF GOLD PRODUCTION, 1887.	
Items.	Value.
Gold bullion of domestic production deposited at Mints and Assay Offices of the United States	\$32, 444, 067
Gold bullion of domestic production (other than United States Mint or Assay Office bars) exported from the United States	134, 867
Gold in ores of domestic production exported for reduction	87, 604
Gold in copper matte and pig copper, produced principally in Montana, exported as "copper ore"	300, 000
Gold bullion of domestic production reported by twenty-six private refineries in the United States as having been made into bars for manufacturers and jewelers	973, 244
Total	33, 939, 782
Deduct:	
Foreign gold bullion reported by fifteen private refineries as used in the manufacture of fine bars, deposited at the Mints and Assay Offices and classified as of domestic production	892, 217
Total	33, 047, 565

The only item of any doubt in the above estimate is the value of the gold in copper matte exported for reduction abroad, and which escapes classification at the custom-houses.

The estimate given as the value of this product (\$300,000) represents the output of only one mine in Montana.

The production of gold fell off from the preceding year, when it amounted to \$35,000,000.

The value of the gold produced in the United States annually since 1880 is exhibited in the following table:

Years.	Value.
1880	\$36,000,000
1881.....	34,700,000
1882.....	32,500,000
1883.....	30,000,000
1884.....	30,800,000
1885.....	31,800,000
1886.....	35,000,000
1887.....	33,000,000

The product of gold, as reported to this Bureau by private refineries manufacturing fine gold bars in the United States during the calendar year 1887, was 1,113,033 fine ounces. This included, according to their returns, 43,919 fine ounces of foreign bullion.

The domestic bullion deposited and refined at the mints of the United States and at the assay office at New York contained 750,227 fine ounces of gold.

The product of private and Government refineries in the United States during the calendar year 1887 is presented in the following exhibit:

Gold.	Fine ounces (troy).
Reported product of eleven private refineries in the United States manufacturing fine gold bars.....	1,113,033
Domestic product deposited at United States mints and assay offices	750,227
Total	1,863,260
Value.....	\$34,665,302

PRODUCTION OF SILVER IN THE UNITED STATES.

The work of collecting the statistics of the production of the precious metals, assigned to the Department of the Treasury, and for seven years executed by the Bureau of the Mint, has, as intimated in my last report of this series, become one of great difficulty owing to numerous circumstances which it is important should be understood.

The method employed by this Bureau in executing the subsidiary work of which the several reports of this series are the result, has been

fully explained, especially in such of the reports as have been prepared by me. It will be unnecessary, therefore, to here advert to that subject.

The difficulty to which I now refer grows out of the fact that into the gross production of the precious metals in the United States there now enter foreign products which, even under the most favorable circumstances, it would be difficult to distinguish from domestic products, but which under existing customs laws, rules, and practice, elude registration of any kind except the scantiest. Foreign silver products in the form of precipitate, bullion, ores, gold and silver-bearing ores of the base metals, mattes, spiess, etc., are passing in and out of the country on a large and rising scale, while products of smelting works and refineries in the United States from such foreign materials become more and more important a part of deposits at United States mints and assay offices. Wherever gold or silver bullion is turned out by public or private refineries, it is commonly in bars made of metal both from foreign and domestic sources. The relative proportions of metal from different sources it is no practical matter to determine, and therefore not practicable to declare.

Thus, with every disposition on the part of private refiners and custom-house officials to aid the inquiries of the Bureau, the merging of foreign products along with domestic tends to introduce into the statistics of production of the precious metals in the United States several doubtful factors and a certain margin of error, even after exhausting all methods of inquiry, not without excursions into numerous fields open to the researches of this Bureau only by the courtesy and good will of private persons and public officials.

It has justly been considered that the deposits of the precious metals at the United States mints and assay offices, taken in connection with the custom-house registration of exports and imports, has formed the best practicable basis of statistics of production, and thus it came to pass that this Bureau was called upon to collate them for the information of Congress.

From the method open to the Bureau of the Mint by an extension and adaptation of its own regular system of records, the only practicable alternative for the collation of statistics of production of the precious metals in the United States is the plan for ten years pursued by a special commissioner of mining statistics, namely, direct returns from producers, so far as voluntarily rendered, with supplementary estimates for production unreported. The objections to the latter as an essential method, by whomsoever put into execution, are obvious, especially such as arise from dependence in all cases upon *ex parte* statements from interested persons, all of whom are not equally conscientious or accurate. The tendency to exaggeration is almost invariably to be detected in direct statistics of this kind, even when elicited by this Bureau for the collateral or minor purpose of ascertaining the sources of production rather than the product itself.

Both methods, however, are equally ineffectual in discriminating between domestic and foreign products, while the exaggerating tendency of the direct method becomes all the more manifest in dealing with foreign products, often turned out in large quantities from works in a given State or Territory from whose mines the domestic production may be comparatively small or even inconsiderable. Important, therefore, as may be the error in attempting to separate the foreign from the domestic product of the United States as a whole, however computed, the danger of relatively greater error in statistics of the precious metals will not fail to be perceived in the case of States and Territories within whose borders are located large smelting works or refineries to whose product foreign materials have largely contributed.

It is well known that for want of smelting works of an advanced kind in Mexico, and on account of scarcity of fuel, selected or concentrated refractory ores, known as smelting ores, and mainly consisting of metallic sulphides, more or less argentiferous, have for a long period found their way to the seaboard, whence they have been exported to the United States and to Europe as a regular article of commerce. The value of these ores has been generally estimated in Mexico by the assay value of the precious metals, or of silver to the exclusion of the minute proportion of gold, the base metals not entering into the invoice value, though really relied upon by merchants to defray the cost of transportation and of smelting, and for commercial profits.

The development of railways in Mexico has tended not only to increase transactions of this kind on European account, but to open for exports new ports on the United States frontier. The Mexican Central Railway has brought to the United States, through El Paso, during the last two or three years, a heavy freight of Mexican smelting ores from the eastern slope of the Mexican Cordilleras, while the Sonora Railway has brought through Nogales a similar freight from the western slope.

The manifest value of so-called silver ores imported from Mexico into the United States, mainly through the ports of what is known as the customs district of Paso del Norte, was \$4,228,107, of which the value of \$491,295 approximately represents the lead reported in 1887. It will be understood, however, that the value of silver ores as such is seldom accurately manifested, and is indeed impossible to determine in advance of regular sampling at sampling mills, which are usually the first destination of these ores in the United States. From these mills they are distributed to the several smelting works in the United States. The doré bullion extracted from them is then "parted" at acid refineries connected with smelting works, or at separate establishments, whose product of fine bars is either deposited at mints or assay offices of the United States, exported, or sold to manufacturers.

Neither at sampling works nor smelting works, receiving Mexican ores for reduction, is any practical advantage found in preserving,

while in the course of treatment, the identity either of foreign ores apart from domestic ores of a given kind, or of individual lots of ores.

It thus happens that nothing like a strict account of the value of Mexican ores, as to their tenor of either precious or base metals, is kept in a manner adapted to statistical purposes. Much has been effected through co-operation of the Chief of the Bureau of Statistics and the collector of Paso del Norte customs district toward rendering available to the inquiries of this Bureau the returns of the ports of that district.

Troublesome as during the past two years has been the matter of dealing statistically with the importation of Mexican ores containing precious metals, it is expected that less difficulty will arise in future, measures having already been adopted, at the hands of the collector of the district of Paso del Norte, to verify by assay, not only the manifested value of silver, but also at least of lead, the principal base metal, of which these importations are likewise ores. The small tenor of gold extracted from doré bullion by refineries will therefore remain the only undetermined value which for the purpose of these statistics possesses any importance, however slight.

It is further expected that the co-operation of private refineries which has so generously been given to the labors of this Bureau by way of reporting their product will also be extended, wherever practicable, to the important distinction as to its sources as between domestic and foreign.

The question naturally arises, Why attempt to separately account for so much of the products of refineries in the United States as is derived from foreign sources? Why not, as contended by Dr. Soetbeer* to be the better course, treat as produce of the United States the whole output of its refineries? Occasion will be taken further on to discuss the point with reference to its importance in estimates of the World's Production of Gold and Silver, especially by way of meeting the objections lately urged by Dr. Soetbeer to the method of this Bureau, whereby, when practicable, imports of gold and silver products are uniformly credited to the country exporting. Suffice it here to remark, that the practice of this Bureau in the matter in question seems to be enforced by every consideration of propriety and expediency. Moreover, it is justified by English, French, and German official precedents and practice, as well known to Dr. Soetbeer, who, it may be said, has raised the question with reference to foreign gold and silver ores smelted only in Germany. These are paid for to the exporter in foreign gold exchange, or in terms of its equivalent, well up to the full assay value of the precious metals contained in them. Definite values of this kind enter into the natural resources of the exporting country, and, as they enter into its commercial statistics, should likewise enter into its statistics of the production of the precious metals.

* Hamburgische Börsen-Halle, May 2, 1888.

The product of silver from the mines of the United States during the calendar year 1887 amounted to 41,268,305 fine ounces (1,283,855 kilograms), of the commercial value of about \$40,450,000, and of the coining value of \$53,357,000.

VALUE OF THE IMPORTS OF SILVER ORE INTO THE UNITED STATES, INCLUDING THE VALUE OF SILVER IMPORTED IN ARGENTIFEROUS LEAD, COPPER, AND IRON ORES, 1887.

[Return by Bureau of Statistics.]

Countries whence imported.	Declared value.
Central American States	\$23, 227
Ecuador	623
England	61, 216
Quebec, Ontario, Manitoba, and the Northwest Territory.....	151, 267
British Columbia	16, 636
Mexico	3, 973, 144
Peru	717
United States of Colombia	1, 277
Total	4, 228, 107

VALUE OF SILVER BULLION (UNPARTED OR DORÉ BARS) IMPORTED INTO THE UNITED STATES, 1887.

[Return by Bureau of Statistics.]

Countries whence imported.	Declared value.
Mexico.....	\$4, 774, 144
United States of Colombia.....	591, 984
China.....	63, 139
Other countries.....	8, 427
Total	5, 437, 694

It will be understood (as has repeatedly been explained in the reports of this series) that the rating of silver bullion imported into, and exported from, the United States, as registered at the custom-houses, is at commercial value.

The average price of silver in the London market during the calendar year 1887 was 44.681 pence, equivalent, at the par of exchange, to \$0.97946 per ounce fine. For the purposes of this report, in estimating the commercial value of silver the rate of 98 cents per ounce fine, being practically the average price of silver for the year, has been taken.

The elements of the estimate of the Bureau are exhibited in the following table:

ELEMENTS OF THE ESTIMATE OF SILVER PRODUCTION, 1887.	
Items.	Coining value.
Silver bullion deposited at the mints and assay offices of the United States, as of domestic production	\$35, 741, 067
Silver bullion (other than United States Mint and Assay Office bars) classified as of domestic production exported from the United States (custom-house rating at commercial value \$19,379,650, corresponding at the average price of silver during the year, \$0.98 per ounce fine, to)	25, 567, 295
Silver contained in exported furnace products from Montana.....	1, 800, 000
Silver bullion of domestic production reported by twenty-six private refineries as having been made into bars for manufacturers and jewelers.....	208, 766
Total	63, 317, 128
Deduct:	
Foreign silver bullion imported (commercial value).....	\$5, 373, 001
Silver in miscellaneous smelting ores imported, estimated at their invoice value	\$4, 228, 107
Value of the lead in silver ores.....	491, 295
Value of silver in ores.....	3, 736, 812
Total	9, 109, 813
Coining value of above.....	11, 542, 515
Less:	
Foreign silver bullion deposited at mints and assay offices of the United States; coining value	1, 509, 027
Foreign silver bullion re-exported (commercial value, \$31,980); coining value.....	42, 191
Foreign silver ores re-exported (commercial value, \$24,015); coining value	31, 682
Total.....	1, 582, 900
Value of foreign silver included in fine bars manufactured by private refineries in the United States and classified at the mints and custom-houses as of domestic production (included in first and second items of this estimate).....	9, 959, 615
Production for 1887.....	53, 357, 513

The identification of the foreign product in the output of private refineries in the United States manufacturing fine bars has been a difficult matter, as above explained.

The extra labor on the part of this Bureau has been shared by private firms in the United States. Several of these have kindly gone over their books in order to ascertain, for the purpose of these statistics, the amount of Mexican material entering into their produce.

Deducting the foreign silver bullion deposited at the mints of the United States from net imports of silver bullion and of silver ores, principally from Mexico, it is known that foreign material sent to private refineries aggregated 7,500,000 fine ounces.

From returns received from private refineries, as corrected after correspondence with smelting works whose product was handled, the Bureau has been able to trace about 6,500,000 fine ounces of Mexican silver contained in fine bars of private refineries. About 1,000,000 ounces has not been identified.

It will be understood, therefore, that in the product of private refineries reported to this Bureau, as will presently be exhibited, there is included about 7,500,000 ounces of silver, as returned from the custom-houses, of which about 6,500,000 has definitely been traced to private refineries.

The total number of fine ounces contained in the bars of the fourteen private refineries manufacturing silver bars in the United States, and reporting to this Bureau for the calendar year, was 46,291,045.

Silver from mines of this country was deposited at the mints and assay offices of the United States for refining, to the amount of 1,951,695 ounces. This added to the total output of private refineries gives the total production of fine silver in the United States for the calendar year 1887, namely, 48,242,740 ounces, as follows:

REPORTED SILVER PRODUCT OF REFINERIES IN THE UNITED STATES, 1887.	
Silver.	Fine ounces (troy).
Refined product of 14 private refineries in the United States manufacturing fine silver bars	46,291,045
Domestic product deposited at United States mints and assay offices for refining.	1,951,695
Total	48,242,740
Commercial value at the average price of silver bullion during the calendar year, viz, \$0.98 per ounce fine ..	\$47,277,885
Value at coining rate in silver dollars, viz, \$1.2929 per ounce fine	62,373,040

The value of the Mexican silver bullion and ore imported into the United States has been eliminated from the estimated product of this country.

Still an important item of some doubt is the value of the silver contained in copper matte exported.

The following letter from the Superintendent of the Assay Office at New York, with an inclosure from the collector of customs at New York, will in part explain the estimate of the Bureau in this respect:

UNITED STATES ASSAY OFFICE, NEW YORK CITY,
Superintendent's Office, April 27, 1888.

SIR: In response to your letter of the 9th instant requesting me "to ascertain from the collector of customs at New York what quantity of gold and silver was contained in the copper matte exported from the United States during the calendar year 1887 as copper ore, and, if possible, the names of the mines producing the same," I inclose a letter showing the amount of copper matte shipped during the year 1887 to be

55,016,640 pounds, and giving the names of some of the shippers. As no entry of the value of silver or gold in the matte was made at the custom-house I have endeavored by inquiry of the shippers and others, to get the desired information. The matte contained very little, if any, gold. Much of the silver being of no recognized mercantile value, has not been definitely determined by any one. From the varying statements obtained I have made and submit the following table:

ESTIMATED AMOUNT OF SILVER IN THE COPPER MATTE, ETC., EXPORTED FROM NEW YORK DURING THE CALENDAR YEAR 1887.			
Shippers.	Copper matte, etc.	Amount of fine silver.	Place of production.
G. H. Nichols	2,971,837 lbs.; 22 oz. per ton (2,000 lbs.).	Ounces. 32,692	Canada.
Orford Copper Company	900,000 lbs. (bars)	45,011	Do.
Williams & Terhune	42,000,000 lbs.; 21 oz. per ton (2,000 lbs.).	441,000	Anaconda mine, Montana.
Do	6,720,000 lbs.; 95 oz. per ton (2,240 lbs.).	285,000	Clark mines, Montana.
Lewisohn Bros.....	1,500,000 lbs.; 44 oz. per ton (2,000 lbs.).	33,000	Clark mines and Boston and Montana, Montana.
American Metal Company ...	1,000,000 lbs.; 80 oz. per ton (2,000 lbs.).	40,000	Colorado and Utah.
Bridgeport Copper Company.	1,366,000 lbs. (bars); 60 oz. per ton (2,000 lbs.).	40,980	Parrot mines, Montana.
Total .....	.....	917,683	

Allowing for silver that may not be included in the above table, it would not be unreasonable to estimate the total amount of silver in copper matte, etc., shipped from New York in 1887 at one million ounces (1,000,000), but your information from other sources will doubtless enable you to review the foregoing detailed estimates, as well as to determine the total amount more accurately.

Very respectfully,

ANDREW MASON,
Superintendent.

DR. JAMES P. KIMBALL,
Director of the Mint, Washington, D. C.

[Inclosure.]

CUSTOM-HOUSE, NEW YORK,
Collector's Office, April 12, 1888.

SIR: The exports of copper matte during the year 1887 were, pounds, 55,016,640, valued at \$2,720,152. These are the totals of the sworn statements of the shippers; the values are necessarily, in the main, estimates.

This matte had, in most instances, not been sold, but was shipped to the foreign market for sale, and to be sold upon an assay to be made at that foreign market.

This matte is reputed to contain in many instances precious metal of considerable value, but no specification of the amount or value is ever made in the clearance or manifest, and we are unable to give even an approximate estimate.

Among the parties in this city prominently connected with this trade, I would mention Williams & Terhune, No. 4 Broadway; Robert M. Thompson, treasurer of the Orford Copper Company, 37 and 39 Wall street; Lewisohn Bros., 74 Beekman street; George H. Nichols, 41 Cedar street.

A considerable portion, however, is shipped direct from the works of the western miner or smelter to these foreign markets and cleared by consignees, who can give but little information about the goods.

This matte comes chiefly from the Anaconda Company, of Butte, Mont.; Boston and Montana Consolidated Copper Company, of Butte, Mont.; W. A. Clark, of Butte, Mont., and the Arizona Copper Company, of Prescott, Ariz.

Respectfully yours,

WM. F. CREED,
Auditor.

ANDREW MASON, Esq.,
Superintendent United States Assay Office.

From information of a confidential character it is learned that an aggregate of some 1,400,000 ounces of fine silver, of the value of not less than \$1,800,000 at coining rate, was contained in furnace products from Montana copper ores shipped abroad (notably to Swansea) for extraction.

Official returns for 1886 from the United Kingdom show to have been imported from the United States 16,105 tons, containing silver of the value of £148,903, or at United States coining rate \$1,000,000.

The following statement from the Chief of the Bureau of Statistics shows classification of "ores," and the quantities and declared values of copper products (ores and mattes) more or less argentiferous, exported during the calendar year 1887:

(a) QUANTITIES AND VALUES OF DOMESTIC COPPER ORE (AND MATTE) EXPORTED FROM THE UNITED STATES DURING THE YEAR ENDING DECEMBER 31, 1887.

Countries to which exported.	Customs districts from which exported.					
	New York.		San Francisco.		All others.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
France	32	\$4,506				
Germany	237	21,206				
England	23,788	2,634,440	200	\$22,818	161	\$21,040
Quebec, Ontario, Manitoba, and the Northwest Territory					42	8,636
Italy	504	60,000				
Mexico			100	1,818		
Total	24,561	2,720,152	300	24,636	203	29,676

Total domestic exports, 25,064 tons; value, \$2,774,464.

The (b) quantity of foreign copper ore exported was 48,724 pounds; value, \$4,890, from New Orleans to England.

a In tons of 2,240 pounds gross weight of ore. b In pounds of fine copper contained in ore.

The production of silver in the United States during the year 1887 was larger by about \$2,350,000 than during the preceding calendar year.

The production of silver in the United States since 1880 is exhibited in the following table :

PRODUCTION OF SILVER IN THE UNITED STATES SINCE 1880.	
[Coining value in United States silver dollars, \$1.2929 per fine-ounce.]	
Year.	Value.
1880.....	\$39, 200, 000
1881.....	43, 000, 000
1882.....	46, 800, 000
1883.....	46, 200, 000
1884.....	48, 800, 000
1885.....	51, 600, 000
1886.....	51, 000, 000
1887.....	53, 357, 000

PRICE OF SILVER.

The rise and fall of the price of an article (says Dr. Soetbeer) frequently have, when they keep within certain limits, in spite of their diametrical opposition, the same influence on the production of the article in question, viz, to increase it. If the enhanced price of a certain article under otherwise equal circumstances give a larger profit to the producer, that fact alone furnishes a strong incentive to its increased production, and, therefore, to a greater gain to the producer, provided there be a possibility of extending the market for it. But if the price of an article falls, the producer will, as a rule, all the more endeavor to diminish in every way the cost of production, and, at the same time, to make up for the diminution in profit from the cheapening of the article by an increase in production and an extension of the market.

A surprising confirmation of this statement is furnished by the production of silver during the fifteen years last past. The average price of silver, according to London quotation, amounted, in 1873, to 59½ pence, but last year, 1887, to only an average of 44½ pence, and hence has fallen about 25 per cent. The production of silver, on the other hand, the total of which was approximately estimated for the quinquennial period 1871-'75, at an annual average of about 1,969,000 kilograms fine, has been estimated for the year 1886 at more than 3,100,000 kilograms, and seems to have undergone rather an increase than a decrease in 1887. The decrease of the price to the extent of 25 per cent. is offset, therefore, by an increase of the production of more than 50 per cent. This enormous increase in the production of silver is certainly to be ascribed chiefly to the discovery and exploitation of the great, rich mines in the west of the United States, but part of it is to be ascribed to the increase of the production of silver in Mexico and Germany. In these countries the remarkable technic progress made in mining and smelting, and in transportation, has effected a great saving in the cost of production, and thus renders possible a continuation and even extension of the production of the white metal, notwithstanding the extraordinary decline in its price.*

No small part of the production of silver in the United States and Mexico during the last few years is due to recent very remarkable improvements in lixiviation or leaching processes, whereby low-grade ores and tailings are expeditiously treated for the extraction of silver and gold to the exclusion of other metalliferous contents.

* Translated from Hamburgische Börsen-Halle, May 2, 1888.

The price of silver varied considerably during the calendar year 1887, but the fluctuations did not take the wide range which they have in some years since the decline commenced.

The following table shows the highest, lowest, and average price of silver in London each month during the calendar year 1887, the equivalent value in United States money of a fine ounce at the par of exchange, and also the average rate at New York of exchange on London, and the value of fine bar silver:

HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, 925-THOUSANDTHS FINE, IN LONDON, AND THE VALUE OF A FINE OUNCE, EACH MONTH, DURING THE CALENDAR YEAR 1887.

[Compiled from daily telegraphic cable dispatches to the Bureau of the Mint.]

Month.	Highest.	Lowest.	Average price per ounce British standard, .925 fine.	Equivalent in United States money, per ounce fine, with exchange at par, \$4.8665.	Average monthly price; t New York of exchange on London.	Equivalent in United States money of fine bar silver, 1,000 fine, based on average monthly quotations, with exchange at average monthly rate.	Average monthly New York price of fine bar silver.
1887.	<i>Pence.</i>	<i>Pence.</i>	<i>Pence.</i>				
January ...	47 $\frac{1}{8}$	46 $\frac{1}{4}$	46.833	\$1.02663	\$4.8616	\$1.02560	\$1.02620
February..	47	46 $\frac{5}{16}$	46.660	1.02248	4.8848	1.02669	1.02792
March.....	46 $\frac{7}{16}$	44 $\frac{5}{16}$	45.440	.99610	4.8712	.99706	1.00093
April.....	44 $\frac{3}{8}$	43 $\frac{1}{4}$	43.964	.96374	4.8724	.96490	.96500
May.....	43 $\frac{1}{2}$	43 $\frac{7}{16}$	43.580	.95532	4.8729	.95658	.95845
June.....	44 $\frac{1}{4}$	43 $\frac{3}{8}$	43.968	.96383	4.8538	.96130	.96207
July.....	44 $\frac{7}{16}$	43 $\frac{7}{8}$	44.148	.96777	4.8443	.96335	.96417
August...	45 $\frac{3}{16}$	44 $\frac{1}{4}$	44.570	.97702	4.8394	.97154	.97232
September.	45	44 $\frac{7}{16}$	44.642	.97860	4.8394	.97287	.97458
October....	44 $\frac{1}{2}$	43 $\frac{1}{16}$	44.159	.96802	4.8478	.96442	.96625
November..	44	43 $\frac{1}{16}$	43.840	.96102	4.8566	.95788	.96020
December..	45 $\frac{1}{8}$	43 $\frac{1}{8}$	44.368	.97260	4.8521	.96972	.96980
Average.....			44.681	.97946	4.8575	.97766	.97899

According to daily dispatches by cable from London to this Bureau, the highest price reached by silver during the year was 47 $\frac{1}{8}$ pence per ounce (British standard). This was on the 28th of January. The lowest price, 43 $\frac{1}{4}$ pence, was on the 6th of April.

The average price for the year was 44.681 pence, equivalent at the par of exchange to \$0.97,946 per ounce fine.

The price of silver in London at the beginning of the year was 46 $\frac{1}{2}$ pence, equivalent to \$1.09,249 per ounce fine.

Owing to increased exports of wheat and other agricultural products from India, there was a demand for silver for shipment to that country such as to cause the advance in price during the month of January to

47½ pence. The price was further strengthened by purchases made by the English Government for coinage, and by demands from other quarters.

The decline from the beginning of the year was 3 pence, or 6.4 cents per ounce fine, in about three months. There was little or no change in the price from April 6th to the latter part of June, when a slight advance took place, the price ranging from $44\frac{1}{6}$ to $45\frac{2}{6}$, the latter figure being reached about the end of August. The price then slowly declined until the 24th of October, when it reached 43¾ pence.

From then until December the changes were very slight, the price on December 19th being 45½ pence, and at the end of December 44½ pence, a decline from the opening price at the beginning of the year of 1¾ pence, equal to 3¾ cents per ounce fine.

The imports of bar-silver and dollars into London during the year 1887 were £7,680,000, and the exports £7,620,000.

The bulk of the silver which went to London was taken for India. Shipments were made to Spain and unusually large ones to Japan, while purchases, as already stated, were made for the silver coinages of Great Britain and its colonies.

The price of silver, in the absence of a general demand for coinage, has been controlled, as usual, through its relations to Indian exports, and the market price obtained for council bills, of which about £15,750,000 were sold during the year.

In the Appendix will be found the usual tables showing the purchases by the United States of silver for the mandatory coinage of the silver dollar, and the amount of silver used in coinage, with the average cost and the profits during the year. The amount of silver purchased under the requirements of the act of February 28, 1878, was 27,552,532.38 standard ounces, costing \$24,221,257, making the average cost per fine ounce \$0.9768.

The Second Annual Report of the Royal Commission appointed to inquire into the recent changes in the relative values of the precious metals was issued under date of January 30 of this year. It contains records of the evidence before the commission, and opinions of leading political economists and experts in reply to a series of interrogatories issued by the commission. This volume of testimony embodies preconceived, and indeed well known, personal views on the silver question diametrically opposed to each other, and widely differing in point of accuracy as well as in importance.

DISTRIBUTION OF THE PRODUCT OF GOLD AND SILVER IN THE UNITED STATES DURING THE CALENDAR YEAR 1887 BY STATES AND TERRITORIES.

The approximate distribution, in round numbers, by States and Territories, of the product of the precious metals in the United States substantially as estimated for 1887 is exhibited in the following table showing the weight of the metal in fine ounces, and the coining value of the same :

APPROXIMATE DISTRIBUTION, IN ROUND NUMBERS, BY STATES AND TERRITORIES, OF THE ESTIMATED TOTAL PRODUCTION OF PRECIOUS METALS IN THE UNITED STATES FOR 1887.

State or Territory.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Value.	
Alaska.....	32,656	\$675,000	232	\$300	\$675,300
Arizona.....	40,155	830,000	2,939,129	3,800,000	4,630,000
California.....	648,283	13,400,000	1,160,183	1,500,000	14,900,000
Colorado.....	193,517	4,000,000	11,601,825	15,000,000	19,000,000
Dakota.....	116,110	2,400,000	417,690	540,000	2,940,000
Georgia.....	5,322	110,000	387	500	110,500
Idaho.....	91,921	1,900,000	2,320,365	3,000,000	4,900,000
Michigan.....	1,253	26,000	27,080	35,000	61,060
Montana.....	252,976	5,230,000	11,938,533	15,500,000	20,730,000
Nevada.....	120,948	2,500,000	3,789,930	4,900,000	7,400,000
New Mexico.....	24,190	500,000	1,778,947	2,300,000	2,800,000
North Carolina.....	10,886	225,000	3,867	5,000	230,000
Oregon.....	43,541	900,000	7,735	10,000	910,000
South Carolina.....	2,419	50,000	387	500	50,500
Utah.....	10,643	220,000	5,414,185	7,000,000	7,220,000
Washington.....	7,257	150,000	77,346	100,000	250,000
Texas.....			193,364	250,000	250,000
Alabama, Tennessee, Virginia, Vermont, and Wyoming.....	967	20,000	387	500	20,500
Total.....	1,603,049	33,136,000	41,721,592	53,941,800	87,077,800

The following table is presented to show auxiliary estimates by several officers of the mint service and special agents of this Bureau, through whom the usual direct collation of the statistics of the production of the precious metals was performed. Occasion has repeatedly been taken to explain the subsidiary character of statements of this kind. Their use for the statistical purposes of this Bureau is mainly to aid in the distribution by States and Territories of the total production of the precious metals in the United States, and not to supply other data for the final estimate of production annually put forth in the volumes of this series. These direct estimates have been derived principally from reports at the hands of mine-owners and agents, of the produce of indi-

vidual enterprises, from preliminary statements of smelting and refining works, and from shipments by express and other conveyance.

While valuable in themselves and in many points agreeing with the estimates of the Bureau, they are not here adopted, nor have any of the kind been in previous reports of this series, as representing the actual produce either of States and Territories, or in the aggregate the actual production of the United States. As the information is largely derived from interested persons, it has never been considered scientific to accept estimates of this kind, which may be characterized as of widely different personal quality.

It is well known that no considerable amount of gold or silver, other than United States bars, is held for more than a few days by private firms or individuals, and that the product of the country in both gold and silver ultimately and without delay finds its way either to the mints or assay offices of the United States, or by way of export to foreign countries.

TRIAL TABLE.

DIRECT ESTIMATE OF THE PRODUCT OF GOLD AND SILVER IN THE DIFFERENT STATES AND TERRITORIES BY MINT OFFICERS AND AGENTS, 1887.

State or Territory.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Value.	
Alaska.....	35,943	\$742,950	273	\$353	\$743,303
Arizona.....	40,306	833,131	2,993,043	3,876,170	4,709,301
California.....	657,407	13,588,614	1,262,281	1,632,003	15,220,617
Colorado.....	234,203	4,841,387	12,112,488	15,660,236	20,501,623
Dakota.....	125,786	2,600,000	425,400	550,000	3,150,000
Georgia.....	5,566	115,050	348	450	115,500
Idaho.....	116,947	2,417,303	2,629,238	3,399,342	5,816,645
Michigan.....	1,258	26,000	27,080	35,000	61,000
Montana.....	289,237	5,978,536	13,781,072	17,817,548	23,796,084
Nevada.....	122,779	2,537,851	4,414,321	5,707,276	8,245,127
New Mexico.....	30,816	636,970	1,910,433	2,470,000	3,106,970
North Carolina.....	15,300	316,250	4,254	5,500	321,750
Oregon.....	44,437	918,511	13,342	17,250	935,761
South Carolina.....	2,521	52,100	309	400	52,500
Utah.....	11,088	229,188	6,050,687	7,822,933	8,052,121
Washington.....	7,765	160,503	94,516	122,200	282,703
Texas.....			236,000	305,123	305,123
Alabama, Tennessee, Virginia, and Vermont.....	967	20,000	387	500	20,500
Total.....	1,742,326	36,014,344	45,960,472	59,422,284	95,436,628

DEPOSITS AND PURCHASES OF GOLD AND SILVER AT THE MINTS AND ASSAY OFFICES OF THE UNITED STATES DURING THE CALENDAR YEAR 1887.

The total value of the gold deposited at the mints and assay offices of the United States during the calendar year 1887, exclusive of re-deposits, was \$74,724,077.85, corresponding to 4,016,419.187 standard ounces.

In addition, re-deposits of gold amounted to \$9,943,634.39, corresponding to 534,470.349 standard ounces. The total value of the gold received and operated upon by the Government institutions was \$84,667,712.24, corresponding to 4,550,889.536 standard ounces.

The value of gold deposited during the calendar year 1886 was \$66,422,088.49, exclusive of re-deposits. Hence there was an increase in original deposits of gold in 1887 over the preceding year of \$8,301,989.36.

Of original deposits of gold at the Government institutions during the year 1887, \$32,444,067.46 was classified as of domestic production, against \$33,535,337.58 in the preceding year. There is thus shown a falling off in the domestic production of the country during the year of \$1,091,270.12.

The value of foreign gold bullion deposited at mints and assay offices was \$23,516,092.88, and of foreign gold coin \$15,575,958.61, a total of \$39,092,051.49, corresponding to the value of foreign gold bullion and foreign gold coin deposited at the mints of the United States and melted during the year. Their value for the calendar year 1886 was \$30,263,060.54, of which \$21,190,329.33 was foreign gold bullion and \$9,072,731.21 foreign gold coin. A gain in foreign gold of \$8,828,990.95 is thus shown over the value of the deposits of the preceding year.

The manifested imports of foreign gold bullion and foreign gold coin through the custom-houses of the United States during the calendar year, exclusive of United States bars re-deposited (of which a small amount, aggregating a little over \$1,000,000 in value, was imported at the port of New York during the month of January, 1887), amounted to \$38,148,079, of which \$18,496,037 was manifested as bars and bullion, and \$19,652,042 as coin. Of the latter amount there was re-exported \$4,048,991. The net value of the imports of foreign gold bullion and foreign gold coin was accordingly \$34,099,088, against a value of \$39,092,051.49 deposited at the institutions under the organization of this Bureau.

The following statement, prepared by the Superintendent of the United States Assay Office at New York, shows the sources of foreign gold bullion deposited at that institution during the calendar year, as well as the total value from each country:

FOREIGN GOLD BULLION DEPOSITED AT THE UNITED STATES ASSAY OFFICE
AT NEW YORK DURING THE CALENDAR YEAR 1887.*

Countries.	Gross value.
Africa	\$2, 832. 07
British Columbia	748. 95
Central America, unclassified	134, 521. 48
Costa Rica.....	7, 765. 60
Dutch Guiana	925. 39
England	7, 716, 145. 36
France.....	10, 693, 205. 60
Germany	119, 759. 97
Holland.....	2, 886, 446. 46
Honduras.....	6, 232. 35
Mexico	490, 275. 94
Nova Scotia	418, 231. 28
Patagonia.....	103. 39
San Salvador.....	66, 539. 02
South America, unclassified	193, 480. 57
United States of Colombia.....	17, 090. 42
Venezuela	1, 289. 21
Total	22, 695, 593. 06

* The value of silver bullion is not included in this statement.

The following statement shows the value of the foreign gold bullion deposited at the Mint at San Francisco during the calendar year :

VALUE OF GOLD BULLION FROM CANADA, MEXICO, AND CENTRAL AMERICA
DEPOSITED AT THE UNITED STATES MINT AT SAN FRANCISCO DURING THE
CALENDAR YEAR 1887.

Locality.	Value.
Canada	\$91, 301. 56
Mexico	286, 764. 37
Central America.....	188. 32
Total	378, 254. 25

In addition to deposits of domestic bullion and of foreign bullion and coin, there were melted during the year at the mints for recoinage United States gold coin of the value of \$536,511.28, corresponding to 28,837.482 standard ounces; and old material consisting of jewelers' bars, old plate, etc., of the value of \$2,651,447.62, corresponding to 142,515.309 standard ounces.

The deposits and purchases of silver at the mints and assay offices of the United States during the calendar year 1887, not including re-

deposits, were 39,858,958.27 standard ounces of the coining value of \$46,381,333.01.

In addition, there were re-deposits aggregating 486,801.45 standard ounces of the coining value of \$566,459.87.

The aggregate of original deposits and of re-deposits of silver at the mints and assay offices during the year was 40,345,759.72 standard ounces of the coining value of \$46,947,792.88.

Original deposits and purchases of silver for the preceding calendar year, not including re-deposits, amounted to 33,589,591.74 standard ounces of the coining value of \$39,086,070.26. At its coining rate the value of the silver deposited and purchased, not including re-deposits, exceeded during the calendar year 1887 the value of the same for the preceding year by \$7,295,262.75.

This difference corresponds almost exactly to the coining value of the trade-dollars redeemed under the provisions of the act of March 3, 1887, and melted at the mints of the United States, this being \$7,789,374.57, corresponding to 6,693,993.78 standard ounces.

Of the silver received at the Government institutions 30,714,979.80 standard ounces of the coining value of \$35,741,067.25 was classified as of domestic production. This, however, embraced the product, in part, of private refineries in the United States, whose bars comprise the larger portion of the purchases for the silver-dollar coinage, and included, as previously explained, the sum of silver products from Mexico and other foreign countries. The classification of silver at the mints and assay offices of the United States was necessarily indiscriminate, from the fact that fine silver bars from private refineries in the United States purchased for coinage are classified at these institutions as of domestic production, while, as already shown, they are not exclusively from ores raised in this country.

The value of silver classified as of domestic production corresponded almost exactly to the amount deposited and so classified during the calendar year 1886, which was \$35,810,361.63 (30,774,529.59 standard ounces). The value of the foreign silver bullion deposited at the mints and classified as such was \$1,509,027.49, corresponding to 1,296,820.53 standard ounces. The value of the foreign silver coins deposited at the mints of the United States was \$250,606.46, corresponding to 215,364.94 standard ounces.

Subsidiary silver coin, principally from the Treasury of the United States, was deposited at the mints at Philadelphia and San Francisco for recoinage, of the coining value of \$519,693.82, corresponding to 446,611.89 standard ounces.

Old material, consisting of plate, etc., was deposited during the year and melted, amounting to 491,187.33 standard ounces, corresponding to the value of \$571,563.42.

The total value of the gold and silver received at the mints and assay

offices during the year was \$131,615,505.12, of which \$121,105,410.86 consisted of original deposits and \$10,510,094.26 of re-deposits.

The following tables exhibit the foreign coins deposited at the Government institutions during the calendar year :

FOREIGN COINS DEPOSITED AT THE UNITED STATES ASSAY OFFICE AT NEW YORK DURING THE CALENDAR YEAR 1887.

Country of coinage.	Denominations of coins.	Gold value (gross)-	Silver part-ed (stand-ard ounces).
Argentine Republic.	5 pesos.	\$1,110,561.55	22.83
Austria.	Florins.	43,360.36	.....
Costa Rica.	Mixed.	2,606.29	10.29
England.	Sovereigns.	337,782.79	.....
From Canada.	do.	111,527.61	.....
From Australia.	do.	481.98	.....
France.	20 francs.	2,981,491.40	.....
Do.	Napoleons.	180,840.69	.....
Germany.	20 marks.	667,500.93	.....
Mexico.	20 pesos.	147,838.25	.....
Do.	10 pesos.	1,469.53	.....
Do.	Dobloons.	4,533.18	.61
Peru.	20 soles.	2,587.62	.....
Russia.	5 roubles.	848,641.85	.....
South America.	Mixed.	7,645.90	.....
Spain.	Dobloons.	3,217,934.95	16,042.70
Do.	$\frac{1}{2}$ dobloons.	21,936.33	81.90
Do.	$\frac{1}{4}$ dobloons.	169,785.28	574.28
Do.	25 pesetas.	656,022.27	.....
Do.	Alphonsos.	14,404.23	.....
Do.	Isabellines.	87,719.52	.....
Do.	Mixed.	202,644.95	768.10
Total. ....	.....	10,819,317.46	17,500.71

FOREIGN GOLD COIN DEPOSITED AT THE MINT OF THE UNITED STATES AT SAN FRANCISCO DURING THE CALENDAR YEAR 1887.

Country.	Denomination.	Number of pieces.	Total pieces.
Austria.	8 florins.	1	4
	4 florins.	1	
	Ducat.	2	
Belgium.	20 francs.	15	15
Chili.	5 pesos.	5	44
	10 pesos.	14	
	$\frac{1}{2}$ doubloon.	1	
	$\frac{1}{4}$ doubloon.	2	
	1 peso.	16	
	Condors.	6	

FOREIGN GOLD COIN DEPOSITED AT THE MINT OF THE UNITED STATES AT SAN FRANCISCO DURING THE CALENDAR YEAR 1857—Continued.

Country.	Denominations.	Number of pieces.	Total pieces.
Costa Rica.....	2 pesos.....	4	30
	4 pesos.....	3	
	5 pesos.....	1	
	8 pesos.....	2	
	10 pesos.....	20	
Central America.....	8 pesos.....	2	123
	2 pesos.....	1	
	5 pesos.....	30	
	10 pesos.....	20	
	Pesos.....	68	
	20 soles.....	2	
Denmark.....	20 kroner.....	1	1
England.....	Sovereigns.....	791,583	791,938
	$\frac{1}{2}$ sovereigns.....	353	
	\$2-pieces.....	2	
France.....	5 francs.....	5	261
	10 francs.....	22	
	20 francs.....	232	
	100 francs.....	2	
Holland.....	10 florins.....	4	5
	Ducat.....	1	
Italy.....	20 liras.....	25	26
	100 liras.....	1	
Guatemala.....	1 peso.....	1	503
	5 pesos.....	235	
	10 pesos.....	119	
	16 pesos.....	4	
	4 pesos.....	5	
	20 pesos.....	143	
	$\frac{1}{2}$ quadruple.....	1	
	\$2-piece.....	1	
Japan.....	1 yen.....	1	436
	2 yen.....	2	
	5 yen.....	374	
	10 yen.....	59	
Mexico.....	1 peso.....	12	8,695
	2 $\frac{1}{2}$ pesos.....	5	
	5 pesos.....	38	
	10 pesos.....	6,103	
	20 pesos.....	1,175	
	Doubloon.....	1,171	
	$\frac{1}{2}$ doubloon.....	33	
	$\frac{1}{4}$ doubloon.....	93	
	$\frac{1}{2}$ doubloon.....	61	
	$\frac{1}{8}$ doubloon.....	4	

FOREIGN GOLD COIN DEPOSITED AT THE MINT OF THE UNITED STATES AT SAN FRANCISCO DURING THE CALENDAR YEAR 1887—Continued.

Country.	Denominations.	Number of pieces.	Total pieces.
Newfoundland.....	\$2-piece.....	1	1
New Granada.....	Doubloon.....	1	
	$\frac{1}{2}$ doubloon.....	4	7
	$\frac{1}{4}$ doubloon.....	1	
	10 pesos.....	1	
Germany.....	10 marks.....	73	
	20 marks.....	71	144
Peru.....	Doubloon.....	4	
	$\frac{1}{2}$ doubloon.....	1	
	$\frac{1}{4}$ doubloon.....	6	
	20 soles.....	4	
	5 pesos.....	1	16
Russia.....	3 roubles.....	1	
	5 roubles.....	1	2
Spain.....	Doubloon.....	112	
	$\frac{1}{2}$ doubloon.....	30	
	$\frac{1}{4}$ doubloon.....	95	
	$\frac{1}{8}$ doubloon.....	19	
	$\frac{1}{16}$ doubloon.....	1	
	80 reals.....	70	
	100 reals.....	1	
	160 reals.....	2	
	\$2-piece.....	3	
	25 pesetas.....	89	
	Pesetas.....	5	427
Turkey.....	100 piasters.....	2	
United States of Colombia.....	Doubloon.....	1	2
	20 pesos.....	7	
	10 pesos.....	26	
	5 pesos.....	12	
Finland.....	20 marks.....	3	46
	10 marks.....	4	
Canada.....	\$2-piece.....	1	7
Ecuador.....	Doubloon.....	1	
	$\frac{1}{2}$ doubloon.....	1	1
	$\frac{1}{4}$ doubloon.....	1	
Bolivia.....	Doubloon.....	3	3
	$\frac{1}{2}$ doubloon.....	1	
	1 peso.....	22	
Norway.....	20 crowns.....	1	26
Total.....			1
Standard ounces.....			802, 770
Value.....			213, 623, 298
			\$3, 974, 386.94

FOREIGN GOLD AND SILVER COINS DEPOSITED AT THE MINT OF THE UNITED STATES AT NEW ORLEANS DURING THE CALENDAR YEAR 1887.

Countries.	Gold coins.	Silver coins.
Central America.....	\$579. 72	\$208. 98
South America.....		6, 896. 99
Mixed foreign.....	2, 880. 35	2, 750. 77
Mexico.....	1, 339. 37	31, 656. 08
Spain.....	1, 024. 48	
England.....	3, 878. 57	
Total.....	9, 702. 49	41, 512. 82

In the Appendix will be found tables exhibiting in detail, by weight and value, the deposits and purchases of gold and silver at the various mints and assay offices during the calendar year.

Also statements showing the States and Territories from which the unrefined gold and silver received were produced. Also a statement showing the value and amount received from each State and Territory since the organization of the Mint.

COINAGE OF THE MINTS DURING THE CALENDAR YEAR 1887.

The coinage executed at the mints of the United States during the calendar year 1887 consisted of 112,951,488 pieces, of the value of \$60,379,150.66, as exhibited in the following table, in comparison with the coinage of the preceding calendar year:

COINAGE EXECUTED AT THE MINTS OF THE UNITED STATES DURING THE CALENDAR YEARS 1886 AND 1887.

Coins.	1886.		1887.	
	Pieces.	Value.	Pieces.	Value.
Gold.....	4, 730, 944	\$28, 945, 542. 00	3, 086, 873	\$23, 972, 383. 00
Silver dollars.....	31, 423, 886	31, 423, 886. 00	33, 611, 710	33, 611, 710. 00
Subsidiary silver.....	6, 595, 866	662, 823. 90	15, 754, 809	1, 579, 371. 40
Minor.....	20, 988, 870	343, 186. 10	60, 498, 096	1, 215, 686. 26
Total.....	63, 739, 566	61, 375, 438. 00	112, 951, 488	60, 379, 150. 66

The usual table exhibiting by denomination of pieces the outturn of each mint during the calendar year 1887 will be found in the Appendix.

A table, which was compiled for the first time for the fiscal report of this Bureau, 1887, will likewise be found, showing the coinage of the mints by institutions and by denominations of pieces each calendar year since the organization of the Mint at Philadelphia, in 1792.

This table is believed to exhibit, as near correctly as at this time practicable, the total coinage, though inexact as to relative date of pieces, to the extent that coiners' deliveries to superintendents of mints have not invariably been completed within the year of date.

MANUFACTURE OF GOLD AND SILVER BARS.

In addition to the coinage executed at the mints, bars of gold and silver were manufactured during the calendar year 1887 of the value of \$65,338,595.09. Of these bars 3,155,391.400 standard ounces, of the value of \$58,704,956.23, were of gold, and 5,700,783.49 standard ounces, of the value of \$6,633,638.86, were of silver. The bulk of these bars was manufactured at the United States Assay Office at New York, the value of the bars manufactured at that institution during the year being \$59,648,600.44, of which \$53,674,093.12 consisted of gold, and \$5,974,507.32 of silver.

The usual tables showing in detail by weight and value, the different kinds of bars manufactured at each of the mints and assay offices, will be found in the Appendix.

IMPORTS AND EXPORTS OF THE PRECIOUS METALS DURING THE CALENDAR YEAR 1887.

GOLD.—The value of the gold bullion imported into the United States during the calendar year 1887, according to statements furnished from the custom-houses, was \$19,524,641, of which \$18,496,037 consisted of foreign bullion and \$1,028,604 of bars of the United States re-imported.

The manifested value of the gold coin imported was \$25,364,658, of which \$19,652,042 consisted of foreign coin and \$5,712,616 of our own coin returned to this country.

Of the foreign gold bullion there was re-exported the small sum of \$3,884, and of domestic gold bullion, \$1,085,892.

Of foreign gold coin there was re-exported \$4,048,991, and of our own gold coin \$4,005,659.

It will be noticed that, as compared with recent years, there was a very large increase in the importation of foreign gold bullion distinguished from foreign gold coin. This was in the form of bars, principally from Germany, France, and England.

The large importation of foreign gold bullion indicates that exporters have found it more and more difficult to obtain supplies of full-weight coin for shipment.

In this country, when gold is required for export to Europe, bars of the United States Assay Office at New York form the main supply for such use, being of standard weight, corresponding to the United States coin value stamped on the bars.

In Europe, including Great Britain, bars from refineries, obtained at a slight discount from coinage value, are found more desirable than

coins for foreign exchange. It would seem, indeed, that foreign exporters have discovered the advantages of shipping bars instead of coin, the only expedient which tends to prevent the melting of coins and the deterioration of coinage through the practice of "garbling."*

The receipt of large quantities of gold bars from Germany indicates that of the large store of gold bullion held in that country some has been withdrawn in course of New York and German exchange.

SILVER.—The import of silver bullion, as manifested at the custom-house, was at commercial value \$5,373,001.

Domestic silver bullion of the commercial value of \$19,671,571 was exported, and the small sum of \$31,980 re-exported.

The imports of silver coin aggregated \$11,399,613; of which \$10,197,139 consisted of foreign silver coins, \$831,176 of trade dollars for redemption under the act of March 3, 1887, and \$371,298 of subsidiary silver coin of the United States. Of the foreign silver coin imported \$8,822,861 consisted of Mexican dollars. Of these a large amount was re-shipped during the year from the port of San Francisco to China, namely, \$5,877,611; the total shipments of foreign silver coin from that port during the year having been \$6,075,409.

Of foreign silver coin imported into the United States there was re-exported, principally to China, \$7,894,041. There was exported of our own subsidiary silver coin \$47,396, mainly for foreign circulation.

Gold and silver ores were imported into the United States, principally from Mexico, containing, as manifested, it is presumed at assay value, \$14,028 in gold and \$4,228,107 in silver. The value of the lead contained in the silver ores imported through the customs district of Paso del Norte is reported at \$491,295. There was a small quantity of foreign silver ore re-exported, valued at \$24,015. Of gold and silver bearing ores of the United States there was exported a value of \$87,604.

The movement of the precious metals, including gold and silver bearing ores, to and from the United States during 1887, is exhibited in the following table:

*See Report of the Director of the Mint on the Production of the Precious Metals, 1885, p. 93.

MOVEMENT OF GOLD AND SILVER COIN, BULLION, AND ORE DURING THE
CALENDAR YEAR 1887.

Items.	Imports.	Exports.	Gain or loss.
Gold bullion.....	\$19,524,641	\$1,089,776	.....
Gold in ores.....	14,028	87,604	.....
Gold coin, foreign.....	19,652,042	4,048,991	.....
Total, foreign.....	39,190,711	.....	.....
United States coin.....	5,712,616	4,005,659	.....
Total, foreign and domestic.....	44,903,327	9,232,030	\$35,671,297
Silver bullion.....	5,373,001	19,703,551	.....
Silver in ores.....	3,736,812	24,105	.....
Silver coin, foreign.....	10,197,139	7,894,041	.....
Total, foreign.....	19,306,952	.....	.....
United States coin.....	371,298	47,396	.....
Trade-dollars.....	831,176	.....	.....
Total, foreign and domestic.....	20,509,426	27,669,093	7,159,667
Total gold and silver.....	65,412,753	36,901,123	.....
Net gain.....	.....	.....	28,511,630

In the Appendix will be found the usual table showing by months and by customs districts the imports of coin and bullion into the United States, and exports of the same, during the calendar year 1887.

The following table, furnished by the Chief of the Bureau of Statistics, shows the imports of the precious metals into the United States:

IMPORTS OF GOLD AND SILVER, COIN AND BULLION, INTO THE

Countries.	GOLD.	
	Bullion. ^a	
	Bars.	Other bullion.
Brazil		
Central American States:		
Costa Rica		\$11, 445
Guatemala		
Honduras		1, 620
Nicaragua	\$15, 953	7, 976
San Salvador		16, 632
China		300
Danish West Indies		
Ecuador		117
France	366, 121	4, 311, 957
French Possessions in Africa and adjacent islands		
French Possessions, all other		
Germany	142, 820	8, 683, 889
England	1, 535, 617	2, 464, 619
Nova Scotia, New Brunswick, and Prince Edward Island		2, 900
Quebec, Ontario, Manitoba, and the Northwest Territory		
British Columbia		564, 956
West Indies		3, 200
Honduras		39, 390
East Indies		
Possessions in Africa and adjacent islands		9, 952
Possessions in Australasia		389, 822
Hawaiian Islands		
Hayti		
Italy		
Japan		
Mexico	126, 369	182, 494
Netherlands		287, 538
Dutch West Indies	9, 305	7, 672
Dutch Guiana		9, 268
Azore, Madeira, and Cape Verde Islands		
San Domingo		6, 000
Cuba	2, 500	18, 807
Porto Rico		539
Sweden and Norway		
Turkey in Europe		
United States of Colombia	40, 769	269, 862
Venezuela		202
Total	2, 239, 484	17, 285, 157

^a Classification of bullion prior to July 1, 1887, but then changed to bars stamped U. S. Mint, etc., and other bullion. All transactions under "bars" in above statement were prior to July 1, 1887. No transactions in bars U. S. Mint, etc., reported since July 1, 1887. Trade dollars* (\$64,693) included in other bullion (silver), principally from China (\$63,139), France (\$837), Japan (\$500).

* Imported since July 1, 1887; no record of imports of trade dollars before that date.

UNITED STATES DURING THE YEAR ENDING DECEMBER 31, 1887.

GOLD.		SILVER.				Total gold and silver.
Coin.		Bullion. <i>a</i>		Coin.		
United States.	Foreign.	Bars.	Other bullion.	United States.	Foreign.	
\$20,415						\$20,415
1,268					\$1,000	13,713
4,267				\$1,674	1,424	7,365
163			\$1,016		29,413	32,212
4,366	\$19			1,147	4,172	33,633
2,290			1,048	100	1,027	21,097
192,969	296,418		63,139	611,944		1,164,770
16,485	1,391			7,932	39,654	65,462
	183			200		500
292,041	3,497,338		837	1,379	120,000	8,589,673
629				2,441		3,070
1,357	4,534				31,325	37,216
2,435,273	6,441,118		27	3,635	192,503	17,902,265
121,394	1,404,181			142,645	187,449	5,855,935
	1,400					4,300
391,277	1,922		431	45,944		439,574
22,548						587,504
209,720	73,665		75	29,043	96,238	411,941
4,500	65			1,656	232,520	278,131
				103,000		103,000
	5,018			6,526	2,446	23,942
	3,355,002					3,735,824
114,040				3,467		117,507
103,416				49,418	39,765	192,599
					39	39
2,597	19,385		500	1,405	13,082	36,969
52,357	630,835	\$1,182,700	3,591,444	2,176	8,822,861	14,591,236
58,390						345,928
22,008	3,170		53	36,452	35,002	113,662
						9,268
40,193	1,314			4,489	6,551	52,547
243	7,811		2	17,230	7,292	38,578
1,517,086	3,863,324		3,660	12,326	227,378	5,645,081
9,697	11,226		18	8,910	14,950	45,340
1,800						1,800
					5	5
33,428	24,966		591,984	22,785	69,287	1,053,081
36,399	7,757		760	19,857	21,756	86,731
5,712,616	19,652,042	1,182,700	4,254,994	1,137,781	10,197,139	61,661,913

STOCK OF COIN IN THE UNITED STATES.

For an explanation of the technical basis of the current estimate of stock of coin in the United States, reference may be had under the heading of "Coin circulation of the United States," to the reports prepared by me for 1885 and 1886, and under the present caption to the report for 1887.*

An estimate of the stock of gold and silver coin in the United States, together with the bullion in the mints and assay offices on the 1st of January, 1888, is presented in the following table:

ESTIMATED STOCK OF COIN IN THE UNITED STATES JANUARY 1, 1888, BASED ON NET COINAGE AND IMPORTS AND EXPORTS OF UNITED STATES COINS; TOGETHER WITH THE GOLD AND SILVER BULLION IN THE MINTS AND ASSAY OFFICES.

Items.	Gold.	Silver.	Total.
Stock of coin January 1, 1887	\$560, 195, 387	\$324, 856, 467	\$885, 051, 854
Coinage for calendar year 1887.....	23, 972, 383	35, 191, 081	59, 163, 464
Net imports	1, 706, 957	323, 912	2, 030, 869
Total	585, 874, 727	360, 371, 460	946, 246, 187
Loss:			
Transfers and deposits of U. S. coin for recoinage	536, 511	555, 660	1, 092, 171
Used in the arts	3, 500, 000	200, 000	3, 700, 000
Total	4, 036, 511	755, 660	4, 792, 171
Stock of coin January 1, 1888	581, 838, 216	359, 615, 800	941, 454, 016
Bullion in mints and assay offices December 31, 1887.	123, 145, 136	10, 826, 375	133, 971, 511
Total metallic stock January 1, 1888	704, 983, 352	370, 442, 175	1, 075, 425, 527

* Report on Precious Metals, 1885, p. 65; Report on Precious Metals, 1886, p. 49; Annual Report of the Director of the Mint, 1887, p. 81.

The ownership of the metallic money, as distinguished from the location of the same, on the 1st of January, 1888, is exhibited in the following table:

STOCK AND OWNERSHIP OF GOLD AND SILVER COIN IN THE UNITED STATES, AND BULLION AWAITING COINAGE IN THE MINTS, JANUARY 1, 1888.

Ownership.	Gold coin and bullion.	Silver coin and bullion.				Total gold and silver coin and bullion.
		Silver dollars.	Subsidiary silver.	Silver bullion.	Total silver coin and bullion.	
Treasury	*\$209,030,042	†\$42,062,116	\$24,327,528	\$10,826,375	\$77,216,019	\$286,246,061
National banks ..	‡143,503,496	§12,753,879	2,983,267	.....	15,737,146	159,240,642
Banks other than national (values specifically reported) .....	||41,698,535	||2,422,790	.....	.....	2,422,790	44,121,325
Banks other than national (values not specifically reported) and in private hands.....	310,751,279	226,056,572	49,009,648	.....	275,066,220	585,817,499
Total	704,983,352	283,295,357	76,320,443	10,826,375	370,442,175	1,075,425,527

* Gold coin in the Treasury \$182,618,963
 Gold bullion in the mints 123,145,136

Deduct gold certificates outstanding..... 305,764,099
 96,734,057

Stock of gold coin and bullion owned by Treasury..... 209,030,042

‡ Silver dollars..... 218,917,539
 Deduct silver certificates outstanding 176,855,423

42,062,116

‡ Gold coin..... 73,677,376
 Treasury gold certificates 44,341,120
 Clearing-house gold certificates..... 25,485,000

143,503,496

§ Silver dollars..... 7,724,334
 Treasury silver certificates 5,029,545

12,753,879

|| As partially reported to Comptroller of the Currency at close of fiscal year 1887.

viz:

Gold coin..... \$27,015,952
 Gold certificates 937,710
 Specie, miscellaneous..... 13,744,873
 \$41,698,535 (Total taken as gold.)

Silver coin..... 1,824,657
 Silver certificates..... 598,313
 2,422,970 (Total taken as full legal-tender silver.)

44,121,505 (Total taken as gold and silver.)

The following table exhibits the location of the metallic moneys and of the paper moneys of the United States, as well as the estimated total stock of each in the country on the 1st of January, 1888:

FORM AND LOCATION OF THE MONEYS OF THE UNITED STATES AND THE BULLION AWAITING COINAGE IN THE MINTS, JANUARY 1, 1888.

[Exclusive of minor coin and minor coinage metal.]

Items.	In Treasury.	In national banks (December 7, 1887).	In other banks and general circulation.	Total.
METALLIC.				
Gold bullion	\$123, 145, 136	.....	.....	\$123, 145, 136
Silver bullion.....	3, 777, 405	.....	.....	3, 777, 405
Silver bullion (melted trade-dollars) ..	7, 048, 970	.....	.....	7, 048, 970
Gold coin	182, 618, 963	†99, 162, 376	\$300, 056, 877	581, 838, 216
Silver dollars	218, 917, 589	7, 724, 334	56, 653, 484	283, 295, 357
Subsidiary silver coin.....	24, 327, 528	2, 983, 267	49, 009, 648	76, 320, 443
Total	559, 835, 541	109, 869, 977	405, 720, 009	1, 075, 425, 527
REPRESENTATIVE.				
Legal-tender notes.....	*22, 409, 924	75, 361, 975	248, 909, 117	346, 681, 016
Old demand notes.....	.....	.....	57, 105	57, 105
Certificates of deposit.....	130, 000	6, 165, 000	820, 000	7, 115, 000
Gold certificates.....	31, 010, 394	44, 341, 120	52, 392, 937	127, 744, 451
Silver certificates.....	6, 339, 570	5, 029, 545	171, 825, 878	183, 194, 993
National-bank notes	4, 919, 433	25, 708, 210	237, 771, 235	268, 398, 878
Fractional paper currency.....	796	551, 906	6, 386, 512	6, 942, 214
Total	64, 810, 117	157, 160, 756	718, 162, 784	940, 133, 657

* Includes \$6,985,000 held for the redemption of certificates of deposit for legal-tender notes under act June 8, 1872.

† Includes \$25,485,000 clearing-house gold certificates.

The following approximate estimate of the stock of gold and silver coin in the United States June 1, 1888, is here presented :

PROVISIONAL STATEMENT OF THE STOCK OF GOLD AND SILVER COIN IN THE UNITED STATES JUNE 1, 1888.					
Items.	Gold coin.	Silver coin			Total gold and silver coin.
		Full legal tender.	Subsidiary.	Total silver.	
Last official statement, January 1, 1888.....	\$581, 838, 216	\$283, 295, 357	\$76, 320, 443	\$359, 615, 800	\$941, 454, 016
Coinage from January 1, 1888, to May 31, 1888.....	12, 680, 017	13, 804, 433	230, 933	14, 035, 366	26, 715, 383
Net import from January 1, 1888, to May 31, 1888			54, 744	54, 744	54, 744
Total	594, 518, 233	297, 099, 790	76, 606, 120	373, 705, 910	968, 224, 143
Deduct:					
Deposits of United States coin from January 1, 1888, to May 31, 1888	189, 576		121, 945	121, 945	311, 521
Net exports from January 1, 1888, to May 31, 1888	740, 622				740, 622
Used in the arts from January 1, 1888, to May 31, 1888	1, 458, 333		83, 333	83, 333	1, 541, 666
Total	2, 388, 531		205, 278	205, 278	2, 593, 809
Estimated stock of coin June 1, 1888.....	592, 129, 702	297, 099, 790	76, 400, 842	373, 500, 632	965, 630, 334

In addition to the gold and silver coin estimated to have been in the United States on the 1st of June, 1888, there was at that date bullion belonging to the Government and awaiting coinage in the mints and assay offices as follows :

GOLD AND SILVER BULLION IN THE MINTS AND ASSAY OFFICES OF THE UNITED STATES, JUNE 1, 1888.	
Metal.	Cost.
Gold	\$114, 710, 817
Silver	10, 154, 905
Total	124, 865, 722

This added to the stock of coin gives the total potential metallic stock in the United States on the 1st of June, 1888, as follows:

TOTAL METALLIC STOCK IN THE UNITED STATES, JUNE 1, 1888.

Metal.	Value.
Gold	\$706,840,519
Silver	383,655,537
Total	1,090,496,056

VALUE OF GOLD AND SILVER USED FOR INDUSTRIAL PURPOSES.

The results of the four censuses taken by the Bureau of the Mint, covering the years 1880, 1881, 1883, and 1885, as to the amount of gold and silver used in the arts and manufactures by goldsmiths and others, have been presented in the reports of this Bureau, both fiscal and calendar.

On account of the magnitude of the labor involved no further inquiry of consumers has been instituted since that for the calendar year 1885; but inquiry has been made into the amount of gold and silver bars furnished by Government institutions and by private refineries to goldsmiths and other manufacturers for industrial purposes during the calendar year 1887, and into the character of the material used in the preparation of such bars.

For the purpose of ascertaining the value of the bars so manufactured during the calendar year 1887 communications were addressed to forty-three firms, believed to comprise all private refineries in the United States engaged in the manufacture of bars of gold and silver for industrial use.

Of the total number of firms addressed, all but two have courteously replied to the inquiry of the Bureau; and of the forty-one replying fifteen either have not been engaged in the business of manufacturing bars or did not manufacture any during the year. Twenty-six firms reported as the value of the bars manufactured and sold by them during the year for industrial use \$4,103,886 gold and \$1,207,467 silver (at its coining value).

The following table presents the results of this inquiry:

VALUE AND COMPOSITION OF BARS FURNISHED GOLDSMITHS AND OTHERS
DURING THE CALENDAR YEAR 1887, FOR INDUSTRIAL USE.

Material used.	Gold bars manu- factured.		Silver bars manu- factured.	
	Fine ounces.	Value.	Fine ounces.	Value.
United States coin.....	14,856	\$307,105	1,600	\$2,069
United States bars	104,048	2,150,865	618,969	800,283
Domestic bullion, other than United States bars	47,081	973,244	161,467	208,766
Foreign coin and bullion	299	6,180	7,000	9,050
Old plate, jewelry, and other old material.....	32,241	666,492	144,864	187,299
Total	198,525	4,103,886	933,900	1,217,467

Number of firms addressed	43
Number replying	41
Number not manufacturing	15
Number manufacturing.....	26

In addition to the gold and silver bars prepared for dealers and manufacturers by private refineries, the following tables exhibit the work, in this line, of the United States assay office at New York and the mint at Philadelphia, the only Government institutions which furnished bars for industrial purposes during the year :

VALUE AND COMPOSITION OF BARS FOR INDUSTRIAL USE, ISSUED BY THE UNITED STATES ASSAY OFFICE AT NEW YORK, DURING THE CALENDAR YEAR 1887.

Material used.	Gold bars manufactured.		Silver bars manufactured.	
	Fine ounces.	Value.	Fine ounces.	Value.
United States coin.....			1,438.47	\$1,598.30
Foreign coin.....	4,008.494	\$82,862.92	38,388.47	42,653.86
Domestic bullion.....	82,266.065	1,700,590.49	3,504,571.15	3,893,967.94
Foreign bullion.....	14,274.447	295,079.01	542,958.62	603,287.35
Old plate, jewelry, etc.....	54,041.632	1,117,139.67	237,261.74	263,624.16
Total.....	154,590.638	3,195,672.09	4,324,618.45	4,805,131.61
Large gold bars exchanged for gold coin, and redeposited for small bars, less charges and fractions paid in gold coin.....	191,389.071	3,956,363.23		
Large gold bars exchanged for gold coin, taken by manufacturers.....	96,676.671	1,998,484.15		
Total.....	442,656.380	9,150,519.47		

VALUE AND COMPOSITION OF BARS FOR INDUSTRIAL USE ISSUED BY THE UNITED STATES MINT AT PHILADELPHIA, DURING THE CALENDAR YEAR 1887.

Material used.	Gold bars manufactured.		Silver bars manufactured.	
	Fine ounces.	Value.	Fine ounces.	Value.
United States coin.....	2,668.179	\$55,156.15		
Old plate, jewelry, etc.....	2,527.599	52,250.10	26,714.32	\$29,682.58
Exchange bars sold for coin.....	22,332.787	461,659.68		
Total.....	27,528.565	569,065.93	26,714.32	29,682.58

The value of the bars sold to manufacturers by Government institutions and by private refineries, tends to indicate the total annual industrial employment of the precious metals in the United States. The following table has therefore been constructed:

VALUATION AND CLASSIFICATION OF GOLD AND SILVER BARS, PREPARED BY THE UNITED STATES MINT AT PHILADELPHIA AND THE ASSAY OFFICE AT NEW YORK, AND BY PRIVATE REFINERIES, DURING THE CALENDAR YEAR 1887, FOR USE IN THE ARTS.

Classification.	Assay Office, New York.	Mint, Philadel- phia.	Private re- fineries.	Total.
GOLD.				
Coin:				
Domestic		\$55,156.15	\$307,105.00	\$362,261.15
Foreign	\$82,862.92		6,180.00	89,042.92
Bullion:				
Domestic	1,700,590.49		973,244.00	2,673,834.49
Foreign	295,079.01			295,079.01
Old plate, jewelry, etc	1,117,139.67	52,250.10	666,492.00	1,835,881.77
Deposits for large bars not for use of manufacturers, re-deposited for small bars for use by manufacturers	3,956,363.23			3,956,363.23
United States Mint and Assay Office bars			2,150,865.00	2,150,865.00
Exchange bars sold for coin	1,998,484.15	461,659.68		2,460,143.83
Total	9,150,519.47	569,065.93	4,103,886.00	13,823,471.40
Deduct: United States bars reported by private refineries, the amount being included in bars furnished them by the New York Assay Office				2,150,865.00
Total				11,672,606.40
SILVER.				
Coin:				
Domestic	1,598.30		2,069.00	3,667.30
Foreign	42,653.86		9,050.00	51,703.86
Bullion:				
Domestic	3,893,967.94		208,766.00	4,102,733.94
Foreign	603,287.35			603,287.35
Old plate, jewelry, etc	263,624.16	29,682.58	187,299.00	480,605.74
United States Mint and Assay Office bars			800,283.00	800,283.00
Total	4,805,131.61	29,682.58	1,207,467.00	6,042,281.19
Deduct: United States bars reported by private refineries, the amount being included in bars furnished them by the New York Assay Office				800,283.00
Total				5,241,998.19

For purpose of comparison the following table showing the results of a similar inquiry for the preceding calendar year (1886) is presented:

VALUATION AND CLASSIFICATION OF GOLD AND SILVER BARS PREPARED BY UNITED STATES MINTS AND ASSAY OFFICE AT NEW YORK, AND BY PRIVATE REFINERIES, DURING THE CALENDAR YEAR 1886, FOR USE IN THE ARTS.

Classification.	Assay Office, New York.	Mint, Philadel- phia.	Mint, San Fran- cisco	Private refineries.	Total.
GOLD.					
Coin:					
Domestic	\$1,104.69	\$64,172.25	.....	\$299,985.00	\$365,261.94
Foreign.....	190,919.39	.....	.....	.....	190,919.39
Bullion:					
Domestic	1,599,317.33	.....	.....	644,448.00	2,243,765.53
Foreign.....	447,083.16	.....	.....	.....	447,083.16
Old plate, jewelry, etc	783,011.62	56,206.77	.....	1,088,828.00	1,928,046.39
Deposits for large bars not for use of manufacturers, rede- posited for small bars for use by manufacturers.....	4,303,144.51	.....	.....	.....	4,303,144.51
United States Mint and Assay Office bars .....	.....	.....	.....	1,457,161.00	1,457,161.00
Exchange bars sold for coin .....	.....	456,570.12	.....	.....	456,570.12
Total	7,324,580.90	576,949.20	.....	3,490,422.00	11,391,952.10
Deduct: United States bars re- ported by private refineries, the amount being included in bars furnished them by the New York Assay Office.....	.....	.....	.....	.....	1,457,161.00
Total .....	.....	.....	.....	.....	9,934,791.10
SILVER.					
Coin:					
Domestic	1,099.97	.....	.....	1,259.00	2,358.97
Foreign.....	162,499.27	.....	.....	.....	162,499.27
Bullion:					
Domestic	3,441,785.86	.....	.....	184,409.00	3,626,194.86
Foreign.....	663,115.48	.....	.....	.....	663,115.48
Old plate, jewelry, etc	192,191.34	18,362.43	\$102.23	193,499.00	404,155.00
United States Mint and Assay Office bars .....	.....	1,194.33	.....	203,949.00	205,143.33
Total	4,460,691.92	19,556.76	102.23	583,116.00	5,063,466.91
Deduct: United States bars re- ported by private refineries and the Philadelphia Mint, the amount being included in bars furnished them by the New York Assay Office.....	.....	.....	.....	.....	205,143.33
Total .....	.....	.....	.....	.....	4,858,323.58

The following tables recapitulate the value of bars manufactured for industrial use during the two years 1886 and 1887, the value of United States refined bars reported by private refineries as sold to manufacturers and dealers having been deducted from the totals to prevent duplication:

RECAPITULATION OF THE VALUE OF THE GOLD AND SILVER BARS FURNISHED FOR USE IN MANUFACTURES AND THE ARTS DURING THE CALENDAR YEAR 1886, AND THE CLASSIFICATION OF THE MATERIAL USED.

Material.	Gold.	Silver.	Total.
United States coin.....	\$365,261.94	\$2,358.97	\$367,620.91
Domestic bullion.....	7,003,480.22	3,626,194.86	10,629,675.08
Foreign coin and bullion.....	638,002.55	825,614.75	1,463,617.30
Old material.....	1,928,046.39	404,155.00	2,332,201.39
Total.....	9,934,791.10	4,858,323.58	14,793,114.68

RECAPITULATION OF THE VALUE OF THE GOLD AND SILVER BARS FURNISHED FOR USE IN MANUFACTURES AND THE ARTS DURING THE CALENDAR YEAR 1887, AND CLASSIFICATION OF THE MATERIAL USED.

Material.	Gold.	Silver.	Total.
United States coin.....	\$362,261.15	\$3,667.30	\$365,928.45
Domestic bullion.....	9,090,341.55	4,102,733.94	13,193,075.49
Foreign coin and bullion.....	384,121.93	654,991.21	1,039,113.14
Old material.....	1,835,881.77	480,605.74	2,316,487.51
Total.....	11,672,606.40	5,241,998.19	16,914,604.59

The amount of United States coin used in the preparation of jewelers' bars is very small compared with the estimated industrial employment of gold coin in the United States, being only \$362,261 in 1887, and \$365,261 in 1886, against an employment of United States gold coin annually in the arts of \$3,500,000, as estimated in the census of 1835, and representing about the amount reported by jewelers and others to have been used in their business in that year.

In an inquiry of the kind here presented, necessarily a very small employment of coin would be reported, for the reason that coin taken from circulation, and more or less light in weight from wear, would never be melted by private or Government refineries for jewelers' bars in this country, where an abundant supply of bullion is available at full value.

The melting of coin for industrial use is on a small scale and principally on the part of jewelers for the manufacture of small articles or for their repair.

The result of these inquiries points either to a very considerable increase in the industrial use of gold in the United States since 1885, or to a diminished use of coins. The growing tendency to use bars for industrial purposes rather than to melt coin was pointed out in my fiscal report for 1887 (page 79), in explanation of a table exhibiting the increased value of the bars issued by Government institutions during that fiscal year.

The value of the gold bars furnished for industrial uses in 1887 was \$11,672,606.40, and of silver bars \$5,241,998.19, a total of \$16,914,604.59, against \$9,934,791.10 gold in 1886, and \$4,858,323.58 silver, a total of \$14,793,114.68. Unless the melting of United States gold coin has diminished since 1885, the value of the gold used in the United States in the industrial arts during the calendar year 1887 was not less than \$14,600,000, and of silver not less than \$5,280,000.

THE WORLD'S COINAGE AND USE OF GOLD AND SILVER IN THE ARTS.

In the Appendix will be found a table showing, so far as returns have been received at this Bureau, the coinage of gold and silver executed by each country in the world during the calendar years 1884, 1885, 1886, and 1887.

The coinages reported are for calendar years, except in the cases of Mexico and Brazil. This table is believed to include substantially all the coinages executed during the years mentioned.

The following summary is presented:

WORLD'S COINAGE.		
Years.	Gold.	Silver.
1884.....	\$99,432,795	\$95,832,084
1885.....	95,757,582	126,764,574
1886.....	94,642,070	124,854,101
1887.....	124,992,465	160,984,877

It will be noticed that the coinage of both gold and silver in 1887 has continued to increase.

In addition to a large coinage of full legal-tender silver pieces by this country and by Mexico, India, and Japan, a very large coinage of full legal-tender silver pieces was executed by Spain, consisting of the re-coinage into new 5-peseta pieces of 20-real or "pillar" dollar pieces coined prior to 1868.

At the Austrian mints a large silver coinage was also executed, consisting, in part, of Maria Theresa thalers for circulation in the Levant, and florins for domestic use.

The other coinages were mostly of limited-tender silver.

As the totals presented in the above summary include recoinages to a large amount, the following table, compiled from official statements to this Bureau, has been revised to date. Covering the calendar year 1886, it shows the recoinages reported by certain nations for that year and included in the total:

RECOINAGES REPORTED BY CERTAIN NATIONS, 1886.

GOLD.

Countries.	Recoinage of domestic coins.	Value in United States money.	Recoinage of foreign coins.	Value in United States money.	Total recoinage value.
Italy.....	Part (not stated).....	.....	.....	.....	.....
Germany.....	145,560 marks.....	\$34,643.....	.....	.....	\$34,643
Portugal.....	54,000 milreis.....	54,000.....	.....	.....	54,000
Japan.....	294 yen.....	294.....	.....	.....	294
United States..	445,743 dollars.....	445,743.....	9,072,731 dollars.	\$9,072,731	9,518,474
Total.....	.....	534,680.....	.....	9,072,731	9,607,411

SILVER.

Great Britain..	£185,116.....	\$880,867.....	.....	.....	\$880,867
India.....	{ 217,004 } rupees.....	208,932.....	7,860,090 rupees.	\$3,723,324	3,932,256
	{ 224,061 }				
Belgium.....	4,776,000 francs.....	921,768.....	.....	.....	921,768
Italy.....	9,302,404 francs.....	1,795,364.....	.....	.....	1,795,364
Germany*.....	.....	1,153,963.....	.....	.....	1,153,963
Turkey.....	.....	.....	.....	.....	880,000
Egypt†.....	459,362 English pounds.	2,270,626.....	.....	933,525	3,204,151
Japan.....	2,304 yen.....	2,304.....	.....	.....	2,304
Colombia.....	806,341 dollars.....	806,341.....	.....	.....	806,341
United States‡	764,918 dollars.....	764,918.....	495,310 dollars ..	495,310	1,260,228
Total.....	.....	8,805,083.....	.....	5,152,159	14,837,242

* No recoinage of silver reported, but coinage believed to be all from melted thalers.

† All the new coinage was made from old coin and German silver thalers.

‡ There was also deposited at the mints in trade-dollars \$63,679.89, coining value.

In my report for the fiscal year 1887 was presented a table compiled from information obtained from the principal nations of the world relative to the value of manufactured articles of gold and silver officially attested and stamped during the year 1886. This value represents a fixed part of the annual industrial employment of the precious metals in the world.

In the case of Austria-Hungary the value given was for the year 1885, and in the case of Germany and of Switzerland, from which countries no official information on this subject has been received, the estimate of the employment of gold and silver in the arts given by Dr. Soetbeer was taken.

In the case of Belgium, while the value of gold and silver articles stamped, so far as officially known, was reported for 1886, the figures inserted in the table were those representing the value of goods stamped in 1865, the last year that stamping was obligatory, and therefore more approximately representing the actual value for 1886 than those reported for that year.

From Switzerland, in reply to a special inquiry from this Government, an official estimate made by the department of commerce has since been received. This places the annual industrial use of the precious metals in that country at about thirty-seven million francs of gold and from three to four millions of silver.

In the revised table here presented this estimate has been inserted in lieu of the average for recent years given by Dr. Soetbeer for that country.

In the case of the United States, the values given in the table have not been changed from those ascertained from consumers by the census of this Bureau last made, namely, for the calendar year 1885.

GOLD AND SILVER USED IN THE INDUSTRIAL ARTS, 1886.

[Kilogram of gold=\$664.60; kilogram of silver=\$41.56.]

Countries.	Gold.		Silver.	
	Kilograms.	Value.	Kilograms.	Value.
Austria-Hungary.....	*3,180	\$2,113,428	*31,793	\$1,321,317
Belgium.....	†635	422,021	†4,654	193,420
France.....	8,548	5,681,000	75,803	3,150,373
Germany.....	‡15,000	9,969,000	‡110,000	4,571,600
Great Britain.....	6,799	4,518,615	62,895	2,613,916
Italy.....	1,143	759,640	5,191	215,738
Netherlands.....	1,044	693,842	10,924	454,000
Russia.....	4,915	3,266,509	61,330	2,548,875
Sweden.....	302	260,709	1,904	79,130
Switzerland.....	§10,745	7,141,000	§18,576	772,000
United States.....	16,780	11,152,120	125,082	5,198,413
Total.....	69,091	45,917,884	508,152	21,118,782

* For 1885—goods stamped—Dr. A. Soetbeer's *Materialien*, 1885, second edition, p. 38.

† Stamped in 1865, when official verification was obligatory.

‡ Average for recent years, Dr. A. Soetbeer's *Materialien*, 1886, second edition, p. 38.

§ Estimate of the Department of Commerce for 1887, officially communicated.

WORLD'S ANNUAL PRODUCTION OF GOLD AND SILVER.

In the Appendix will be found a table, compiled principally from foreign state papers communicated through the Department of State, and revised from the latest information, showing the produce of gold and silver in the world by notably producing countries for the calendar years 1883, 1884, 1885, and 1886.

The production is expressed in kilograms and values. The value of silver, wherever the calculation has been made by this Bureau, is at the coining rate in United States silver dollars, equivalent to \$41.56 per fine kilogram.

A résumé of the total product each year is here presented :

WORLD'S PRODUCTION OF GOLD AND SILVER.				
Calendar years.	Gold.		Silver.	
	Kilograms.	Value.	Kilograms.	Value.
1883.....	143, 533	\$95, 392, 060	2, 774, 227	\$115, 297, 000
1884.....	153, 017	101, 694, 000	2, 665, 386	110, 773, 000
1885.....	156, 103	103, 744, 000	2, 954, 766	122, 799, 800
1886.....	149, 355	99, 250, 877	3, 027, 632	125, 828, 400

In my last report of this series* a special effort was made to bring together recent contributions to the knowledge of the world's production of gold and silver. The table there given for the years named is now revised, but not brought down to a year subsequent to 1886, for want, at the present writing, of information official and statistical to warrant a further statement. The reader may, however, be referred to the appendix of the next fiscal report of the Director of the Mint, namely, for the year 1888, for a later revision of the same table.

In the course of remarks on the subject of the recent heavy importation into the United States of silver ores from Mexico, occasion was taken to fully explain the method of this Bureau in ascertaining, not without much difficulty, their total value, and in eliminating this total from the value properly entering into statistics of the production of the United States as a whole, as well as into the statistics of distribution of, or contribution to, such production by the several States and Territories.

One reason, and as it seems to me a very cogent reason, has already been stated why the method of this Bureau in ascertaining the production of the precious metals in the United States should be applied to all countries, as indeed it is by this Bureau, as far as practicable, in all statements and estimates by way of its annual exhibit

* *Quod vide*, p. 66.

of the world's production of gold and silver. I allude to the important fact that foreign silver ores are freely imported from Mexico and South America not only into the United States, but into Great Britain and Germany, at their assay value in silver. At such value they are invoiced free of the value of the base metals contained in them, but this is relied on to justify the importation and to cover costs of reduction and transportation. Now these ores are paid for by the importing to the exporting country in terms of gold exchange, and so can not be reckoned into the resources of the importing country, if statistics of production are good for anything, or subserve any accurate purpose. If statistics of exportation on the one hand, or of importation on the other, were not available in terms of value, some justification might be found for a different method, but to no little confusion of statistics of the precious metals, at the best too little reduced to rule and uniformity of statement.

The same method should be, as by this Bureau it is, applied to gold ores in cases where any considerable value of gold in imported or exported ores can be ascertained. As a matter of fact, however, gold ores are not an article of commerce like argentiferous ores of the base metals, though some gold is almost always parted from bullion reduced in the United States and Europe from Mexican and South American ores above referred to; while other ores are imported into Europe, especially copper ores from Chili, which, although containing some gold, are bought and sold as copper ores, without valuation or even determination of their minor auriferous contents. The gold contained in such ores appears only in the returns of parting establishments. Thus for 1886 the inspectors of mines report 1,780 ounces of gold and 316,000 ounces of silver extracted in Great Britain by the Claudet process from 393,699 tons of imported cupreous pyrites, the produce of copper from the same ore having been 14,370 tons. Such small values of gold and of silver escape registration at the custom-houses of either the exporting or importing country, and so inconsiderable is the produce that it may safely be disregarded in general statistics of the world's production, as likewise the produce of gold in Germany from the same class of foreign ores.

In the annual reports of this Bureau the value of gold and silver in Montana ores and in unparted copper ingots, mattes, and speiss reduced from Montana ores has for several years been duly credited to the producing Territory.

Although it is believed by the writer that the reason already given for the course pursued by this Bureau is decisive, it may further be remarked that consistency and uniformity of method forbid any change in the mode of statement from that long adopted. Comparison on equal terms of the statistics of several years would be impracticable if foreign products which have lately found their way hither be included along with the domestic produce of the precious metals in the United

States, or if it should fail to appear that the increase in the production in this Republic, notably of silver, is not in part due to increased facilities for transportation and reduction rather than wholly to its mining resources or their development.

Again, it may be claimed that the terms of statements by this Bureau of the production of notably producing countries of the world should likewise be preserved, as they have been, so as to be uniform from year to year. The same method of statistics is indeed applied to them as for the United States, and, as far as practicable, for different States and Territories of the United States.

The above remarks have been elicited by an opinion expressed by Dr. Soetbeer, translated as follows :

The circumstance that part of the silver produced in German smelting works is not obtained from German ore has led to this: that, in the tables of the production of silver which appear in the Annual Reports of the Director of the Mint [United States] and which are copied from his reports into so many other statistical tabulations, the production of silver in Germany is given at a much lower figure than in the official information published on this side of the ocean. In the tables of the Director of the Mint a large deduction is made from the production of silver in Germany, because the silver in the foreign ores is credited to the mining countries from which they have been exported, or at least because it is claimed it should be credited to them. In order to avoid a double employment of the amount of silver referred to, it has seemed to Dr. Kimball necessary to make the deduction in question, a deduction which, during recent years, was presumed to be 88,000 kilograms per year.

Our opinion is that it would be both more correct and more simple in the statistics of the precious metals to ascertain and bring together, not the gross product of the mines but the ultimate product of fine silver of the smelting-houses. Here we have, for the most part, to do with exact and positive data, whereas the provisional estimate of the silver in the ores is almost always a very arbitrary one or else it is entirely neglected. The silver obtained in the smelting works of Germany, France, and England, from foreign ores, should always be credited to those countries, and left out of consideration in calculating the production of the mining countries. (Hamburgische Börsen-Halle, May 2, 1888.)

Dr. Soetbeer's main objection to the method in question arises from an impression that the value of ores of the precious metals is not susceptible of record until the ores are smelted and the metal finally refined. While it is true that the final record is the better and indeed the only accurate one, it should be considered that the assay value of gold and silver ores as such governs their traffic, and is the only value at which they are often entered at the custom-houses. This point has already been incidentally noticed, as well as the further point that foreign ores, bought and sold only as ores of the base metals, contain but minute proportions of the precious metals, the aggregate value of which is annually specially reported in the metallurgical statistics of Great Britain, and has been down to 1883 of Germany also.

The method of statistics adopted by this Bureau is also employed by the Inspector of Mines in the Mining and Mineral Statistics of the United Kingdom of Great Britain and Ireland.* Official precedents are not wanting even in Germany, as in the mining and metallurgical statistics of the Prussian States, prepared by the ministry of public works.

Practically the whole produce of gold in Great Britain and Germany is extracted from foreign copper ores and metal imported, principally from Chili. Nearly one-third of the silver produced from German smelting-works comes from imported ores. The value of the silver from mines in the United Kingdom of Great Britain was in 1886 £63,051, against an assay value of £1,030,488 of foreign silver ores, including value of silver in imported argentiferous lead and copper ores. As in Great Britain and Germany, so in the United States, the increase in the gross production of silver is to be credited chiefly to the working of imported foreign ores.

It is with no little regret that I learn, through Dr. Soetbeer, that since 1883 no attempt has been made by the imperial bureau of statistics in Germany to distinguish from domestic products the produce of the precious metals in that Empire from imported foreign ores and metals.

The difficulty attending the matter in Germany is of the same kind as in the United States, but probably less in degree as well as in importance than in this Republic, where it bids fair to be practically overcome through the intelligent interest on the part of owners of smelting-works and refineries in the inquiries of this Bureau and through the exertions of collaborators, notably the Bureau of Statistics.

The sources of the production of the precious metals as between domestic and foreign are duly distinguished in the mining and metallurgical statistics of the Prussian States. It therefore seems practicable to make the same distinction throughout the rest of the German Empire.

MEXICO.

The United States minister at Mexico, under date of May 13, 1887, communicates the reply from the treasury department of Mexico, prepared by Don F. A. Gamboa, and dated April 21, 1887. A special estimate of the gold and silver products of Mexico is received in answer to interrogatories of this Bureau.

Workers in Mexican mines are not under obligation to make a statement of the products they obtain, consequently the quantity of gold and silver produced can not be calculated, but an idea can be formed from the following data of the value of the production of each of these metals during the fiscal year 1885-'86. The exportation of gold bullion amounted to \$290,529.60. The entries in the mints, deducting the amounts exported, were valued at \$323,407.97.

* *Quod vide* for the year 1886, pp. 81, 104.

The silver entered for coinage was valued at.....	\$25,806,640.41
Silver bullion exported.....	5,014,237.88
Silver ore exported.....	1,809,836.84
Mixed silver exported.....	247,263.62
Sulphide of silver exported.....	116,092.70
Argentiferous lead ore.....	25,527.00
Fused silver ore.....	3,450.00
<hr/>	
Total.....	33,023,048.45

The statistics of the precious metals of the Mexican Republic are fully presented in the reports* of Don Javier Stavoli.

Deposits of gold and silver at the Mexican mints during the fiscal year ending June 30, 1887, are reported of the weight of 661,838.619 kilograms of silver (\$25,897,981.75), and 832.226 of gold (\$548,414.71). A total coinage is reported of the value of \$398,647 of gold and \$26,844,031 of silver.

The exportation of Mexican gold coin for the same fiscal year is reported at \$198,758.75, and of Mexican silver coin \$21,955,759.85. Including these values of Mexican coin, the total exportation of gold in coin and bars was \$519,085.71, and of silver coin, bars, ores, and other silver products, \$33,041,416.85; the total exportation of precious metals being \$33,560,502.56. Of this export fresh mining products are represented, it is presumed, by gold bars of the value of \$284,506.09, and by \$9,690,072.63 of silver products. Of silver products, exclusive of coin, the value of \$7,814,383.10 appears to have been exported to the United States during the fiscal year ending June 30, 1887, or about the same as estimated by this Bureau for the calendar year 1887 to have entered into the output of smelting-works and refineries in the United States.

Deposits at the mints of new material from mines and reduction-works, converted into coin, as deduced from mint statements, were 670,841.584 kilograms of silver, of the value, at \$41.56 per kilogram, of \$27,880,176. This value, added to the value of the silver products exported, viz, \$9,690,072.63, represents the United States coining value of the silver product of Mexico for the fiscal year ending June 30, 1887, namely, \$37,570,248, or at the mint price of a kilogram of silver at Mexican institutions (\$39.109), \$35,321,028.

It is proper to remark that 670,841.584 kilograms of new silver at the Mexican mint rate of \$39.109, along with a reported value of \$539,791 of new gold, represents a value of \$26,775,734, instead of the value of the aggregate product of mines individually reported, viz., \$26,385,975, a discrepancy of statement of little importance in an estimate of the world's production.

* Noticia de la Exportacion de Mercancias en el Año Fiscal de 1886 á 1887, formada bajo la direccion de Javier Stavoli, jefe de la seccion séptima, México, 1888.

Noticias de las Acuñaciones é Introducciones de Metales Preciosos en el Año Fiscal de 1886 á 1887. By the same. México, 1887.

The above product of new material, 670,841.584 kilograms, exclusive of material directly exported from mines and private works, was reduced by different processes in the following proportions :

Process.	Kilograms.	Per cent.
Pan amalgamation.....	13,303.589	1.98
Patio amalgamation.....	449,358.777	66.98
Barrel amalgamation.....	28,290.939	4.18
Lixiviation.....	27,466.575	4.10
Smelting.....	152,421.704	22.76
Total.....	670,841.584	100.00

VALUE OF PRECIOUS METALS EXPORTED FROM MEXICO DURING FISCAL YEAR
1836-'87.

Description.	Value.	Description.	Value.
GOLD.		SILVER--continued.	
Foreign gold coin.....	\$35,820.87	Doré silver.....	\$559,503.26
Mexican gold coin.....	198,758.75	Silver bars.....	5,568,735.66
Gold bars.....	284,506.09	Sulphide of silver (silver pre- cipitate).....	815,506.68
Total gold.....	519,085.71	Base bullion (argentiferous lead)..	3,044.24
SILVER.		Furnace products (mattes, etc)..	5,400.00
Silver ores.....	3,737,882.79	Total silver.....	33,041,416.85
Foreign silver coin.....	395,584.37	Total gold and silver.....	33,560,502.56
Mexican silver coin.....	21,955,759.85		

VALUE OF EXPORTS AS ABOVE BY CUSTOM-HOUSES OF MEXICO.

Custom-houses.	Amount.	Custom-houses.	Amount.
Acapulco.....	\$47,888.00	Paso del Norte.....	\$10,284,747.77
Altata.....	4,925.50	Piedras Negras.....	127,240.00
Ascension.....	17,299.26	Presidio del Norte.....	2,400.00
Cabo de San Lucas.....	330.00	Progreso.....	5,155.75
Camargo.....	11,940.25	Quitovaquita.....	700.00
Frontera.....	939.50	Salina Cruz.....	2,975.60
Guaymas.....	475,742.03	San Blas.....	279,054.91
La Paz.....	536,718.24	Sasabe.....	15,298.88
Laredo de Tamaulipas.....	697,480.94	Soconusco.....	1,000.00
Manzanillo.....	79,462.00	Tampico.....	157,055.00
Matamoros.....	177,845.00	Todos Santos.....	500.00
Mazatlan.....	4,496,758.08	Tonala.....	67,131.42
Mier.....	90,182.70	Vera Cruz.....	15,250,640.66
Nogales.....	615,201.67	Total.....	33,560,502.56
Palominas.....	13,890.00		

VALUE OF EXPORTS AS ABOVE TO DIFFERENT COUNTRIES.

Countries.	Amount.	Countries.	Amount.
Germany	\$1, 289, 910. 82	Guatemala	\$2, 300. 00
Colombia	52, 490. 00	Great Britain	11, 122, 019. 69
Costa Rica	1, 000. 00	Nicaragua	7, 550. 62
Spain	104, 343. 60	Russia	3, 545. 00
United States	16, 576, 120. 09	Total	33, 560, 502. 56
France	4, 401, 222. 74		

EXPORT OF PRECIOUS METALS FROM MEXICO TO UNITED STATES, FISCAL YEAR 1886-'87.

Material.	Amount.	Material.	Amount.
GOLD.		SILVER—continued.	
Foreign gold coin	\$25, 718. 67	Doré silver	\$559, 503. 26
Mexican gold coin	120, 493. 50	Silver bars	4, 383, 345. 11
Gold bars	82, 788. 22	Silver sulphide (precipitate?) ...	456, 990. 04
Total gold	229, 000. 39	Argentiferous lead (base bullion)	3, 044. 24
SILVER.		Silver in furnace products	800. 00
Silver ores	2, 410, 700. 45	Total silver	16, 347, 119. 70
Foreign silver coin	7, 554. 65	Total gold and silver	16, 576, 120. 09
Mexican silver coin	8, 525, 181. 95		

PRODUCT OF SILVER AND GOLD BULLION, MOSTLY DORÉ SILVER, DEPOSITED AT MINTS OF MEXICO, FISCAL YEAR ENDING JUNE 30, 1887.

Name of mine.	Value.	Total.	Name of mine.	Value.	Total.
CHIHUAHUA.			CHIHUAHUA—con'd.		
Batopilas	\$570, 884. 67		Setentrion	\$20, 512. 77	
Cosihuiriacic	616, 337. 82		Urique	360, 647. 82	
Guadalupe y Calvo	47, 032. 38		Urnaehic	199, 968. 15	
Guajolotes	271. 38		Urnapam	45, 164. 08	
Guazapares	20, 157. 04		Yoquivo	45, 872. 19	
Guisiopa	1, 796. 86		Other mines	231, 493. 06	
Jesus Maria	42, 802. 26				\$3, 480, 860. 92
Norotal	1, 972. 46		COAHUILA.		
Palmarejo	93, 876. 37		Sierra Mojada	667. 00	
Parral	1, 098, 923. 24				667. 00
Pinos Altos	32, 914. 75		COLIMA.		
Rastra	278. 38		Colima	1, 751. 93	
Santa Eulalia	44, 853. 10				1, 751. 93
Sapuri	122. 14		Distrito Federal		587, 062. 02

PRODUCT OF SILVER AND GOLD BULLION, MOSTLY DORÉ SILVER, DEPOSITED
AT MINTS OF MEXICO, ETC.—Continued.

Name of mine.	Value.	Total.	Name of mine.	Value.	Total.
DURANGO.			JALISCO.		
Arzato.....	\$17,227.40		Analco.....	\$14,305.10	
Avino.....	91,899.81		Armonia.....	20,965.24	
Bajada.....	918.16		Bautista, La.....	7,449.13	
Birimoa.....	15,461.79		Bolanos.....	776.51	
Canelas.....	13,531.77		Bramador.....	25,587.26	
Cantarranas.....	100,879.36		Cacoma.....	5,582.96	
Coneto.....	18,787.34		Cualo.....	87,086.31	
Copalquín.....	28,612.90		Desmoronado.....	49,899.92	
Cueneame.....	27,985.31		Etzatlan.....	117,969.01	
Durazno.....	8,166.89		Hostotipaquillo.....	279,016.86	
Gavilanes.....	45,170.81		Perico.....	609.39	
Guanaceví.....	41,870.02		Reyes.....	52,018.57	
Mezquital.....	405.13		San Rafael.....	756.33	
Perena.....	1,207.88		San Sebastián.....	161,391.35	
San Andrés.....	78,293.08		Santo Tomás.....	19,970.93	
San Dimas.....	45,853.93		Tecalitlan.....	1,989.56	
San Francisco.....	33,946.73		Other mines.....	2,206.01	
San Juan do Guadalupe.....	63,203.16		Gnadalajara merchants.....	6,784.24	
S. Migl. del Mezquital.....	1,548.21				\$854,355.68
Santiago.....	1,762.72		MICHUACAN.		
Santiago de los Caballeros.....	817.89		Mines, names not given.....	505,180.19	
Santiago Papasquiaro.....	3,542.96				505,180.19
Sianori.....	27,027.62		OAXACA.		
Sierra Santa.....	4,974.20		Ixtlan.....	7,095.60	
Tamazula.....	9,567.96		Peras.....	3,213.25	
Tejamo.....	6,956.16		Tabiche.....	39,827.88	
Tomimil.....	9,063.60		Talea.....	40,151.66	
Topía.....	212,624.45		Totolapam.....	25,472.59	
Vacas.....	105,353.74		Totomachapa.....	965.64	
Ventanas.....	125,175.40		Teitipac.....	5,388.44	
Zapieri.....	8,880.17		Mines not named..	34,509.58	
Other mines.....	194,418.76		Oaxaca merchants..	243.38	
Durango merchants.....	220,860.96				156,867.42
		\$1,566,000.67	PUEBLA.		
GUANAJUATO.			Mines not named..	2,483.24	
Mines, names not given.....	3,873,257.80				2,483.24
		3,873,257.80	*SAN LUIS POTOSI.		
GUERRERO.			Catorco.....	1,940,956.33	
Mines, names not given.....	666,146.32		Charcas.....	242,546.03	
		666,146.32	Guadalcázar.....	70,451.97	
HIDALGO.			Matehuala.....	794,615.01	
Pachnea.....	5,538,350.34		San Pedro.....	742.09	
Zimapan.....	352,637.00		San Luis Potosi....	1,595.49	
		5,890,987.34	Other mines.....	103,851.84	
			San Luis merchants	5,486.56	
					3,160,245.37

PRODUCT OF SILVER AND GOLD BULLION, MOSTLY DORÉ SILVER, DEPOSITED AT MINTS OF MEXICO, ETC.—Continued.

Name of mine.	Value.	Total.	Name of mine.	Value.	Total.
SINALOA.			SONORA—continued.		
Aldama.....	\$1,365.22		Magdalena.....	\$2,104.06	
Alisitos.....	4,532.69		Promontorios.....	81,176.99	
Bacubirito.....	14,946.09		Trinidad.....	3,927.48	
Bequillos.....	334.04		Yeso, El.....	1,480.16	
Campanillas.....	2,553.19		Alamos merchants	177.13	
Cosala.....	74,109.73		Hermosillo mer-		
Cuates, Los.....	19,667.92		chants.....	93,618.93	\$306,994.30
Cumbre, La.....	394.95		TERRITORIO DE		
Dolores.....	4,220.45		TEPIC.		
Galeana.....	2,545.27		Jora viejo.....	6,376.29	
Gnadalupe de los			Tepic.....	1,320.91	
Reyes.....	221.86		Yesca, La.....	33,942.78	
Joya, La.....	10,431.88		Zopilote.....	25,817.65	67,457.63
Mazatlan.....	311.07		ZACATECAS.		
Panuco.....	80,963.86		Chalchihuites.....	118,508.37	
Plomosas.....	349.52		Fresnillo.....	267,831.58	
San Javier.....	3,959.98		Jerez.....	45,844.03	
San José de Gracia	6,654.75		Mazapil.....	78,013.12	
San Lorenzo.....	20,826.47		Minillas.....	15,687.72	
Santa Cruz.....	38,038.59		Nieves.....	41,116.46	
Santiago.....	13,832.80		Noria de Angeles..	31,376.60	
Sinaloa.....	12,876.01		Ojo Caliente.....	52,266.08	
Tacotes.....	1,000.05		Sombrerete.....	96,748.90	
Tameapa.....	2,718.63		Veta Grande.....	1,161,614.18	
Yedras.....	1,265.55		Villanueva.....	19,962.13	
Zómora.....	825.90		Zacatecas.....	2,646,663.06	
Culiacan merchants	282.13	\$319,229.60	Mines not named..	57,411.07	
			Zacatecas mer-		
			chants.....	313,384.95	4,946,428.25
			Total.....		
			26,385,975.68		
SONORA.					
Barranca, La.....	53,276.19				
Baucari.....	39,974.20				
Bronces, Los.....	31,259.16				

CANADA.

The produce of gold in the Dominion of Canada seems to be slightly but steadily on the increase.

The following statistics of the production of Canada are from the Statistical Report of the Production, Value, Exports, and Imports of Minerals in Canada during the year 1886 and previous years, issued in 1887 by the Geological and Natural History Survey of Canada.

The publication of this report enables the Bureau for the first time to employ official estimates of the production of the precious metals in the Dominion of Canada, and to revise previous estimates put forth by this Bureau from such data as from time to time were incidentally found available.

GOLD.

"The total production of gold in Canada in 1886 has been 76,879 ounces, valued at \$1,330,442. This is an increase over the production of 1885 of 2,541 ounces, and in value an increase of \$214,419.

The return of the quantity of alluvial gold washed at Ditton, in Quebec, has not been obtained.

The two great gold-producing provinces of the Dominion are British Columbia and Nova Scotia. In British Columbia the gold has hitherto been derived from the alluvions, but in Nova Scotia, on the contrary, the quartz veins were worked from the first. In the province of Quebec gold has also been obtained for a great number of years from the alluvions of the tributaries of the Chaudière River, in Beauce County, principally from the Gilbert River.

In several other places in the eastern townships of the province of Quebec, rich alluvions were washed at times, principally at Ditton, in the county of Compton, and in the county of Sherbrooke.

A small amount of gold is besides obtained every year from the alluvions of the Saskatchewan River, near Edmonton. In 1885 its value was about \$600.

Auriferous quartz veins have also been worked in several districts in Ontario, and promising mines developed to a small extent principally in the townships of Marmora, county of Hastings; in the township of Moss, Algoma; and on the Lake of the Woods. In 1886 none of the mines of these districts produced any bullion.

The following general statement of the gold production of Nova Scotia in 1886 was kindly sent us by Mr. Gilpin, the inspector of mines:

GENERAL STATEMENT OF GOLD PRODUCTION IN NOVA SCOTIA FOR THE YEAR 1886, AND TOTALS FOR 1887.

District.	No. of mines.	Days' labor.	Mills.	Steam-power.	Water-power.	Quartz, etc., crushed.	Yield per ton.			Total yield of gold.			Maximum yield per ton.		
							Tons.	Oz.	dwt.	gr.	Oz.	dwt.	gr.	Oz.	dwt.	gr.
Caribou	3	15,394	3	2	1	3,087	0	14	10	2,233	17	10	2	1	0
Darr's Hill	1	27,221	1	0	1	11,628	0	11	4	6,509	0	0	1	6	0
Montague	1	1,434	2	2	0	77	1	2	18	87	14	0	9	1	0
Oldham	3	13,043	2	1	1	1,026	2	2	20	2,199	3	23	12	1	0
Renfrew	1	3,679	2	0	2	428	0	18	15	233	17	0	1	0	0
Sherbrooke	6	17,669	7	3	4	2,850	0	9	10	1,341	3	9	3	18	12
Stormont	2	3,142	2	2	0	429	1	0	6	435	0	0	1	18	0
Tangier	2	6,399	2	2	0	936	0	17	17	360	19	14	1	7	0
Uniacke	2	3,145	3	3	0	1,263	0	5	2	320	17	3	2	0	0
Waverly	1	2,736	1	1	0	508	0	12	22	329	2	0	1	19	0
Unproclaimed	5	35,017	10	7	3	6,778	1	7	0	9,311	10	22	17	10	0
	27	128,880	35	23	12	29,010	0	16	2	23,362	5	15	17	10	0
1887	28	173,428	24	16	8	32,280	0	19	11	21,211	17	18	7	5	4

Gold was first discovered in Nova Scotia, in the Tangier district, in the year 1860, and two years afterwards, when the office of gold commissioner was created, work was actively proceeding in eight different districts."

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YEARLY PRODUCTION OF GOLD IN NOVA SCOTIA SINCE 1862.

Year.	Quartz crushed.	Total yields.		Average yield per ton of 2,000 pounds.	
		Quantity.	Value at \$19.50.		
	<i>Tons.</i>	<i>Oz. dwt. gr.</i>			
1862.....	6,473	7,275	8 0	\$141,871	\$21.91
1863.....	17,000	13,971	13 17	272,448	16.02
1864.....	21,431	20,017	18 13	390,349	18.11
1865.....	24,421	25,454	3 22	496,357	20.32
1866.....	32,157	25,204	13 2	491,491	15.28
1867.....	31,384	27,310	18 11	532,563	16.96
1868.....	32,259	20,541	6 10	400,555	12.41
1869.....	35,144	17,868	0 19	348,427	9.91
1870.....	30,824	19,866	5 5	387,392	12.56
1871.....	30,787	19,229	7 4	374,972	12.17
1872.....	17,089	13,094	17 6	255,349	14.81
1873.....	17,708	11,852	7 18	231,122	13.05
1874.....	13,844	9,140	13 10	178,244	12.87
1875.....	14,810	11,211	14 19	218,629	14.89
1876.....	15,490	11,978	13 18	233,585	15.08
1877.....	17,369	16,882	6 1	329,205	19.01
1878.....	17,989	12,577	1 22	245,253	13.63
1879.....	15,936	13,750	8 21	268,328	16.83
1880.....	13,997	13,221	13 22	257,823	18.42
1881.....	16,556	10,756	13 2	209,755	12.66
1882.....	21,081	14,107	3 20	275,090	13.04
1883.....	25,954	15,446	9 23	301,207	11.60
1884.....	25,186	16,079	14 10	313,554	12.44
1885.....	28,890	22,203	12 20	432,971	14.98
1886.....	29,010	23,362	5 15	455,564	15.70
1887.....	32,280	21,211	17 18	413,631	12.81
Total.....	585,069	433,627	10 12	8,455,736	14.45

“The statistics for British Columbia, furnished by the department of mines of that province, are as follows :

Table 1 is the statement of gold production, as reported by the banks at Victoria.

Table 2 gives the gold returns, as estimated by the gold commissioners of the different districts.

Table 3 shows the yearly yield of gold since 1858. This table is taken from the annual reports of the department of mines, which may be referred to for detailed information on the operations in the gold fields of British Columbia since 1874, when the first report was published.”

TABLE I.

VALUE OF GOLD EXPORTED BY THE BANKS AT VICTORIA DURING THE YEAR 1886.

Bank of British Columbia	\$374,398
Bank of British North America	48,519
Garesche, Green & Co	330,127
	753,044

TABLE II.

PRODUCTION OF GOLD IN BRITISH COLUMBIA DURING 1886, AS ESTIMATED BY THE GOLD COMMISSIONERS.

Districts.	Divisions.	Yield of gold by divisions.	Total yield by districts.
Caribou.....	Barkerville	\$96,000	\$258,200
	Lightning Creek	54,800	
	Quesnel Mouth	45,500	
	Keithley Creek	61,900	
Cassiar	Laketon	41,500	77,100
	McDame Creek	22,200	
	Skeena	13,400	
Kootenay.....	North	10,000	58,500
	South	48,500	
Lillooet		132,000	132,000
Omineca		17,600	17,600
Yale	Hope, Yale, and Lytton	25,000	255,000
	Kamloops	22,000	
	Okanagon	5,000	
	Similkameen	203,000	
			798,400

TABLE III.

ANNUAL PRODUCTION OF GOLD IN BRITISH COLUMBIA SINCE 1858.

Year.	Amount actually known to have been exported by banks, etc.	Add for estimate of gold carried away in private hands—	Total.
1858 (six months)	\$390,265	One-third. \$130,088	\$520,353
1859	1,211,304	403,768	1,615,072
1860	1,671,410	557,133	2,228,543
1861	1,999,589	666,529	2,666,118
1862	3,184,700	1,061,566	4,246,266
1863			
1864	2,801,888	933,962	3,735,850
1865	2,618,404	872,801	3,491,205
1866	1,996,580	665,526	2,662,106
1867	1,860,651	620,217	2,480,868
1868	1,779,729	593,243	2,372,972
1869	1,331,234	443,744	1,774,978
1870	1,002,717	334,239	1,336,956
1871	1,349,580	449,860	1,799,440
1872	1,208,229	402,743	1,610,972
1873	979,312	326,439	1,305,749
1874	1,383,464	461,154	1,844,618
1875	1,856,178	618,726	2,474,904
1876	1,359,986	446,662	1,786,648
1877	1,206,136	402,045	1,608,182
1878	1,062,670	One-fifth. 212,534	1,275,204
1879	1,075,049	215,009	1,290,058
1880	844,856	168,971	1,013,827
1881	872,281	174,456	1,046,737
1882	795,071	159,014	954,085
1883	661,877	132,375	794,252
1884	613,304	122,861	736,165
1885	594,782	118,956	713,738
1886	753,043	150,668	903,651
1887	578,924	115,785	693,709
Total			50,983,226

“The returns to the mining inspector of the Chaudiere division of the province of Quebec, added to other returns made directly to this office, give 327 ounces, 9 penny-weights, 22 grains as the production of gold in that division in 1886.

The following table gives the total production of that division as reported since the year 1877, but the real quantity of gold washed each year has been greater than is indicated by these figures, and Mr. Duchesnay estimates that in 1879 he received returns of only about one-half of the actual production, and that in 1880 the actual production was more than \$50,000.

Gold was first discovered in that region in 1847, but active operations there date only from 1862. It has been impossible to collect the statistics of the production for each year since that date; it was only learned that in 1867 the returns made to the mining inspector gave \$31,000 and that in 1868 they were about \$25,000.”

GOLD PRODUCTION OF THE CHAUDIÈRE DIVISION AS REPORTED TO THE MINING INSPECTOR.

Year.	Total output as reported.	Value at \$17.50 per ounce.
	<i>Ozs. dwt. grs.</i>	
1877 ^a	688 19 11	\$12,057
1878	1,024 19 5	17,937
1879	1,884 2 7	32,972
1880	1,895 13 4	33,174
1881	3,237 15 17½	56,661
1882	976 15 0	17,093
1883	1,016 1 21½	17,787
1884	498 9 3	8,720
1885	120 19 19	2,120
1886	227 9 22	3,981

^a Second half of 1877 only.

SILVER.

The following tables, compiled from the books of the customs department at Ottawa, give a record of the exports of silver ore from Canada for the past sixteen years:

EXPORTS OF SILVER ORE FROM 1871 TO 1873.

Fiscal year.	Ontario.	British Columbia.	Total.
1871	\$595,261	.....	\$595,261
1872	1,087,839	\$803	1,088,642
1873	1,376,060	23,320	1,379,380
Total	3,059,160	4,123	3,063,283

^a Probably from near Fort Hope.

EXPORTS OF SILVER ORE FROM 1873 TO 1886, INCLUSIVE.

Year.	Ontario.	Quebec.	New Brunswick.	Manitoba.	British Columbia.	Total.
1873.....	\$1,241,598	.....	.....	.....	\$2,160	\$1,243,758
1874.....	493,163	.....	.....	.....	300	493,463
1875.....	472,092	.....	.....	.....	900	472,992
1876.....	354,178	.....	.....	.....	.....	354,178
1877.....	33,722	\$8,626	\$500	.....	.....	42,848
1878.....	665,665	50	.....	.....	.....	665,715
1879.....	154,273	.....	.....	.....	.....	154,273
1880.....	65,205	3,000	.....	.....	.....	68,205
1881.....	15,105	.....	.....	.....	10	15,115
1882.....	6,505	200	.....	.....	.....	6,705
1883.....	8,620	.....	.....	.....	.....	8,620
1884.....	13,300	.....	.....	.....	.....	13,300
1885.....	28,801	.....	117	\$258	.....	29,176
1886.....	16,505	23,000	.....	1,452	.....	25,957
Total.....	3,568,732	19,876	617	1,710	3,370	3,594,305

a Probably from Thunder Bay District.

"The figures given ought to be identical with the production year by year, as all such ores are exported, finding their market either in the United States or in England; so far chiefly in the former country.

The Lake Superior district has been and still is the chief and almost only centre of production of the ores of this metal in Canada, and for many years Silver Islet mine was the only producer in that district. Even during the operation of the other mines, their product was quite small compared with that of this one.

For this reason the exports of silver ore from Ontario ought to agree with the figures in the following table:"

SILVER ISLET MINE.	
Year.	Product.
Before 1871.....	\$115,269
1871.....	648,132
1872.....	372,892
1873.....	347,716
1874.....	300,026
1875.....	175,083
Total.....	1,959,118

"It will be observed, however, that there are considerable discrepancies.

The total production of Silver Islet mine from 1863, when work was commenced, to the end of 1875 was as above; but from this amount we must take \$26,243, produced before the commencement of the fiscal year ending June 30, 1871, and about \$89,000 produced in the latter half of 1875, in order to enable us to compare it with the amounts given for the fiscal years in the trade and navigation returns for that period, which are as follows:

Silver exported from Ontario during fiscal years 1871-1875 inclusive.....	\$3,910,438
Production of Silver Islet during the same period	1,843,875
Difference	2,066,563

Only four other silver mines were worked to any extent in the first period of the history of silver mining in the Lake Superior region, viz, the Beck, 3 A, Thunder Bay, and Shuniah or Duneau mines. Of these the first three were worked at intervals from 1866 to 1874, whilst the latter was worked with various stoppages from 1867 to 1881. I have not so far been able to get any returns of the shipments year by year from these mines, but their total product from commencement to close would, I think, be well covered by \$30,000. There is thus left a discrepancy of over \$2,000,000, up to the end of 1875, which I have as yet been unable to account for.

Silver Islet mine was closed in the spring of 1884, but I have not so far been successful in obtaining figures of its yield year by year since 1875.

Previous to the operations ceasing, the Rabbit Mountain Mine had been started in 1883, and this was followed by the discovery of the others of that group of silver mines at present working in the Thunder Bay region. Shortly after this again the Silver Mountain group of argentiferous lodes was discovered in the same district.

Some of the mines are at present being worked, and are affecting the production in a varying but continuously increasing degree.

On comparing the export returns for Ontario to the end of 1886, as shown in the above tables, with the quantity known to have been produced by all the Lake Superior silver mines to date, a discrepancy again appears, as shown below :

Produced by Silver Islet from its commencement to its close	\$3,250,000
Produced by the Shuniah group of mines from their commencement to their close, say	30,000
Produced by the Rabbit Mountain and Silver Mountain groups of mines from their commencement to the end of 1886	69,338
Total	3,349,338

Against this total we have \$6,627,892 shown in the table as exported from Ontario during this period, leaving a difference of \$3,278,554. Part of this would be accounted for by the overlapping of the returns of six months in the change from fiscal to calendar years, but making allowance for that would still leave about \$3,000,000 to be accounted for, which we have at present no means of doing.

The exports of silver ore from Quebec, given in the tables, are probably often referable to small lots of ore from the Lake Superior region passing out by way of Montreal, whilst the items given for the other provinces are probably small lots of ore sent through at various times from mines in process of being tested in those districts.

Besides the silver produced in Canada and exported in the form of silver ores proper, a large quantity of the metal is sent out in a shape which would not bring it under that head in the customs entries. I refer to the silver contained in the copper ores exported from the Capelton group of mines in Quebec. This has been estimated at about \$167,000 for 1886."

GOLD PRODUCTION OF THE DIFFERENT DISTRICTS IN NOVA SCOTIA, 1862 TO 1887.

District.	Total quantity of quartz crushed.	Total yields.		Average yield per ton of 2,000 pounds.
		Quantity.	Value at \$19.50 per ounce.	
	<i>Tons.</i>	<i>Ozs. dwt. grs.</i>		
Caribou.....	23,647	17,606 0 4	\$343,317	\$14.56
Darr's Hill.....	39,909	18,715 19 19	364,962	9.14
Montague.....	13,828	28,417 0 10	554,133	40.07
Oldham.....	33,528	34,059 1 18	664,153	19.80
Renfrew.....	43,096	30,220 8 13	589,299	13.67
Sherbrooke.....	161,355	118,868 17 15	2,317,943	14.36
Stormont.....	16,355	18,656 6 17	363,797	22.24
Tangier.....	28,156	18,751 10 6	365,653	12.80
Uniacke.....	31,920	18,215 16 5	355,209	11.12
Waverly.....	88,953	53,158 18 4	1,036,598	11.65
Wine Harbor.....	38,944	27,287 16 19	532,112	13.66
15-Mile Stream.....	1,917	958 11 23	18,693	9.75
Unproclaimed.....	44,171	35,262 10 15	687,620	15.56
Salmon River.....	10,602	3,258 0 0	63,531	5.99
Brookfield.....	1,691	1,418 1 15	27,652	16.31
Whiteburn.....	1,094	2,305 12 13	44,960	41.09
Lake Catcha.....	601	2,959 4 0	57,705	96.00
Rawdon.....	5,302	3,507 13 8	68,399	12.90
Total	585,069	433,627 10 12	8,455,736	14.45

Since the preparation of the above extract of the statistics of the gold and silver production of Canada for 1886 the report of the same series, by Mr. Eugène Coste, for 1887 has been received. The totals of statements for that year have therefore been appended to those cited in detail for the previous year.

“The total production of gold in 1887 was 66,271 ounces, valued at \$1,178,637. About 3,250 men were employed in gold-washing or gold-mining during the year. The production, compared with that of 1886, shows a decrease of 10,608 ounces and of \$151,805, or a decrease in the value of 11 per cent., which is principally due to a falling off in British Columbia of about 23 per cent.”

By provinces the above total quantity would be divided as follows:

Province.	Quantity.	Value.	No. of men employed.
	<i>Oz. dwt. grs.</i>		
British Columbia	40,856 8 5	\$694,559	2,379
Nova Scotia	21,211 17 18	413,614	578
Ontario	450 7 0	6,760	15
Northwest Territory, including Yukon District	3,660 5 0	62,100	256
Quebec	90 18 10	1,604	22
Total	66,270 16 9	1,178,637	3,250

VALUE OF GOLD EXPORTED BY BANKS AT VICTORIA DURING THE YEAR 1887.

Bank of British Columbia.....	\$320,794
Bank of British North America	58,774
Garesche, Green & Co	199,356
Total.....	578,924

PRODUCTION OF GOLD IN BRITISH COLUMBIA DURING 1887, AS ESTIMATED BY THE GOLD COMMISSIONERS.

Caribou district	\$227,673
Cassiar district.....	60,485
Kootenay	37,900
Lillooet.....	106,000
Omineca.....	13,000
Yale.....	158,200
Total.....	603,258

The export of gold-bearing quartz, dust, nuggets, etc., is reported by the customs department as follows:

Ontario.....	\$6,650
Nova Scotia	321,379
British Columbia.....	592,300
Total.....	920,329

The total production of silver in Canada in 1887 is estimated to have been \$349,330, or 349,330 ounces, contained in silver ores and bullion shipped from Canada during the year. This is an increase of \$140,240 over the production of 1886, and due principally to rich bodies of silver ore struck at the Beaver mine, the product of which, and to a small extent from three other mines in the Port Arthur district, amounted to \$190,495.

It is estimated that about 146,890 ounces of silver were extracted from copper pyrites shipped to the United States from the mines of Capelton, eastern townships, Quebec, against \$167,000 for 1886.

The exports in 1887 of silver ore from the several provinces of Canada, as stated by the customs department, were as follows :

Province.	1886.		1887.	
	Tons.	Value.	Tons.	Value.
Ontario	29½	\$16, 505	234	\$184, 763
Quebec	17½	8, 000	(?)	450
Manitoba	11	1, 452	½	3, 741
British Columbia.....			237	17, 331
Total		25, 957		206, 285

In the statistical tables of the world's production presented in the reports of this Bureau no silver product has heretofore been credited to the Dominion of Canada for the reason that none has ever been officially reported.

The official report of the produce of silver in the Dominion of Canada in 1886 has been used as the estimate for the three preceding years.

ARGENTINE REPUBLIC.

The production of the mines for 1886 is estimated at—

Gold	\$20, 000
Silver	60, 000

For 1887 it is estimated at—

Gold	\$30, 000
Silver	30, 000

The above estimate is recently communicated in answer to the interrogatories of this Bureau through the United States minister at Buenos Ayres.

BOLIVIA.

In the case of Bolivia, the estimate of the silver product for the years 1884, 1885, and 1886 is reduced from \$16,000,000 to \$10,000,000. It seems to have become the opinion that the large production of silver officially reported for the year 1883, namely, \$16,000,000, and which has been quoted by way of estimate for the subsequent production, has not been

maintained, and indeed fails to be indicated in exports either by the Argentine route or by the Pacific.

In the last report of this series I took occasion to state that, while I had serious doubts as to the long continuance of the production of 1883, I decided, for want of better information, to adopt the figures last reported as an estimate for subsequent years. Efforts since made to obtain from official sources exact data on the point in question have thus far failed to add to the information communicated in my last report of the present series.

On the 23d of February, 1887, the Bolivian minister at Washington was requested to obtain definite information from his government relative to the production of the precious metals in Bolivia. The information sought was in turn promptly requested from his government, but as yet has not been received at this Bureau. I am therefore compelled either to employ as an estimate the production officially reported for 1883, and believed to be excessive for that purpose, or else to arbitrarily reduce the estimate for subsequent years since 1883.

As stated by Dr. Soetbeer, there is, unfortunately, great uncertainty as to the production of the precious metals in Peru, Bolivia, and Chili, and there are consequently great differences in the estimates for these countries. For the years from 1871 to 1875 he has estimated their combined product at about 4,480 kilograms gold and 374,700 kilograms silver, and assumed for subsequent years the same amounts. This authority believes it would be near the truth to put the silver production of Peru, Bolivia, and Chili, taken together, from 1876 to 1885, at 425,000 kilograms per year. In some years the total may have been raised by an extraordinary yield from particular mines to 500,000 kilograms; in other years may have gone down to about 350,000 kilograms.*

Dr. Soetbeer estimates the silver production of these three countries, Peru, Bolivia, and Chili, in 1883 to have been 510,000 kilograms, which is largely in excess of the figures given by him for any preceding or subsequent year, thus confirming the report of the large production of silver in Bolivia in 1883. The production of silver in the same countries in 1884 was estimated by him at 450,000 kilograms.

The production of silver officially reported for Chili in 1884 was 160,000 kilograms, and for Peru 45,909 kilograms, a total for the two countries of 205,909 kilograms. Deducting this from Dr. Soetbeer's estimate of the production of the three countries in 1884 leaves about 245,000 kilograms as the production of Bolivia.

Satisfied that the production of silver in Bolivia in 1883 was unusually large, I have, in the absence of direct information, concluded to adopt for the present the estimate of Dr. Soetbeer placing the production of Bolivia for 1884 and subsequent years at \$10,000,000, corresponding to about 240,000 kilograms of fine silver.

* *Materialien*, 1886, p. 12.

The United States minister at La Paz has transmitted through the Department of State, by way of response to the printed interrogatories of this Bureau, tabular statements for 1886 of the mining industry in the departments of La Paz, Potosi, Cochabamba and Oruro, in the Republic of Bolivia.

The statements thus recently communicated are issued under the authority of the Minister of Foreign Relations, Dr. Juan Crisostomo Carrillo. Although devoid of statistics of production of the precious metals, they serve to indicate a revival, beginning about 1883, of mining industry in that Republic.

Department of La Paz.

Eleven mines (2 gold and 9 silver), with a subscribed capital of 10,105,200 bolivianos and a paid-in capital of 992,950 bolivianos, are registered in this department, under enterprises of which 6 were chartered in the year 1885, 2 in 1884, 2 in 1882, and 1 in 1880. Of 5 enterprises engaged in exploitation, 4 are reported to ship their product of silver ores to Europe.

Department of Potosi.

Of 60 silver-mining corporations registered in this department, 58 are with a combined subscribed capital of 29,829,800 bolivianos and 7,529,825 paid capital, besides 2 English companies with a paid capital of £248,490; 4 were chartered in 1883, 13 in 1884, 14 in 1885, and 29 in 1886 down to July 19. Of the number 12 are reported as "not worked," 28 as "preparatory," 7 as engaged in tunneling, 11 in exploitation, 1 as acquiring property, and 1 as under rehabilitation.

The English companies are the Royal Silver, operating at Potosi, with a subscribed capital of £600,000, of which £208,490 is stated to have been paid, and the San Miguel at Colquechaca. Both were chartered in 1886.

Sixteen of the above enterprises are engaged at Colquechaca, and 9 at Potosi.

Department of Cochabamba.

Of 13 private firms registered in this department, 6 are cited as gold-mining and 7 as silver-mining enterprises. A single silver enterprise was reported under date of August 20, 1886, in active operation, namely, that of Emeterio Polo and Manuel Mendez, at Yaani, operating the Gran Copacabana.

Department of Oruro.

Eight silver-mining enterprises are registered under date of August 14, 1886. Of this number 4 appear to have been in active operation in that year.

PERU.

The estimated value of the product of silver for the calendar year 1887 at 49,750 kilograms is reported under date of July 17, 1888, by the United States minister at Lima, in answer to the Bureau's interrogatories.

CHILI.

The production of Chili, officially estimated for the calendar year 1886, was, gold, \$173,092; silver, \$7,495,345, as published in the fiscal report of this Bureau for 1887, page 362.

Since the publication of that report a dispatch has been received from the United States minister, which places the production of gold in 1886 at 500 kilograms (\$332,000), and of silver at 210,000 kilograms (\$8,727,600). The last dispatch, by way of a full and revised report, is now followed for the production of 1886, and also as an estimate for 1885.

BRAZIL.

The Ministry of Foreign Affairs, under date of March 18, 1886, communicates to the United States legation in reply to interrogatories of 1886, that gold mining in Brazil is a private industry carried on in different provinces by companies and individuals, with the permission of the government, but free of any official supervision, and as there is only a duty on gold exported to other countries, no official information exists as to the quantity produced in the year 1885. The same is the case with silver mining.

A similar reply from the same source was communicated in response to interrogatories of 1886.

Tables of imports and exports through the custom-house at Rio de Janeiro will be found in the Fifteenth Annual Report of the Director of the Mint, 1887, page 366.

COLOMBIA.

The United States legation at Bogota has, in the absence of official data, obtained information from trustworthy quarters estimating the amount obtained from gold mines in 1886 at 4,045 kilograms, .900 fine, valued at \$2,500,000. From the same source of information the production of silver is estimated at 12,120 kilograms, valued at \$400,000.

URUGUAY AND PARAGUAY.

The United States minister at Montevideo, under date of March 21, 1888, states in reply to the interrogatories of this Bureau that there is only one gold mine worked in Uruguay, the Cunapaira, in the department of Tacuarembó. The yield is small. A company has been formed in London to work the San Gregorio, a gold mine in the vicinity of the Cunapaira.

No production of gold or silver is reported from Paraguay.

CENTRAL AMERICAN STATES.

The United States minister to the Central American States transmits, under date of October 29, 1887, and subsequent dates, reports from our consuls in Honduras, Costa Rica, Nicaragua, and Guatemala, from which the following information relative to the production of the precious metals has been abstracted :

Guatemala.

The small quantity of gold obtained in Guatemala from the placers of Izabel is exported, but there are no data as to its weight or value.

Honduras.

No estimate of the product of gold or silver in Honduras can be made, but the amount is small.

From the Rosario mines there was exported to New York during the calendar year 1887, 1,272 bars of silver containing some gold, each bar weighing, approximately, 110 pounds. The amount of silver contained has been approximately estimated at 1,799 kilograms.

Costa Rica.

The product of gold is estimated for 1885 to have been \$6,119. The product of silver is not reported, but was small, if any.

For 1887 the product of gold is given as \$87,000 ; no silver.

Nicaragua.

The export of gold and silver, presumed to be the product of the mines, is estimated at 152 kilograms of gold in 1885 and 89 kilograms of silver.

Salvador.

The product of the mines for 1887 is reported as—

Gold	\$66,439
Silver	240,197

GREAT BRITAIN.

The production of the mines of the United Kingdom is officially reported by the inspector of mines.

The following tables, extracted from this report, admirably serve to show the value of the imports of gold and silver ore into the United Kingdom, including the silver contained in argentiferous lead and copper, with the countries from which imported, and also the quantities of gold and silver extracted from imported burnt cupreous pyrites at

metal extraction works in Great Britain during the years 1884, 1885, and 1886.

QUANTITY AND VALUE OF GOLD ORE IMPORTED INTO THE UNITED KINGDOM
IN 1886 AND THE PRECEDING YEAR.

[Return by board of customs.]

Ports.	Quantity.	Value.
	<i>Tons.</i>	
Liverpool.....	52	£1,431
London.....	411	13,510
Southampton.....	1	86
Total for 1886.....	464	15,027
Total for 1885.....	298	21,629

VALUE OF IMPORTS OF SILVER ORE INTO THE UNITED KINGDOM, INCLUDING
VALUE OF SILVER IMPORTED IN ARGENTIFEROUS LEAD AND COPPER.

[Return by board of customs.]

Country whence imported.	Value.	Country whence imported.	Value.
Argentine Republic.....	£17,141	Turkey.....	£18,441
Australasia.....	219,537	Peru.....	30,555
Belgium.....	56	Spain.....	270,759
Central America.....	14,662	United States of America.....	148,903
Chili.....	139,142	United States of Colombia.....	36,584
Greece.....	94,452	Other countries.....	16,249
Italy.....	5,229		
Mexico.....	18,778	Total value.....	1,030,488

QUANTITIES OF METALS EXTRACTED FROM BURNT CUPREOUS PYRITES AT METAL-
EXTRACTION WORKS IN GREAT BRITAIN IN 1886 AND THE TWO PRECEDING YEARS.

Year.	Ore.	Metallic copper ex- tracted.	Extracted by Claudet's process.	
			Gold.	Silver.
	<i>Tons.</i>	<i>Tons.</i>	<i>Ounces.</i>	<i>Ounces.</i>
1884.....	416,412	15,200	1,900	335,009
1885.....	407,700	14,880	1,810	328,000
1886.....	393,699	14,370	1,780	316,000

FRANCE.

The amount of fine silver extracted from lead ores produced by mines in France in 1886 was 46,789 kilograms, of the value, probably commercial, of 8,849,671.46 francs, as returned by the United States minister at Paris in answer to interrogatories of this Bureau. Returns for 1887 will not be rendered before September, 1888.

BELGIUM.

The minister of the United States at Brussels, under date of March 21, 1887, communicates the information from official sources that interrogatories as to the production of gold and silver are for Belgium without object.

SWITZERLAND.

The minister of the United States at Berne, under date of February 17, 1887, replies that Switzerland has no gold or silver mines.

ITALY.

The United States minister at Rome, under date of June 27, 1888, communicates the gold product of the Italian mines in 1886 at 195 kilograms, of the value of 527,736 lire. The silver extracted from galenas and other argentiferous lead ores in Italy was, for the same year, 33,839 kilograms, of the value of 5,414,240 lire (commercial value).

The amount of gold and silver produced during the year 1886 is from "The Annals of Agriculture, 1888," a more recent publication than that from which the figures for the same year were taken and reported previously.

AUSTRIA-HUNGARY.

In regard to the product of Austria-Hungary for the years 1885 and 1886, the official report is here presented for the calendar year 1885, and the same is employed by way of estimate for 1886, being the report of the product of Austria for 1885 and of Hungary for 1884.

The production of the mines of Austria-Hungary is reported by the United States minister at Vienna, for 1887, as follows:

Metal.	Austria.		Hungary.
	Quantity.	Value.	Quantity.
	<i>Kilograms.</i>	<i>Florins.</i>	<i>Kilograms.</i>
Gold.....	14,944	20,847	1,861,958
Silver.....	35,745,219	3,205,895	17,646,493

GERMANY.

The production credited to Germany in the table of the world's production is the amount officially reported to this Bureau by the German Government, less 88,000 kilograms of fine silver deducted each year, as given by Dr. Soetbeer, for the amount obtained in Germany from foreign ores smelted in 1884. It is probable that the deduction made is below the amount of silver produced from foreign ores, as the increase in the production of silver in Germany has since been chiefly due to the working of imported foreign ores.

No deduction has been made from the official report of the production of gold in Germany, for the reason that the small amount is practically insignificant as a part of the world's production. As no data are at hand to indicate what portion of the gold product of Germany was from domestic and what from foreign ores, I am led to credit all of the gold refined in Germany to that country rather than ignore the small product reported. Under the circumstance that, as already explained, it has not been taken up in the statements for the exporting country, this seems to be the more satisfactory way of accounting for a definite though insignificant portion of the world's production.

The following tables, extracted from an article by Dr. Adolf Soetbeer on the production of gold and silver in Germany, published in the Hamburg Börsen-Halle of May 2, 1888, exhibit the product of the German smelting works for recent years, as well as the importation of gold and silver ores into the German Empire :

PRODUCTION OF SILVER BY SMELTING WORKS IN GERMANY.

[From Monatshefte zur Statistik des Deutschen Reichs.]

Years.	Fine silver.	Value.
	<i>Kilograms.</i>	<i>Marks.</i>
1876.....	159,779	21,969,415
1877.....	147,612	23,812,056
1878.....	167,660	25,390,332
1879.....	177,507	26,518,123
1880.....	186,011	28,607,561
1881.....	186,990	28,514,081
1882.....	214,982	32,763,057
1883.....	235,063	35,087,897
1884.....	248,116	37,055,861
1885.....	309,418	44,137,793
1886.....	319,598	42,707,549
1887.....	367,634	48,157,480

The price received by the smelting works for silver sold averaged, in 1871, about 180 marks per kilogram fine; in 1876, something over 157 marks; but in 1886 the price did not exceed 133.62 marks, and in the following year 131 marks.

PRODUCTION OF GOLD BY SMELTING WORKS IN GERMANY.

Year.	Gold production.
	<i>Kgs. fine.</i>
1876.....	281.3
1877.....	307.9
1878.....	378.5
1879.....	466.7
1880.....	463.0
1881.....	380.6
1882.....	376.1
1883.....	457.3
1884.....	555.0
1885.....	1,378.5
1886.....	1,064.9
1887.....	2,250.7

IMPORTATION INTO GERMANY OF GOLD AND SILVER (AND PLATINUM) ORES.

Countries whence derived.	1885.	1886.	1887.
	Double centner.	Double centner.	Double centner.
Hamburg-Altona.....	1,864	1,560	5,821
Norway.....	3,057	2,658	1,982
Mexico and Central America.....	31,741	34,059	28,978
Peru.....	28,880	44,928	45,974
Rest of South America.....	3,636	18,506	67,333
Australia.....	15,590	8,622	} 8,506
Other countries.....	2,267	2,030	
Total.....	67,035	112,363	158,594
Estimated value (in marks).....	15,666,000	20,225,000	Not known.

IMPORTATION INTO GERMANY OF ARGENTIFEROUS LEAD AND COPPER ORES.

Countries whence derived.	1885.	1886.	1887.
	Double centner.	Double centner.	Double centner.
Hamburg-Altona.....	17,345	25,362	17,400
Belgium.....	158,723	116,730	103,862
France.....	32,562	18,406	19,739
Great Britain.....	5,439	10,079	13,019
Netherlands.....	51,246	23,291	26,111
Austria-Hungary.....	23,368	37,524	60,856
Spain.....	17,962	20,926	111,909
United States.....	4,164	4,624	1,628
Australia.....	4,234	8,368	} 31,588
Other countries.....	7,005	12,126	
Total.....	322,068	277,436	386,112
Estimated value (in marks).....	19,324,000	16,646,000	Not known.

The product of gold and silver in Germany for the calendar year 1887 was reported in June, 1888, in answer to the Bureau's interrogatories, as follows:

Metal.	Quantity.
Gold.....	<i>Kilograms.</i> 2,251
Silver.....	367,634

This includes the amount of precious metals extracted from foreign ores and not separated.

RUSSIA.

In the report of the Deputy Master of the Royal Mint, London, 1887, the production of the precious metals in Russia during 1887 is stated to have been—

Metal.	Value.
Gold.....	<i>Roubles.</i> 23,032,513
Silver.....	728,540

NETHERLANDS.

The United States minister at The Hague, under date of March 4, 1887, replies that no silver or gold mines exist in the Netherlands.

PORTUGAL.

The United States minister at Lisbon, under date of November 20, 1886, states that the production of gold and silver in Portugal is insignificant.

SWEDEN.

The United States minister resident at Stockholm, under date of August 25, 1887, reports the production of gold in 1886 at 67.341 kilograms of the value of 167,008 crowns 8 ore, and the production of silver at 3,080.928 kilograms, worth (117.5 crowns per kilogram) 362,397 crowns 50 ore.

DENMARK.

The United States minister at Copenhagen, under date of April 19, 1887, states that there are no gold or silver mines in Denmark.

TURKEY.

The United States minister at Constantinople, under date of February 10, 1887, communicates the production of gold in 1886 at 3,259 drams, value 1,563 Turkish pounds; and of silver, 503,945 drams, value 12,596 Turkish pounds.

JAPAN.

The estimate of the production of gold and silver in Japan for the year 1886 has been made to conform to the official report of the product of the government and private mines, communicated through the Department of State.

The production of gold from government mines in 1886 was \$119,062, and from private mines \$208,173; total, \$327,235. The production of silver from government mines was \$255,384, and from private mines \$1,084,511; a total of \$1,339,895.

The production from government mines in 1887 was, gold, 6,491.20 ounces, valued at \$166,893; and silver, 193,538.47 ounces, valued at \$248,126.

The produce from private mines for 1887 is not yet known.

HAYTI.

The United States minister at Port-au-Prince, under date of March 31, 1886, states that the gold mines which are said to exist are not worked, and that there are no silver mines in Hayti.

HAWAIIAN ISLANDS.

The United States minister at Honolulu, under date of February 28, 1887, states that there are no gold or silver mines in the Hawaiian Islands.

LIBERIA.

The United States vice-consul at Monrovia, under date of March 9, 1887, states that no precious metals are mined in Liberia.

SIAM.

The United States minister at Bangkok, under date of June 8, 1887, states that but little gold is produced from mines and no account kept. The mines were worked, in a crude manner, solely by the natives, and the metal used by artisans for the manufacture of jewelry and articles for the King and nobles. There are no silver mines in Siam.

AUSTRALIA.

The production of gold and silver in Australia and New Zealand during the year 1886 was communicated by the Deputy Master of the Melbourne Branch of the Royal Mint under date of August 2, 1887.

ESTIMATED PRODUCTION OF GOLD AND SILVER IN AUSTRALIA AND NEW ZEALAND DURING THE YEAR 1886.

[From returns forwarded by the government of each colony.]

Colony.	Gold.	Silver.
	Ounces.	Ounces.
New South Wales.....	101,416	1,015,433
New Zealand.....	226,668	12,108
Queensland.....	340,998	(a)
South Australia.....	621,115	.....
Tasmania.....	31,014	.....
Victoria.....	665,396	.....
West Australia.....	3,000	.....
Total.....	1,389,607	1,027,541

a 1,631 tons, classed together as silver and lead, were produced in Queensland in 1886.

b No reliable information obtainable; amount here given shows the quantity received at the mints in Australia.

GEORGE ANDERSON,
Deputy Master.

ROYAL MINT, MELBOURNE, August 2, 1887.

It is understood, as elsewhere explained,* that the ounces given in this return, as in previous returns, are gross ounces. Making a deduction of 8 per cent., as heretofore, gives the production of Australia for 1886 as follows :

Metals.	Fine ounces.
Gold.....	1,278,438
Silver.....	945,338

* Report on Production of the Precious Metals, 1886, p. 69.

The product in fine ounces for the calendar year 1887, reported by the same gentleman, was as follows :

Metals.	Fine ounces.
Gold.....	1, 321, 997
Silver.....	206, 483

INDIA.

In response to interrogatories from this Bureau, Mr. J. E. O'Connor, assistant secretary to the government of India, has transmitted through the Department of State returns of the product of gold in the Mysore province and the Madras presidency of India, as follows :

1885.....	283, 037 rupees = \$134, 074
1886.....	890, 057 rupees = 421, 620
1887.....	£65, 659 = 319, 529

The above returns, bearing date as late as September 16, 1888, have, owing to a delay in Congress of the resolution to print the present report, come to hand in time for these pages. India is thus for the first time added to the list of countries whose production of the precious metals has been officially estimated and reported.

It is obvious, however, that the following statements fail to include an important part of the produce of gold in India, or the yield at the hands of natives from river sands and alluvions. (See Lock, Gold, p. 304.)

It is probable, as indicated in the consular dispatches accompanying the official statements, that the production of gold in India will increase. For the nine months of the present year (1888) the product is reported to have reached nearly £90,000, and it is estimated that for the year 1888 the output will be at least £130,000.

The following statements have been condensed from original ones above referred to :

PARTICULARS OF GOLD PRODUCTION IN THE MYSORE PROVINCE DURING THE CALENDAR YEAR 1886.			
District.	Name of company.	Particulars of gold produced.	
		Standard gold.	Net value.
		<i>Ounces.</i>	<i>Rs. A. P.</i>
Taluk and district..... Bowringpet Taluk, Kolar district.	Mysore Gold Mining Company.....	16, 042. 782	857, 493 3 0
	Balaghat Mysore Tribute Gold Mining Company.....		*1, 950 0 0
	Nundiroog Gold Mining Company.....		5, 767 15 6
	Indian Consolidated Gold Mining Company.....		*12, 880 0 0
Honnali Taluk, Shimogo district.	Honnali Gold Mining Company.....		11, 964 14 3
Total.....			890, 057 0 3

* Value estimated at Bureau of the Mint from quantities reported.

WEIGHT AND VALUE OF GOLD PRODUCED FROM MINES IN INDIA DURING THE CALENDAR YEAR 1887.

Where produced.	Weight of gold.	Value.	
	<i>Kilograms.</i>	£.	<i>s. d.</i>
State of Mysore	471.731	*58,960	3 5
Madras presidency	† { 123	438	0 0
	50.11	6,261	7 6
Total	614.844	65,659	10 11

* Calculated at the British mint rate of £3 17s. 9d. per ounce of gold.

† In view of the wide discrepancy between weight in kilograms and value, value only is used by this Bureau. (See letter from Mr. O'Connor of July 23, 1888, and also consular dispatch, Annual Report of the Director of the Mint, 1888.)

AFRICA.

The production credited Africa for the years 1884, 1885, and 1886 is the amount imported into the United Kingdom from the west and south of Africa, cited from Board of Trade returns and kindly furnished the Bureau of the Mint by Mr. A. Sauerbeck, F. S. S., of London.

IMPORTS OF BULLION INTO THE UNITED KINGDOM FROM CERTAIN DISTRICTS.

	1886.	1887.
GOLD.		
	<i>Ounces.</i>	<i>Ounces.</i>
West coast of Africa.....	34,387	36,108
British India	118,713	28,672
China	152,678	162,964
British South Africa.....	35,143	56,762
SILVER.		
West coast of Africa	23,812	13,610
British South Africa.....	78,048	280
Australasia	1,235,586	296,991

It is Mr. Sauerbeck's opinion that this year's production of gold in South Africa will reach 200,000 ounces.

The production of gold in Queensland was as follows:

	1886.	1887.
	<i>Ounces.</i>	<i>Ounces.</i>
Alluvial.....	15,361	21,700
Quartz.....	325,637	404,223
Total	340,998	425,923

From a report of the United States consul at Cape Town dated March 12, 1888, replying to the interrogatories of this Bureau covering the calendar year 1887, the following is extracted:

"Nothing approaching an accurate record of the amount or value of gold produced from the South African gold fields has been obtained. The nearest approximation to this information is to be obtained from the custom reports of this colony and Natal, according to which the

amount of gold (bar, dust, and nuggets) exported through these several ports for the year ending December 31, 1887, was about 2,050 kilograms, valued at £236,612, or \$1,151,472 in United States currency.

The above only represents that portion of gold bought up and exported by banking and mercantile establishments, but does not embrace a considerable amount exported by private persons nor that which has passed through Delagoa Bay, which has been considerable."

Besides enterprises in the Knysna gold fields of Cape Colony and in the gold fields of Natal, there are about 220 English gold mining companies in the Transvaal, with a nominal capital of over £12,000,000. The majority of these were formed during 1887, when the Witwatersrandt fields were opened up and machinery introduced. At Witwatersrandt there are 1,000 head of stamps, a number calculated to be increased to 4,000 during the present year.*

The following from Petermann's Mitteilungen† states the export of gold through the custom-houses of Natal and Cape Colony since 1871:

Year.	Natal.	Cape Colony.		Total value.
	Value.	Ounces.	Value.	
1871.....	£370			£370
1872.....	825			825
1873.....	895	22	£85	980
1874.....	24,710	3,827	14,772	39,482
1875.....	28,443	11,152	43,009	71,452
1876.....	39,802	3,105	11,905	51,707
1877.....	13,565	14,095	54,030	67,595
1878.....	4,575	9,067	34,765	39,340
1879.....	1,100	7,611	29,115	30,215
1880.....		5,855	22,450	22,450
1881.....	276	4,706	17,676	17,952
1882.....	6,865	4,230	15,175	22,040
1883.....	20,293	2,639	10,164	30,457
1884.....	16,708	7,232	22,297	39,005
1885.....	52,222	5,050	17,321	69,513
1886.....	113,166	6,973	23,914	137,080
1887.....	143,551	25,698	92,936	236,487
Total	*467,366	111,262	409,614	876,980
1888.....	†167,431	44,872	161,243	328,674
Total				1,205,654

* Value of 126,949 ounces. † Value of 46,594 ounces.

COST OF PRODUCTION OF SILVER.

Does the market price of silver depend upon the cost of production of this metal? Or indeed is the cost of production an element of the market price?

If these two questions are not met with unqualified negation, then a third question arises, namely: Does the cost of production of gold likewise enter as a principal or an element into the mint value of that metal?

* Glanville, "South African Gold Fields," London, 1888, p. 3.

† 38 Band, 1888, IX, p. 264.

If in the case of either metal, or both metals, the cost of production be a measure or even an element of value, wherein do the values of the so-called precious metals differ from the rule of all other metals whose market values, like those of all other commodities, are conceded by certain economists to depend on relative supply and demand? On what these values do depend has been variously argued, but it has been only within a few months that, with any show of authority, one rule has been propounded for silver which is not meant *pari passu* to apply also to gold, so far as the cost of production goes, if at all, to determine the market value or mint price of either.

At the close of a lucid chapter on exchangeable values as affected by cost of production, Malthus aptly remarks that—

“If it appear generally that the cost of production only determines the prices of commodities as the payment of it is the necessary condition of their supply, and that the component parts of this cost are themselves determined by the same causes which determine the whole, it is obvious that we can not get rid of the principle of demand and supply by referring to the cost of production.” “Natural” prices (as distinguished by Adam Smith) “and necessary prices” (which is the term preferably employed by this author) “appear to be regulated by this principle as well as market prices; and the only difference is, that the former are regulated by the ordinary and average relation of the demand to the supply, and the latter, when they differ from the former, depend upon the extraordinary and accidental relations of the demand to the supply.” (Malthus, Principles, Boston, 1821, 67.)

Nothing could be clearer than the teaching of this author on the same subject. Thus earlier in the same chapter we find aphorisms and deductions like the following:

“It has never been a matter of doubt that the principle of supply and demand determines exclusively and very regularly and accurately the prices of monopolized commodities, without any reference to the cost of their production” (p. 50).

The cost of production itself only influences prices of commodities (manufactures), as the payment of this cost is the necessary condition of their continued production (p. 59).

“If this be true,” says Malthus, “it follows that the great principle of demand and supply is called into action to determine what Adam Smith calls natural prices as well as market prices” (p. 59).

“The most striking instance which can well be conceived to show that the cost of production only influences the prices of commodities as it regulates their supply is continually before our eyes in the artificial value which is given to bank-notes by limiting their amount. * * * If this limitation could be completely effected without the paper being exchangeable for gold the value of the notes would not be altered. But if an article which costs comparatively nothing in making, though it performs one of the most important functions of gold, can be kept to the value of gold by being supplied in the same quantity, it is the clearest of all possible proofs that the value of gold itself no further depends upon the cost of its production than as this cost influences its supply, and that if the cost were to cease, provided the supply were not increased, the value of gold in this country would still remain the same.”

“It does not, however, in any degree follow * * * that labor and

the costs of production have not a most powerful effect upon prices; but the true way of considering these costs is the necessary condition of the supply of the objects wanted." (Ibid., p. 62.)

The peculiar and inherent value of bullion or of money "originates," says Say, "like that of other commodities in the uses to which it is applicable. The degree of that value is greater or less according as its use is more or less extensive, its employment more or less necessary, and its supply more or less abundant." (Political Economy, Philadelphia, 1857, p. 307.)

Lord Lauderdale's general law of value is formulated by MacLeod substantially as follows:

Of one of two (economic) quantities (that is of anything whose value can be measured in money) which may each vary, if we suppose the variation to take place in one of them first, the other remaining the same, the value would be influenced by four causes:

"The value would increase—

- (1) From a diminution in quantity.
- (2) From an increase of demand.

"The value would diminish—

- (1) From an increase of quantity.
- (2) From a diminution of demand.

"As the variation of the other quantity will be influenced by the very same four causes, the variations of both quantities will be influenced by eight independent causes. Now, if these be connected in the form of an algebraical equation, that will be the true general law of value, or the true general equation of economics." (MacLeod, Economics, I, 257.)*

MacLeod further says:

"No other quantities but demand and supply appear on the face of the equation. We therefore learn that no other causes influence value or changes of value except intensity of demand and limitation of supply. We learn that neither labor nor cost of production can have any *direct* influence on value, and that if they do so *indirectly* it can only be by and through the means of affecting the demand or the supply, and that no change of labor or production can have any influence on value unless they produce a change in the relation of supply and demand."

Whether as a general principle cost of production constitutes the essential condition of exchangeable value or market price, as urged by Adam Smith, Ricardo, Rossi, Roscher, and Mill, or on the other hand only indirectly influences prices as a condition of supply and demand, as contended by Malthus and Say and MacLeod, is a nice as well as a wide question beyond the present inquiry. However the question may be resolved as to commodities in general, the conclusions of the latter economists must, I think, commend themselves as strictly applicable to all industries that have for their object the production of metals, or at least of the precious metals.

Indeed, Mill himself tersely says:

"Demand and supply govern the value of all things which can not be indefinitely increased; except that even for them, when produced by industry, there is a minimum value determined by the cost of production."

* See also second Report of the Royal Commission Appointed to Inquire into the Recent Changes in the Relative Values of the Precious Metals. London, 1888, p. 243.

And, again, he concedes that—

“There really is, in one respect, a closer connection between the value of money and its quantity than between the values of other things and their quantity. * * * Alterations * * * in the cost of production of the precious metals do not act upon the value of money except just in proportion as they increase or diminish its quantity; which can not be said of any other commodity. It would therefore, I conceive, be an error, both scientifically and practically, to discard the proposition which asserts a connection between the value of money and its quantity.”

A commentator on Mr. Mill's treatise, Dr. J. L. Laughlin, concludes, from the well-known circumstances attending the fall of 20 per cent. in the price of silver in 1876, that—

“The relation between prices and the quantities of the precious metals is not so exact, certainly as regards silver, as Mr. Mill would have us believe; and thus their values conform more nearly to the general law of demand and supply in the same way that it affects things other than money.” (Laughlin's *Mill's Principles*, New York, 1886, p. 310.)

A law of value suited to agricultural products fails perhaps to accommodate itself to pig iron, while another elastic enough to cover both of these commodities may fail to answer for monopolized articles, or for goods and products whose prices rise and fall from vicissitudes, or from the operation of internal-revenue and customs laws.

The numerous theories of value enunciated in different maxims by political economists all seem to fall short of a general or universal law of value when applied to certain commodities, the exceptions to any given rule proving perhaps peculiar to that rule.

Says Dr. Sharling, professor of political economy at Copenhagen:

(1) “A general law of value must answer for all kinds of traffic; it must stretch from isolated, adventitious barter between two persons to the most complex transactions of the open market and the exchange, and cover international commerce as well as domestic trade.

(2) “A law of value must be good not only for traffic in merchandise, but for exchange of labor, as well as of merchandise against labor.

(3) “A law of value must equally apply to all kinds of goods—to goods which are peculiar in their kind, to rare articles, and to monopolized products, as well as to ordinary commodities.” (Translated from Conrad-Hildebrand *Jahrb.*, 1888, XVI, 551.)

But of all commodities, perhaps, the precious metals are the least susceptible of co ordination under any law of value yet proposed. Limited as is the supply of both gold and silver, it has lately come to pass, by legislation through coinage laws, that a limit is placed upon the demand for silver. The supply of both metals and the demand for one of them is thus limited, while neither can be said to be subject to either a “natural price,” as defined by Ricardo and Mill, or a “necessary price,” according to the definition of Malthus. For it is believed, even though not clearly shown, that a large part of the output of gold and silver is at such a loss that if averaged upon the produce of the world at any

given time, the market or exchange value of either metal is below its cost of production. While larger than ordinary manufacturing profits fall to the share of the few successful producers, whose operations are almost necessarily on a large scale, such good fortune in the *bona fide* industry of producing gold and silver represents one of two extremes, of which the other is instanced by the many small producers whose operations are at a loss, at least for a given time.

Yet the supply of the precious metals is maintained by the contributions of the many small, profitless operations rather than by the few profitable ones. Paradoxical as such a statement may appear, and contrary to the general principles of political economy, as it obviously is, I think but few, if any, experienced observers will be disposed to question its universal application at the present time.

As briefly pointed out by me in my Report for 1885, of the present series, there enter into the initial industries of the production of the precious metals certain influences which hardly come within the cognizance of political economists, but which nevertheless constantly tend to the maintenance of a supply of the precious metals, and this quite independently of the conditions of demand or of cost of production. In that report the following question was proposed (p. 26):

In view of the rapid decline which has taken place in the commercial value of silver since the demonetization of silver by Germany, and especially during the last year, the question is often asked, What will be the effect of this decline on the production of silver in the United States?

In considering this question it is important to remember that the conditions of supply are, in the case of the precious metals, not so dependent upon conditions of demand as with most if not all other common staples of industry. The truth of this proposition rests upon collateral conditions which have previously existed and now prevail. What might be the case under hypothetical conditions of a different kind may, without argument here, be left to conjecture.

It is well known that a large part of the silver production of the United States is practically a by-product, incidental to the production of gold and the baser metals. From the value of the silver thus produced the fall in price is a serious one. The tendency of such a fall will necessarily be to sweep away the margin of profit from some of the operations of this kind, important, if indeed not vital, to the existence of certain reduction and smelting industries. In cases where the extraction of silver is alone for the sake of its recovery and not for the amelioration of the associated metal or metals, a check to production must follow from a certain fall in price, even if disguised by increased production from other sources incidental to progressive development or to new undertakings in mines and reduction works.

A considerable proportion of the total production of silver corresponds to the precarious production of transient mines supported for a while by outlay or capital. Upon the exhaustion of capital they soon cease, for the time being, to be producers if without net resources of their own. Under the incentive of hope and of the imagination mines are often worked at a loss for a time, and perhaps under different ventures even repeatedly, sometimes, however, without failing to contribute,

collectively at least, a considerable proportion of the total production of the precious metals.

Whatever from without tends to lessen the quantity or value of the product of such mines, or rather mining ventures, tends also to lessen their ability to withstand the effects of failure within. Hence the recent fall in the price of silver tends to reduce the number of mines whose maintenance be only partly by means of their production, and whose further reliance be upon other assets, like advances and assessments of capital. Another tendency will be to discourage new silver mining ventures, with the probable effect of turning the attention of miners of the precious metals from the poorer to the richer ores, and from regions less favored in the quality of ores to others holding out the promise of ores of the higher grades, even though the quest for the latter pass beyond our own borders into Mexico and elsewhere.

The above remarks may be supplemented by the observations of Mr. John A. Church, in a report to this Bureau on the silver mining industry of Arizona in the year 1886 (Report Director of the Mint: Production of the Precious Metals, 1886, p. 144):

In spite of the discouragements under which mining in Arizona suffered during the year 1886, the bullion product of the Territory was maintained. This result is due to one of those compensations which are noticed so often in similar circumstances. The fall in the price of silver, which reached a lower point than any that has been known for centuries, discouraged large investors and embarrassed the operations of those producers who were obliged to keep a large force of men under pay, while its effects fell less severely upon individual owners of small mines. Some of the most important corporations suspended work for months together and continued it for the remaining time on a reduced scale. Hundreds of mine and mill men were thrown out of employment.

A very large proportion of the working miners in the Territory are owners also of small mines, or prospects that are barely opened upon, and in the dearth of paid employment these men have turned to the development of their own mines, and have added materially to the year's product by their shipment of ores. Quite a large number of mines ship only one car-load of ore, or even less, as the result of a whole year's work, and do a business of from \$800 to \$2,500 a year. The large companies produce that amount every working day, but it is not to be doubted that the work of the small proprietors is more profitable to the Territory than the same product from a body of wage-earners.

Many men who do not earn full wages by working their own property are able to accumulate more as the result of the year's work on account of the enforced frugality of camp life and the freedom from the temptations to drink and gamble which are pressed so earnestly upon miners during their idle hours in the towns.

The following letter addressed by me to Senator Beck, of the Finance Committee, having been printed in the Congressional Record, is here quoted (Congressional Record, March 15, 1888, p. 2186):

Your remarks in the Senate on the report of the Royal Commission suggest sending you a copy of a blank recently prepared by me.

I beg you to observe the note at the foot of the page. Mr. Atkinson told me that he found great disinclination toward any change in the status of silver in Great Britain on account of the prevalence of the idea that silver is, or can be, produced at about half of the present bullion

value, and that indeed it would be "shoveled" out in unprecedented volume if the status be improved. This impression seems to mainly rest upon the preposterous estimates of Professor Austen, of the Royal Mint, whose testimony taken by the commission, and with an exhibit of detailed statements to be found in the appendix, claims to be based on a technical analysis of industrial cost. Nothing could be more misleading. Yet I notice that more importance attaches to this testimony than to anything else brought forward during the whole proceedings. Several English writers have since based arguments upon it.

I may say that no American technical authority has ever ventured to put forth a general estimate of cost of production in the case of the precious metals, the truth being, as pointed out by me in my Report on Production, 1885, page 26, that their cost, as well as the supply, is to be considered subsidiary to a large extent to the production and reduction of miscellaneous ores, their part in the value of which is none the less an integral one. A large part of the produce of both metals corresponds to the aggregate of small products, which bear a small, but widely varying, proportion to their cost. Estimated as in the case of any other staple, the cost of silver is believed by most men acquainted with our mineral industries to be some multiple of its value.

While a few ventures yield a rich profit, a majority of gold and silver mining ventures fail to pay any interest on outlay, though in the aggregate contributing the larger part of the silver produced in the world. This is a curious fact, and due mainly to the fascination which the search for the precious metals has for a large class in all countries where a few examples of successful operations are to be found. I may take some occasion to follow out the methods of Professor Austen, whereby he has reached so false a conclusion. I allude to his assumptions of cost of production, and to the arbitrary way in which he has excluded all but successful ventures. If the silver market had alone the product of these to depend upon it would be in sad straits, indeed.

The following is extracted from a notice in the Engineering and Mining Journal of an abstract in advance of the present report (XLVI, p. 40, July, 1888):

"The efforts, referred to in the abstract, to ascertain the cost per ounce of producing gold and silver in the United States must attain results more curious than useful. Over a series of years the average cost of producing the precious metals is a little less than the market prices of the metals, else no new capital would go into the business; and the profits on production are unfortunately (from many and chiefly avoidable causes) not so great as to make capital very eager to engage in mining.

"The wide variations in the cost of production between one mine and another, and between different periods at the same mine, are so great that no statistics of any value can be obtained from individual cases. It is probable that the average cost of all the gold and silver produced will not vary very greatly from \$18 per fine ounce for gold and 80 to 90 cents per ounce for silver. In this latter the fluctuating value of lead would make a close estimate of cost impossible for silver coming from silver-lead bullion."

Says Professor Lexis:

"Austen endeavors to estimate how much silver is obtained by the four principal metallurgical methods, and he thinks he may assume that of a yearly production of 83,400,000 ounces about 500,000 ounces

are produced by the refining of new gold, 30,700,000 ounces by the desilverization of lead, 7,200,000 by the desilverization of copper, and 50,000,000 by the working of silver ores proper. The silver parted from gold is at a small cost of production, about $2\frac{1}{2}$ pence per ounce. However, the yield from this source constitutes an insignificant share of the total production. The average cost of production of the silver obtained from lead ores, Austen assumes to be 2 shillings per ounce, and he estimates the cost of the production of silver from copper ores at about the same, viz, at 1 shilling and 11 pence. Lastly, he assumes the average cost of the production of the metal from silver ores to be 1 shilling and 5 pence, and he thus reaches a general average cost of production of silver of 1 shilling 8 pence per ounce.

“Although this calculation, as a first effort, is of interest, its result can claim no possible value. The distribution of the production of silver among the four methods may correspond approximately with the reality, although it is based on very summary estimates. Mr. Ansten, however, who is a chemist and not a statistician, used altogether too few facts in support of his conclusions on the cost of production and in determining that cost, although there is no lack of rich material for determining it. But there is nothing whatever to be gained by calculating an average amount of cost of production of silver. For since the average lies between the highest amount of cost and the lowest, actually expended, it follows that many silver mines are operated at a higher cost than the average, and if those of the average most unfavorably situated can still be worked without loss, all mines whose cost reaches from the lowest amount to the average will pay a more or less rent, and hence the average amount of cost stands in no fixed relation whatever to the market price of silver.

“The real problem is rather this: To draw up a long series of degrees of cost of production and determine how much silver is obtained at each degree of cost. I have already been at work on this question a long time, and shall probably succeed in giving, at least in some measure, a satisfactory answer to it. It is evidently of the greatest importance in judging of the future prospects of production. If a great part of the silver is obtained at the highest cost, a further diminution of the value of silver may cause a great fall in the year's production; but if, on the other hand, the great mass of silver still pays a rent, a decline in its price can exercise no material influence on production.” (W. Lexis: Translated from Conrad-Hildebrand Jahrb., 1888, XVI, 326.)

What shall be understood by cost of production, to which, on the other hand, writers like Adam Smith, Ricardo, Roscher, Mill, and Bagehot ascribe the values of the precious metals?

The absolute cost of production of gold and silver in the case of any given mine and works can not be fairly cast without the following data for the whole life of the mine:

Scheme of cost of production for whole life of mine.

DR.

1. Sum of capital invested in mine and in construction and maintenance of plant.
2. Less salvage upon abandonment.
3. Add interest at current rate on difference.
4. Cost of mining, including development.

5. Cost of milling.
6. Cost of reduction.
7. Cost of local transportation, not otherwise included.
8. Cost of refining, including parting charges.
9. Administration, superintendence, and office expenses.
10. Ores purchased.
11. Transportation of product to market.

CR.

1. Net sales of products, as follows :
2. Returns for gold, — ounces, \$——.
3. Returns for silver, — ounces, \$——.
4. Returns for base metals, — tons, \$——.
5. Furnace products (mattes, etc.).
6. Real estate sold.
7. Personal property sold.
8. Interest on last two items to date of closing account (at rate charged in this account).
9. Other sales, from rent, and all other sources of income.
10. Total cost of production by difference.

Summary of cost of production in ratio of market value of products.

Lead, per ton.

Gold, per ounce.

Silver, per ounce.

The cost of production of gold and silver separately may be determined approximately for any given period short of the whole life of the same mine and works by charging against capital account a suitable rate sufficient to cover interest and amortisation, usually taken at about 15 per cent. per annum in the case of mills dependent upon the supply of material from particular mines, and *pari passu* so applicable as a minimum rate to the whole capital invested in mine and plant.

To such a purpose the following scheme may be presented :

Scheme to deduce cost of production of the precious metals from annual returns from mine and complete reduction works.

DR.

1. Interest and amortisation at 15 per cent. for one year on sum of capital invested in mine (including purchase of property), plant, renewals and maintenance of same, and in personal property, \$——
(Items 4 to 11, inclusive, same as preceding scheme.)

CR.

1. Market value of products for given time (each separately).
2. Total cost of production by difference.

Summary of cost of production in ratio of market value of products (each separately).

Comparatively easy as it might be to deduce the cost of production of either of the precious metals from mines completely equipped with

reduction works capable of producing advanced products like argentiferous lead or doré bars, a very different case is presented by the large production of the precious metals from mines whose products are complex ores or unfinished furnace products sold, at metallurgical rather than at commercial value, to mills and smelting works for reduction at the cost of a considerable proportion of their gross value for transportation. The metallurgical value of such ores or furnace products thus transported for reduction must be sufficient to cover the further costs of their reduction and freightage, and of refining and transportation of the finished products to market, and also a manufacturing profit to the purchaser, free of commission, regardless of the sum of all previous costs like mining, local transportation, or mechanical preparation. Any deficiency in value of the raw material falls upon the producer or upon the miner alone.

Ores, speiss, and matte are thus transported from the mining districts of the cordilleras of the United States and Mexico not only to the several great reduction works of the Mississippi and Missouri valleys, but to the seaboard and to Europe. Hence the cost of production of the precious metals is shared with the miner, by transportation companies, the smelter, the refiner, and the commission merchant. What proportion of the product of the precious metals in the United States in any given time is so derived may be ascertained from the returns to this Bureau from the several reduction works and refineries, and from mint and custom-house returns, but at what cost is an inquiry which has never been made.

Fourteen reduction works and refineries in the United States report to this Bureau for 1887 a production of 1,113,033 ounces of gold and 46,291,045 ounces of silver. Such a proportion represents 60 per cent. of the total product of gold and 95 per cent. of the total product of silver.

Nothing could be more magnanimous and public-spirited than the readiness and zeal on the part of the operators of reduction works and refineries to aid the efforts of this Bureau in collecting the statistics of the precious metals, often not without serious trouble and pains to render returns in terms suited to its inquiries, as the books of but few if any of them are kept in the same terms. I have had occasion several times before to acknowledge such voluntary aid, without which indeed it would be quite impracticable to attempt to meet the requirements of Congress even in the measure of the present series of reports, imperfect as they are and must necessarily be, in default of adequate provisions of law for formal returns from all producers of the precious metals. But frank and generous as the contributions of statistics of the precious metals are acknowledged to be, no cost-sheets have ever been solicited, nor is it likely that many would be forthcoming however desirable or in whatever manner sought. Inquisitorial as the interrogatories of this Bureau are now regarded by some producers, it may be taken for

granted that they would be so regarded by all if extended to particulars of cost of production. Public inquiries into cost of production of almost any commodity are repelled by producers and manufacturers. As long as it can not be definitely ascertained in the case of iron or steel, or any other base metal, from numerous sources, it is far too much to expect that this can be directly ascertained from producers of the precious metals, outnumbering producers of all other metals, and whose operations are to be measured on widely different scales.

As will be shown, it may become practicable to deduce the cost of production of the precious metals in isolated cases—when for instance mines and complete reduction works are operated by public companies whose annual printed reports to the share-holders contain data upon this point; or when cost-sheets are voluntarily supplied, as sometimes they are, to this Bureau or its agents, in the case of successful enterprises about whose operations no secrecy is maintained.

Again, the publications of responsible metallurgists and engineers sometimes supply similar data for individual enterprises of the more successful kind. Statements of cost of production in a few individual cases, however, are far from affording grounds for general deductions or wide averages. Particularly is this true of the production of the precious metals, whose cost varies between wide extremes, as shown by a comparison between even successful enterprises, the combined product of which in any given part of this country, however, bears but a small ratio to the total production—towards which unsuccessful enterprises, as well as private undertakings at a low valuation for labor, have largely contributed, and from which total the economic problem of the true cost of production of the precious metals for a given time remains to be determined.

Before this problem can be safely resolved to any exact or important purpose, it must have been worked out at least for the United States and Mexico, the leading countries of the world in the production of silver, as to which metal alone the problem has become a pressing one. It is obvious, however, that so intimately associated in nature are both of the precious metals that the cost of production of either can scarcely ever be fairly cast in a single enterprise without determining that of the other. And indeed it is also obvious that so much gold as is produced along with silver from argentiferous lead and other base metals is at the same cost as the silver, whatever be the ratio of the cost of production of the associated products that this metal be called upon to separately bear—as when this ratio is taken at market values.

COST OF PRODUCING SILVER IN THE UNITED STATES.

The first Report of the Royal Commission Appointed to Inquire into Recent Changes in the Relative Values of the Precious Metals, London, 1887, contains a memorandum presented by Prof. Roberts Austen, chemist to the Royal Mint, On the Cost of the Production of Silver.

The object of Professor Austen's memorandum is to show that even at the present largely reduced commercial value of silver its value as a metal, measured by the cost of production, is far below the market price.

In reaching this result Professor Austen has distributed the silver product of the world for 1883, viz: 88,354,733 ounces, as estimated by this Bureau, into four classes according to the several metallurgical methods employed in obtaining it.

(1) Silver contained in gold, or silver obtained from refining native gold.

(2) Silver contained in lead ores, or silver obtained by the desilverization of lead.

(3) Silver contained in copper ores, or silver obtained by the desilverization of copper and cupriferous products.

(4) Silver ores, or silver obtained from ores in which silver is the principal valuable metal.

Taking the text of Professor Austen's memorandum (Appendix VI, First Report of Royal Commission, etc., p. 325) rather than the minutes of evidence, I am led to the following comments:

The propriety of treating, as in Section I of Professor Austen's memorandum, the silver obtained from native gold as costing only the amount charged for parting the two metals at the mints of the United States must be seriously questioned. Except a very small quantity of gold dust recovered by washing without milling or amalgamation, it is only the finished product of mills or reduction works which comes to the mints. A large part of the so-called native gold included under this section is really the product of mills or reduction works in the form of retorted amalgam, which at least should bear a part of the cost of milling, and, as I think, a part of the mining cost, proportional quantitatively to the percentages in the crude product; or, to use the proportion quoted by Professor Austen on the authority of the United States census, 876 parts of gold in 1,000, or about 12.4 per cent. of silver, instead of throwing upon the 87.6 per cent. of gold the whole cost of mining and milling.

The cost of producing silver, estimated to amount to only 508,000 ounces annually, from the first class of ores, namely, by refining native gold, is given at the official charge at the United States mints for parting silver from gold deposits, viz, 2½ pence, or about 5 cents, per ounce, silver from this source being considered by Professor Austen a pure gain, of the nature of a by-product extracted in the necessary refining of gold and consequently costing nothing but the charge for parting.

In dealing with the large proportion of silver produced from desilverization of lead, as in Section II of the memorandum of Professor Austen, this expert, ignoring interest on invested capital, wear and tear of plant, etc., and all other items entering into the cost of production of the crude product preliminary to desilverization, undertakes to charge up the whole cost of mining and milling, transportation and reduction, to the

whole of the lead and to only so much of the proportion of silver as necessary to cover any deficiency, and to credit profit and loss for the rest of the silver and gold not required to defray the cost of desilverization and refining and transportation, incidental thereto.

For the whole product of 21,505,248 ounces of silver (along with 146,830 ounces of gold) from 117,608 tons of argentiferous lead, as reported by Mr. C. Kirchhoff, jr.,* for 1884, Mr. Austen takes the operative results of two completely equipped mines as "fairly typical"—presumably of the combined industries concerned in the production of silver from argentiferous lead in 1884, not only in the United States, which he credits with two-thirds of the world's production, but indeed the world over. These two establishments are, namely, the Horn Silver of Utah—the cost of whose product of argentiferous lead (15,374 tons) desilverized is quoted from official returns at \$91.63, but taken in round numbers at \$100 per ton, and the Eureka Consolidated of Nevada, the cost of whose product (1,397 tons) of the same kind is quoted at \$248.57, but taken in round numbers at \$250 per ton.

From these two exceptionally complete and successful enterprises Professor Austen proceeds to cast the cost of production of silver from argentiferous lead in the United States by taking the mean cost of the latter (\$175) at prices of \$4.10 per cwt. for lead (\$82 per ton) and 98 cents per ounce for silver. Hence he calculates the amount of silver the lead should contain to meet the cost of \$175 to be 95 ounces, of the value of \$93.10, the value of the lead being \$81.70. But from the given figures the yield of silver per ton of argentiferous lead was nearly 183 ounces, along with $1\frac{1}{2}$ ounces of gold, or considering the value of the gold as silver, 200 ounces. As, however, only 95 ounces, or say one-half this average, covered the working expenses, "the price of silver might have been half the market price and yet have entailed no loss in the working;" that is, 2 shillings, or half the given market price of silver, namely, 4 shillings (December 9, 1886). Thus Professor Austen arrives at the cost of 2 shillings per ounce as the actual cost of production of silver apparently figured down to as late a period as the close of the year 1886.

Question. "In order to make it perfectly clear by what method of deduction you arrive at the conclusion that in these lead mines in America silver is produced at about 2 shillings an ounce, let me recapitulate what I understand to be your statement. You prove, in the first place, that if about 100 ounces of silver go to each ton of lead it will not be a loss to extract that lead from the mines. But as a matter of fact not 100 but 200 ounces of silver exist in each ton of lead; therefore, if silver be worth 4 shillings an ounce, it is quite clear that the silver is produced at half that cost; in other words, at 2 shillings?"

Answer. "That is my conclusion." (Minutes of evidence, p. 63.)

Figures thus deduced as above for the United States in 1883 are directly applied to all countries for 1886.

* Mineral Resources of the United States, 1883-'84, U. S. Geol. Survey, p. 411.

Professor Austen has made use of the wrong figures to obtain the average yield in silver of argentiferous lead from the returns for 1884, employed by him; only 19,000,000 ounces of silver, along with 125,000 ounces of gold, as quoted by this witness, having been estimated by Mr. Kirchhoff to have been derived from argentiferous lead ores, the rest of the precious metals refined from argentiferous lead or base bullion, and estimated to have been 21,505,248 ounces of fine silver and 146,830 ounces of fine gold, having been derived from silver ores proper, such, when available, as are always smelted along with lead ores in American reduction works. Thus, instead of 183 ounces of silver and $1\frac{1}{4}$ ounces of gold (equivalent to 25 ounces silver) deduced by Professor Austen as the average tenor of base bullion in the United States, whence the round number of 200 ounces per ton, this witness would have been compelled to deduce the smaller yield of 161 ounces of silver and 1.06 ounces of gold (equivalent to 21.20 ounces silver), or 9 per cent. less than his present estimate.

And here it is proper to inquire whether 161 ounces of silver as the tenor of the argentiferous lead turned out by American reduction works in 1884 as from miscellaneous lead ores is not too high an estimate, without accounting in part for such a yield of silver from the admixture of a larger proportion of silver ores proper than allowance was made for by Mr. Kirchhoff. In 1883, for example, the works at Leadville turned out 36,870 tons of lead, carrying 5,313,638 ounces of silver, or only 144 ounces per ton. The difference in the richness of the product is probably due to improvements, mainly in transportation, by which silver smelting ores from tributary camps have become more available for mixture. Thus it appears from Mr. Kirchhoff's returns for the following years the yield was 266 ounces in 1885 and 176 ounces in 1886 (*Mineral Resources U. S.*, 1886, p. 144). It should be remembered that at all smelting works in the United States producing base bullion lead ores are called upon to bear as full a burden of miscellaneous gold and silver ores as their individual circumstances allow, much of the operative profit being derived from the purchase and reduction of complex silver ores of high grade, especially when available of a kind as generally the case, to promote the fluxing properties of the mixture.

According to a statement of Wells, Fargo & Co., the silver tenor of the argentiferous lead product of Utah was 108 ounces in 1885 and 116 ounces in 1886.

According to Mr. A. Hanauer, of Salt Lake City, the tenor of silver in 1887 was 126 ounces.

According to Wells, Fargo & Co., as quoted by Professor Austen, the Leadville product of 35,296 tons of argentiferous lead in 1884, yielded 162 ounces of silver per ton, or about the same as the average of the whole product of the United States for the same year. It is well known that the lead ores of that district are exceptionally rich in silver. Hence the inference that a considerable proportion of silver beyond the esti-

mate above quoted for 1884 really was derived from silver ores, used, for the sake of fluxing properties and enrichment in admixture, along with argentiferous lead ores, at the lead-smelters in the United States, and accordingly that base bullion from argentiferous lead ores of the country averages a lower proportion of silver than 161 ounces as deduced above.

From the specific reports of smelting establishments to this Bureau it is well understood that the quality, and degree of admixture, of rich silver ores used along with argentiferous lead ores, as generally classified, are not a matter of record, however essential to Professor Austen's synthetical method for reaching the cost of production of silver from this class of ores, by incontinently charging it off as far as practicable to the accompanying lead.

The Horn Silver mine of Utah, one of Professor Austen's examples, passed in 1876 from the hands of the discoverers into those of Campbell, Cullen & Co., by whom it was sold to the present company February 17, 1879, along with reduction works at Frisco, and a small lead refinery at Chicago. The reduction works were removed to Francklyn in 1881 and enlarged to a capacity of 100,000 tons of ore. With a capital stock of \$10,000,000, dividends amounting to \$4,000,000 have been paid, the last of these in November, 1884, since which period the mine has not been a successful producer. In 1881 the cost of plant, exclusive of mine, was reported to the stockholders as \$416,205.44.

PRODUCT OF THE HORN SILVER MINE, UTAH.

Years.	Lead sold.	Amount realized from sale of lead.	Silver sold.	Amount realized from sale of silver.	Total amount realized from sale of lead and silver.
	<i>Tons.</i>		<i>Fine ounces.</i>		
1879	1,536.0	\$126,620.58	226,955.46	\$257,755.89	\$384,376.47
1880	3,900.4	353,449.46	576,878.94	660,630.92	1,014,080.38
1881	7,893.6	729,033.55	1,034,274.71	1,168,814.86	1,897,848.41
1882	14,567.8	1,342,973.25	1,751,212.54	2,010,087.79	3,353,061.04
1883	14,991.4	1,260,389.54	1,165,234.13	1,312,772.61	2,573,162.15
1884	10,975.8	768,311.88	1,394,360.31	1,533,796.34	2,302,108.22
1885	2,457.9	.....	123,062.00	.....	238,369.00
1886 .....	.....	.....	27,200.00	.....	.....
1887	1,350.0	.....	99,388.00	.....	.....

The yield of the Horn Silver ores has been about 34 per cent. of lead-producing base bullion, carrying 103 ounces of silver per ton, or about one-half the average arbitrarily reckoned by Professor Austen. Hardly anything further is necessary to sweep away the assumptions of Professor Austen by which he has been led to summarily double the yield of silver, and thus to halve the cost of production as deduced from the returns of this mine for a single year along with those of another mine for the same period—thus placing it at 2 shillings instead of 4.

We will, however, proceed to examine his other example, the Eureka mine.

The two largest and richest ore bodies discovered in 1869 on Ruby Hill, in the Eureka mining district of Eureka County, Nevada, have been developed by two companies, known as the Richmond, and as the Eureka Consolidated.

The ores are salts of lead in a gangue of ferric oxide, along with galena and auriferous arsenical pyrites, all argentiferous. Their average tenor, according to Mr. Curtis,* is 15 per cent. lead, .079 per cent. silver, .00248 per cent. gold.

The ores of these two mines, together with other ores of the Eureka district, are reduced at the smelting works of the two companies, at Eureka.

The Eureka Consolidated, which Professor Austen has taken as the second example of the argentiferous lead-producing industry of the United States, was organized with a capital of \$5,000,000, divided into 50,000 shares. Of the nominal capital \$600,000, all told, has been actually paid in. Four million nine hundred and thirty thousand dollars has been returned in dividends, the last dividend of 25 cents a share having been paid in July of the present year.

The product of this establishment for a number of years, as nearly as can be compiled from miscellaneous sources, may be given as follows:

PRODUCT OF THE EUREKA CONSOLIDATED MINING COMPANY OF NEVADA.			
Years.	Ore.	Base bullion.	Value.
	<i>Tons.</i>	<i>Tons.</i>	
1870.....			\$295,000.00
1871.....		3,172	1,110,314.10
1872.....		5,000	1,800,668.78
1873.....		4,320	1,542,443.29
1874.....		3,829	1,286,175.40
1875.....		5,547	1,869,392.04
1879.....			2,743,400.00
1880.....	36,634		1,295,253.48
1881.....		5,396	1,720,313.00
1882.....	22,355	3,010	1,343,608.00
1883*.....		9,512	205,534.00
1884.....	26,829	1,474	551,711.23
1885.....	7,787	†1,200	261,586.00
1886.....	9,421		187,436.10
1887*.....	34,492		446,030.49

* State assessor's returns.

† Kirchhoff, 1886.

According to Mr. Kirchhoff, "the old ore bodies of Ruby Hill have

* Silver-lead deposits of Eureka, Nevada; U. S. Geological Survey, Washington, p. 184.

been practically worked out * * * The Richmond Consolidated produced about 2,000 tons in 1886 and the Eureka 1,200 tons.”*

The zenith of prosperity of the Eureka Consolidated was reached in 1879, when its product for the year was valued at about two and three-quarter millions of dollars. The value of its gross product has since gradually fallen 93 per cent. in seven years, or, taking the last year, 84 per cent. in eight, the gross value of its product for 1886 and 1887, respectively, having been \$187,436 and \$446,030, a large portion of which, it is presumed, was derived from ores purchased.

The production of argentiferous lead in Nevada has fallen from 19,724 tons in 1877 to 3,400 tons in 1886.

Thus it will be seen that Professor Austen has reached his average for a cost of production of argentiferous bullion, including freight of base bullion to market and desilverization, by taking the mean of this cost at two mines, for the time being among the most successful silver mines in the United States, whose combined product of base bullion for the year cited was 13,076 tons, or 10.9 per cent. of the total quantity produced in the United States the same year, and 2.8 per cent. of the combined product of the United States, Europe, and the rest of the world, according to Professor Austen's figures.

Under the circumstance that both of the mines instanced have, like the great mines of the Comstock lode in the same State, passed the culmination of their prosperity and reached a period of decided decline, how would Mr. Austen finally write off the capital-outlay and interest, depreciation of plant and the personal property, as well as working expenses, unless against the value of the gross production, all items of value included, in order to make out the total cost of production of the finished products, all told, in the ratio of their several values?

It appears that the cost of property to the Horn Silver Mining Company, while involving a high nominal valuation, was at an actual cost to the original adventurers understood to be at the rate of one-half of the nominal valuation—a rate, so far as the public is concerned, representing a *bona fide* valuation, though still speculative to a very great degree.

The Eureka Consolidated property, on the other hand, although with a nominal capital, is understood to have been acquired by the adventurers at a cost based upon a moderate if not a low rental, namely, \$100,000, \$500,000 further having been called for, five-sixths of which is understood to have gone into plant and working capital.

While no question might arise as to the propriety of writing off against total cost of production at a given mine and works whose operations have been brought to a close, practically the whole invested capital and interest as well as working expenses, such a course could hardly be followed in instances like the Horn Silver and Eureka Consolidated, whose operations, though languishing for several years, have not been

* Mineral Resources United States, 1886, p. 143.

totally abandoned. So great, however, has been the decline of value of product and necessarily of prosperity in the cases of both of these examples selected by Professor Austen for his own method of reckoning the annual cost of production of silver without allowance of any kind for interest or amortisation, that either course would practically lead to about the same debit against the credit side of their accounts for the whole period of their operations.

In the case of any mine, as with most silver enterprises in the United States, the cost of which to the adventurers has involved speculative valuation, it is a nice question to decide whether speculative advances on what may be termed a fair rent valuation of the title, considering the short life of mines of the precious metals in the United States and the prizes as well as the risks and vicissitudes incidental to mining industry, should properly be counted against cost of production. But as the titles of mining properties in passing from hand to hand, in nine cases out of ten or probably a still larger proportion, in this country as well as the world over, have passed into the hands of their final operators at speculative rates of valuation, it may be claimed that, as this is an almost universal condition of the gold and silver producing industry, the whole expenditure by the adventurers should finally be counted against cost of production.

In order to deduce the absolute cost of production of silver, or of any of the other products, in the ratio of its proper value, in the case of either of the two mines cited by Professor Austen, data would have to be collected as required by the following scheme. This is drawn up without any attempt here to pass upon the future of either enterprise, or without any imputation of conditions adverse to terms of renewed prosperity. Such a scheme must compass the whole life of the mine. This may be assumed to be within present limits for the sake of example, and in order to illustrate the method applicable to these individual enterprises as the only fair one by which to reckon the absolute cost of silver, as well of the accompanying products—not as a general average for the United States or for the whole industry, as concrete types of which they have been selected by Professor Austen, but for the given example and for the given time.

No attempt is made to work out the problem proposed for want of complete data, which any interested person may in suitable season, with a full set of official returns, be able to supply.

Absolute cost of production of gold, silver, and lead from base bullion at mine and complete works.

DR.

1. To sum capital invested in mine, plant, renewals and maintenance, and in personal property.
2. Less salváge after abandonment, at say 15 per cent.
3. Interest at current rate on difference.

H. Ex. 405—7

4. Cost of mining, including development.
5. Cost of milling.
6. Cost of reduction.
7. Cost of desilverization.
8. Cost of local transportation.
9. Administration, superintendence, and office expenses.
10. Ores purchased.
11. Transportation of lead to refinery (or market).
12. Charges for parting gold and silver.

CR.

1. By net sales of argentiferous lead (— tons).
2. By returns for silver (— ounces).
3. By returns for gold (— ounces).
4. By furnace products sold (mattes, etc.).
5. By real estate sold.
6. By personal property sold.
7. By interest on last two items to date of closing account (at rate charged in this account).
8. By other sales; from rent and all other sources of income.
9. By total cost of production by difference.

Summary of cost of production in ratio of market value of products (lead per ton, silver per ounce, gold per ounce).

For Professor Austen's third class of ores, namely, argentiferous copper ores, the world's annual product of silver from which is estimated by him at 7,200,000 ounces, the same course is followed as with argentiferous lead ores. The $3\frac{1}{2}$ times greater value of copper as compared with lead is probably offset by the greater cost of producing copper, and of its desilverization. Discharging from any cost of production not incidental to desilverization and refining all silver obtained as a by-product from such ores, Professor Austen reduces its cost to 1s. 11*d.* per ounce.

Question 1241. "You consider the silver so purely a by-product of the copper that the only cost you have to take into account is the cost of extracting it from the copper after the copper has been taken from the ores?"

Answer. "Yes; essentially desilverization charges."

If this course is objectionable in the case of argentiferous lead, it is, at least, equally objectionable in the case of copper. And occasion may here be taken to point out, as a corollary to Professor Austen's proposition, that the cost of the production of all gold alloyed with silver obtained from argentiferous lead and copper—to which must be added copper mattes—is the same as that of the silver.

If now it be claimed that this be the proper course with gold as well as with silver, obtained as a by-product from the base metals, what, it may incidentally be asked, becomes of the proposition that the market price of the precious metals depends upon their cost of production? For if the yield of gold from argentiferous lead be added to the product from argentiferous copper, of which products gold as well as silver is a

by-product, the aggregate will amount to a large fraction of the total product of gold in the United States, while its value will bear a large proportion to the value of the product of silver.

In the reduction of copper ores more or less argentiferous, it is the practice, the same as in the reduction of argentiferous lead ores, to smelt along with them suitable silver ores, whence a considerable production of silver, which, according to Professor Austen's method, must be charged with cost of production only to the extent of the cost of desilverization and parting of the advanced product.

"True silver ores," says Mr. Kirchhoff, "are purchased or extracted by parties controlling copper works (in Montana) from their own mines to carry the average silver contents of the matte above the limit at which separation pays. This lies at about 30 ounces. For the silver above that minimum the precious metal is paid for at the rate of 92½ per cent. of its value, the copper being sold for a given sum per pound, regardless of the silver contents of the matte. The bulk of the matte made by the Anaconda Company does not carry sufficient silver to pay for the cost of separation. The same is true of the Mountain View ores and of the bulk of the product of the Parrot, Montana, and Clark's Colusa mines. When smelting ordinary copper and silver ores together the output of a plant is considerably smaller than it is for copper ores alone. (Mineral Resources of the United States: Report for 1886, p. 117.)

Under the fourth class of ores, as ranged by Professor Austen, are included silver ores proper. These are generally the produce of deep mines. The richest of this class, concentrates, precipitates, and selected ores, are reduced along with lead and copper ores, and their product of silver and gold is obtained from the desilverization of these metals.

In Professor Austen's testimony the best ores under this class would therefore be exempt from all costs of mining and reduction, as well of all costs on capital account. The inferior ores, however, such as are beneficiated by amalgamation, chlorination, or leaching, would be suffered to bear the whole costs of mining and milling, and subsequent treatment by amalgamation or by wet method. In other words, so-called "smelting" silver ores, which are generally the richest of all silver ores, as they would fall under classes II and III of Professor Austen, would be freed from all costs except those of desilverization and refining; while the "milling" or "lean" ores of the same type would be charged with the whole cost of mining and development as well as of milling. Now, how is this cost deduced?

This is deduced from a single example of a deep mine in California, namely, the Bonanza King, 520 feet deep, 2 miles from mill, whose mining, milling, and hauling costs per ton were returned for 1883 at \$25.70, against a product valued at \$573,475, or \$180 per ton.

On the arbitrary assumption of the so-called typical character of this mine and of its operations, this single enterprise is called upon by Professor Austen to stand for mines by the thousand of the given class, good, bad, and indifferent, each contributing more or less to the sum of

the product of 50,000,000 ounces. Its own contribution to this product was but a fraction over 1 per cent.

The final conclusions of Professor Austen as to the actual cost of production by each of the principal methods of extracting silver are as follows :

Section.	Fine silver.	Cost per ounce of fine silver.
	<i>Ounces.</i>	<i>s. d.</i>
I.....	508,000	0 2½
II.....	30,726,000	2 0
III.....	7,200,000	1 11
IV.....	49,920,733	1 5
Total	88,354,733	.....
Mean .....	.....	1 8

The mean cost of production of fine silver was therefore testified by Professor Austen before the Royal Commission appointed to inquire into the recent changes in the relative values of the precious metals, at about 1s. 8d. (\$0.40) per ounce.

This surprisingly low estimate is reached not only by the exclusion of cost of real and personal property and plant, or interest and amortisation on expended capital; and cost of transportation, or of exploration and development in the case of the whole product of silver, but, in the case of the major part of the product, costs of mining and reduction also.

It is obvious, as explained by Professor Austen, that the items omitted from consideration by him could not be obtained without such difficulty as to be well nigh impossible.

This very difficulty has stood in the way of any persistent or systematic effort on the part of American engineers or statisticians to answer the interrogation of economists as to the absolute cost of production of the precious metals in the United States, notwithstanding the importance of this question to the still wider question of the general or mean average cost in the markets of the world.

The production of the precious metals is at a cost varying in the United States between wide extremes, according to the quantity and quality of the raw material, and likewise to local facilities for mining, reduction, and transportation. Whether associated with other metals or not, or whether in any sense by-products of smelting operations, the production of one or both is universally to the end of an integral value against all costs. Shared as these costs often are by other valuable products in the form of base metals, the precious metals are jointly produced at a cost in some regular proportion to the sum of the costs. In what proportion, unless in that of the market value of each metal produced ?

The sum of the costs of production of joint metallic products should be distributed according to the market value of each product.

To absolve the precious metals as by-products, from all costs antecedent to desilverization, is to arbitrarily depreciate the cost of their production when reduced along with base metals, notwithstanding the fact that the association of products is largely incidental to metallurgical process for their final extraction. No approximation to cost of production of the precious metals can ever be obtained under arbitrary discriminations in the distribution of costs between metallic products and by-products, as in the almost universal joint production of gold and silver either by themselves or combined with other useful metals.

For this reason Professor Austen's method of deducing the cost of production of silver can not be accepted as pertinent to the problem, even if the number of examples selected by this metallurgist were adequate to the purpose of anything like general averages.

With the view of resolving some part of the question of the cost of production of silver an experiment has been tried, in connection with the collection of the statistics of the production of the precious metals in the United States for the year 1887, by way of adducing a significant number of examples of established enterprises, apart, that is, from any consideration of wider average cost of production, and its enhancement from failure of many silver-mining enterprises to become considerable producers. It has been sought to ascertain, as far as practicable, at least the working costs in various enterprises, large and small, of mining and reducing silver in common with its associated gold, in such States and Territories of this Republic as are notably large producers of the former metal. The examples selected for the present purpose are enterprises distinctively classified as silver producers, and to the exclusion of enterprises, the value of whose associated products of lead, copper, or gold predominated over that of the silver produced.

In order at least to test the practicability of the kind of statistics referred to, the following circular was sent to all the mines in the United States known or believed to be producing gold and silver.

INTERROGATORIES BY THE DIRECTOR OF THE MINT, 1887.

Addressed to ——— Mine, ——— County, ——— State or Territory.

Answers to as many of the following questions as may be found practicable are solicited as a contribution to the annual report of the Director of the Mint to Congress on the production of the precious metals in the United States. Information furnished will, if requested, be treated as confidential, and used only in the composition of aggregates.

JAMES P. KIMBALL,
Director of the Mint.

- (1) Mineralogical character of ores produced.
- (2) If ores be reduced, state by what process; whether by smelting, leaching, or amalgamation.
- (3) Quantity of ores produced, 1887, tons.
- (4) State character of product; whether base bullion, doré bars, or matte.
- (5) Direct disposition of product (name of smelting works, refinery, United States assay office or mint).

(6) Average assay value of precious metals per ton of ore produced.

(7) Quantity of gold and silver produced, 1887:

Gold, fine ounces.

Silver, fine ounces.

(8) Average total cost of mining and reduction (separately), free of interest on capital. If reckoned free of interest on outlay in development and plant, please so state.

Remarks: _____

To be returned in inclosed official envelope (no stamp required) to _____.

[Signature.] _____.

The replies to the above circular, while very numerous as to the product of the precious metals for the year, are not equally complete as to the cost of mining and reduction. An estimate of cost of production based upon the entire number of enterprises reporting is therefore impracticable. It has, however, been practicable to select distinctively as silver properties an unexpectedly large number of mines; that is, mines whose ores are strictly "silver ores," the value of their tenor of silver largely predominating over that of accompanying products—whether gold, lead, or copper—which are mined for the sake of silver, and which neither would be nor could be worked but for the silver contained in them.

For some years past the State of Colorado has been the largest silver-producing district in the United States, its annual product aggregating in coinage value \$16,000,000. Pains were therefore taken to there elicit whatever information might be imparted to special agents of the Bureau of the Mint, in co-operation with the assayer-in-charge of the mint at Denver. Mr. Sherman G. Sackett was temporarily added to the staff of that institution, and much valuable information gained through the personal inquiries of this experienced and sedulous agent. Under such favorable circumstances for a canvass of mines, returns have been received from an unexpectedly large number of enterprises. From the whole number of returns it has been found that not less than 129 are available for the purpose in hand, as from silver-producing enterprises, and as sufficiently in line with the inquiries instituted. A selection of this number of mines, of which the product of silver has been of predominating value, has therefore become practicable without other discrimination than a division into classes according to the measure of that product.

As most of the returns to the inquiries of the Bureau are confidential, except for the stated purpose of the canvass, any individual enumeration here made of them will accordingly be without titles of the mines reporting. Their classification is as follows:

Mines producing silver less than \$25,000 in value.

Mines producing silver from \$25,000 to \$100,000.

Mines producing silver over \$100,000.

It will be proper to remark that this inquiry was entered into in order to show, first, that the working costs of producing silver in different parts of the United States, free of capital account, vary locally within the wide extremes already indicated; second, that the mean average of

such costs for any given State or Territory may be materially affected by the fortunes of a very few mines, or perhaps of a single enterprise, for the given period; and third, in order to show the results from a wider average than employed by Professor Austen. Occasion has also been sought to compare with direct returns Professor Austen's mode of casting working costs; and, in the case of associated products, to present a different method of distributing the sum of costs, such a method indeed as seems alone to be in line with the economic question in hand.

For want, however, of anything like full returns for the whole product of silver in any given State or Territory, the absolute average of simply the working costs can hardly be even approximately determined. Even if returns of working costs were practicable for the whole product, absolute cost of production would still remain undetermined for want of returns of capital employed.

It has not been believed, therefore, that the cost of producing silver in the United States could be established. Nor, whether it could be or not, does it appear that the cost of production has any material bearing upon the market value of that metal or upon the great question of the "standard" now agitating the civilized world. The present effort has been rather to show how unsatisfactory any results must be in this line of inquiry even after much diligence on the part of those in the best position to secure information on such subjects.

Indeed it does not appear to me that the cost of producing the precious metals determines their market value, or that this is affected by their cost of production, except in a manner incidental to the condition of supply and demand. To whatever degree the market value of other commodities appears to be regulated by the principle of supply and demand, it may at least be held that in the case of the precious metals the market value seems less dependent on the cost of production than in the case of other metals or almost any other commodities. To one circumstance at least within the cognizance of political economists this is largely due—the fact, namely, that gold and silver are not destructively consumed except in small proportion relatively to the accumulated stock, but that in their very diverse employment they are continually changing their form and purpose, from coin to bars and manufactured articles and *vice versa*. The periodical production of the precious metals, as in a single year, or in a short term of years, bears so insignificant a ratio to the stock available for all purposes, that immediate cost of production is lost sight of in the ceaseless permutation and circulation of the great volume in the markets of the world, while remote cost of production is even more completely lost to view.

To other influences beyond the cognizance of political economists allusion has already been made. A large proportion of the world's product of the precious metals is constantly contributed from unsuccessful ventures, pursued in a spirit of exploration, and for the sake of the better chances of the mining industry, while supported by capital, or

by unrequited labor of no mean class. If the average cost of production of either of the precious metals, from well-established sources, could ever be satisfactorily ascertained, it would still fall short in a very considerable degree of the true average for want of data from transient mines and individual labors, which, as they add to the sum of production, should likewise appear in the average of its cost.

The product of wheat, or of any other crop, is made up of the harvest yielded in small fields as well as broad acres, and at divers valuations of labor and rent, at one cost in one season or in a given district, and at a different cost in another season or in another district. Precisely in the same manner the industries which supply the precious metals are in the hands of small as well as large producers, to whom the cost of production in the market varies with the conditions and vicissitudes of nature, with personal practice and industry, or with the application of mechanical and chemical principles, with means of transportation, and with values of labor and of ground.

The cost of production of an agricultural product approximately reckoned, as it might perhaps be, for a given district and at a particular market, could neither be employed for another area nor adopted for a wider, much less a general, average.

The absolute cost of production of the precious metals supplied from all quarters of the earth, now richly from one quarter and again only scantily, is still further beyond the reach of statistics, as the tendency of their production, unlike that of the production of agricultural commodities, is to exhaustion of the ground beyond recovery, and to the loss beyond salvage of realty and plant.

From the appended calculations it will be seen that for the given selection of enterprises in California, Arizona, Colorado, Montana, and Utah the mean working cost of producing one ounce of silver, the selection being limited to 155 in number, is not less than \$0.524; or according to the procedure of Professor Austen, \$0.511. Such mean averages, it will be understood, are exclusive of all allowances on capital account or for amortisation.

In Montana the selection of enterprises includes 12, producing two-thirds of the whole silver product of that Territory. The five mines in Utah, selected for the present purpose, yielded over two-thirds of the produce of silver of that Territory. The low average as deduced for the given number of mines in these two Territories (Montana, \$0.433; Utah, \$0.525) goes far to reduce the mean cost (\$0.524) averaged for the whole selection of enterprises in the five States and Territories, the mean average in the case of 5 enterprises in Arizona being as high as \$0.832; and of 129 enterprises in Colorado, \$0.61.

The combined product of the 17 enterprises in Montana and Utah was indeed 11,877,446 ounces of silver, or over 67 per cent. of the aggregate product of 17,655,387 ounces returned for the whole number (155) of enterprises selected in the several States and Territories.

The estimate of average working cost of producing silver, as deduced from the given number of returns to interrogatories of this Bureau, must be understood as far short of the *cost of production* in the full and general sense of the term, namely, the mean of the whole cost of the whole production. The term, therefore, is not applicable to any of the deductions here set forth, and must be considered as improperly applied to those of Professor Austen.

STATISTICS OF WORKING COST OF PRODUCING SILVER IN STATES AND TERRITORIES OF THE UNITED STATES.

COLORADO.

From the much larger number of mines in Colorado from which returns more or less complete have been received by this Bureau, selection has been made of 129 enterprises distinctively recognized as silver mines, to the exclusion of operations producing argentiferous lead in such quantities as to constitute a value preponderating over that of the product of the precious metals. The small quantity of lead produced by the given mines is relatively the by-product rather than the silver.

It was found that the returns from mines in Colorado producing lead in large quantities or of preponderating value were not sufficiently numerous, explicit, or detailed to admit of a selection wherewith to institute a comparison with Professor Austen's two examples of notable enterprises for the production of argentiferous lead, namely, the Horn Silver and Eureka Consolidated.

The cost of transportation has been taken from "through rates" to New York, all settlements being based on delivery there. The average value of the lead has been taken at \$90 per ton, freight at about \$18, and desilverization charges at \$12.

Allowances have been made for absolute or net cost of transportation of the unrefined product—consisting of silver bars, doré bars, and lead bars—to certain refineries for desilverization and for parting the precious metals, and for cost of parting by acid. The sum of such charges is found to add to the working cost of producing silver one-half cent an ounce in Colorado, against 1 cent in Utah and 1½ cents in Montana. Profits to transportation companies and to refineries, corresponding to but a small percentage, and in the measure of which absolute cost is strictly reduced in a minute degree, are offset against smelting losses, and indeed are immaterial, except, perhaps, in case of a combined product heavy from a larger proportion of lead than in the returns cited. Express rates on bars have been taken at about \$10 per thousand dollars' value. For the cost of parting and refining doré bars, the rate of charges at the mints and assay offices of the United States has been employed, namely, 4 cents per fine ounce.

As in the case of other States and Territories from which a selection of enterprises has been made for present purposes, the procedure has

been followed in deducing working costs of distributing them relatively to the quantity and market value of the several products.

The mode of reckoning adopted by Professor Austen has also been substantially applied to the same selection of statistics of working costs, in order to test the averages employed by this authority. But the metallurgical value of the reported gross lead product, rather than the market value of an estimated net product, has been deducted from the total cost of mining and reduction.

Between the two modes of procedure no great difference will be found, owing to the small proportions of lead and of gold accompanying the product of silver. In isolated cases, or in a different selection of enterprises, less close coincidence might be found between results obtained by Professor Austen's procedure and the one here adopted.

UTAH.

In this Territory complete returns have been received from five large producers, including the Ontario and Daly, at present two of the most prosperous silver-lead enterprises in the world, the former paying last year \$900,000 in dividends, a grand total since its incorporation of \$8,825,000. The Daly, which is upon a continuation of the rich Ontario vein, last year paid \$375,000 in dividends out of aggregate receipts of \$930,570.

No acid refinery exists in Utah, the product going in the shape of base bullion to Eastern refineries for desilverization and parting and refining of the precious metals.

ARIZONA.

The results from Arizona are based on returns from enterprises only five in number.

As there is no acid refinery in Arizona, bullion must be shipped to one of the Eastern refineries or to San Francisco.

MONTANA.

From Montana returns have been received from twelve mines, reporting a product of over 8,600,000 ounces of silver and 16,593 ounces of gold. Some small amount of copper was contained in one or two instances, but not more than sufficient to pay transportation.

The Montana product of base bullion, copper matte, silver bars, doré bars, and selected ores is shipped to the East and part to Great Britain for treatment.

CALIFORNIA.

In this State reports have been employed from four mines producing 237,737 ounces of silver and no gold or valuable base by-products.

SELECTED LIST OF SILVER MINES PRODUCING LESS THAN \$25,000.

COLORADO.

[M. = milling; S. = smelting; C. = copper.]

Enumeration.	Process.	Ore produced.	Average of gold and silver per ton.		Quantity produced.		Lead.	Average working cost per ton of ore.		
			Gold.	Silver.	Gold.	Silver.		Mining.	Reduction.	Total.
		Tons.	Ozs.	Ounces.	Ounces.	Ounces.	Tons.			
1	S.	20	.2	50	4	1,000	.....	\$7.00	\$20.00	\$27.00
2	S.	10.46	.46	127.8	4.85	1,337.37	.....	15.00	20.00	35.00
3	S.	169.2	.....	76.5	.....	12,945.1	.....	3.50	20.00	23.50
4	S.	16	.....	289	.....	4,624	.....	60.00	24.00	84.00
5	S.	92	.108	247.8	10	22,800	.....	*86.00	*86.00	172.00
6	S.	60	.6	28	36	1,690	.....	15.00	15.00	30.00
7	S.	4	.35	60	1.40	240	.....	30.00	19.00	49.00
8	S.	45	.....	60.5	.....	2,722.5	3.6	100.00	20.00	120.00
9	S.	5	.....	300	.....	1,500	.....	100.00	37.00	137.00
10	S.	60	.....	300	.....	18,000	4.8	70.00	35.00	105.00
11	S.	15	.....	150	.....	2,250	.....	100.00	25.50	125.50
12	S.	4.35	.75	100	3.26	435	.....	50.00	20.00	70.00
13	S.	60	.8	200	48	12,000	6	70.00	16.70	86.70
14	S.	40	1.5	76	48	3,040	.....	60.00	20.00	80.00
15	S.	12.56	1.26	73.3	15.87	920.75	3.8	30.00	12.30	42.30
16	S.	523.75	.2	31.4	104.75	16,445.75	.....	10.00	14.50	24.50
17	S.	50	1	40	50	2,000	41.9	20.00	20.00	40.00
18	S.	40	.87	150	34.8	6,000	2.8	25.00	25.00	50.00
19	S.	25.5	.6	250	15.3	6,375	1.5	100.00	33.00	133.00
20	S.	76.3	.....	108.6	.....	8,286.3	3.4	70.00	27.00	97.00
21	S.	59.24	.97	89.2	57.7	5,285	.....	60.00	31.10	91.10
22	S.	100	1.5	50	150	5,060	.....	45.00	20.00	65.00
23	S.	5	.....	1,000	.....	5,000	.....	200.00	72.00	272.00
24	S.	75	.3	65	22.5	4,875	1	20.00	20.00	40.00
25	S.	222.31	.671	19.02	157.84	4,228.34	35.6	5.00	18.50	23.50
26	S.	30	.3	80	9	2,400	.....	25.00	21.50	46.50
27	S.	600	.07	32.6	41.85	19,571	240	22.90	17.10	40.00
28	S.	25	.....	55	.....	1,375	2.4	50.00	20.00	70.00
29	S.	55.5	.5	77.5	38.75	4,301.25	7.8	20.00	20.00	40.00
30	S.	3	1	105	3	315	.....	30.00	25.70	55.70
31	S.	25.75	.53	33	13.77	850.7	5	15.00	18.70	33.70
32	S.	27.5	1.35	32.75	37.9	900.62	12.4	15.00	12.00	27.00
33	S.	35.3	1	57	35.3	1,659	.....	25.00	12.00	37.00
34	S.	25	.31	114.3	7.75	3,857.5	3.7	30.00	20.00	50.00
35	S.	65	1	25.5	65	1,557.5	.....	25.00	20.00	45.00
36	S.	160	.....	97	.....	15,520	32	20.00	22.50	42.50
37	S.	160	.8	68.2	128	10,910	19.2	15.00	16.10	31.10
38	S.	25	.6	12	15	3,125	1.7	25.00	25.00	50.00
39	S.	51.7	.196	99.52	10.13	5,144.15	5.7	70.00	25.00	95.00
40	S.	16	.....	200	.....	3,200	.....	100.00	28.00	128.00
41	S.	36	.25	9.6	9	346	4	8.00	13.50	21.50
42	S.	8	.10	60.5	.8	491	.....	25.00	18.00	43.00

* The division of total cost between mining and reduction is estimated.

SELECTED LIST OF SILVER MINES PRODUCING LESS THAN \$25,000—Cont'd.

COLORADO—Continued.

Enumeration.	Process.	Ore produced.	Average of gold and silver per ton.		Quantity produced.		Lead.	Average working cost per ton of ore.		
			Gold.	Silver.	Gold.	Silver.		Mining.	Reduction.	Total.
		Tons.	Ozs.	Ounces.	Ounces.	Ounces.	Tons.			
43	S.	6.75	.....	74	.....	501	1	\$64.70	\$16.10	\$80.80
44	S.	11.9	.....	140.5	.....	1,660.4	2	13.00	14.50	27.50
45	S.	120	.2	45	24	5,400	.....	13.50	13.50	27.00
46	S.	11	.....	115	.....	1,265	.....	6.00	26.00	32.00
47	S.	100	.5	15	50	1,500	5	5.00	15.00	20.00
48	S.	29	.....	90.6	.....	2,627	.....	125.00	16.00	141.00
49	S.	302	.1	70	30.2	21,140	.....	*9.50	*9.50	19.00
50	S.	8	1.3	42	10.4	336	.....	30.00	22.00	52.00
51	S.	386.6	.....	9.2	.....	3,389.45	.....	3.00	7.50	10.50
52	S.	9.73	.....	137.5	.....	1,338.3	.....	20.00	16.00	36.00
53	S.	49.87	.....	77.4	.....	3,859.63	.....	6.00	12.75	18.75
54	S.	19.2	.....	9.6	.....	185.1	.....	4.00	12.00	16.00
55	S.	16	.....	100	.....	16,000	.....	200.00	10.00	210.00
56	S.	7	.....	170	.....	1,190	.....	42.50	42.50	85.00
57	S.	15	.....	164	.....	2,462	.....	100.00	23.00	123.00
58	S.	1,320	.....	11.36	.....	15,995	.....	400.00	.....	400.00
59	M.	1,200	.3	9	360	10,800	.....	10.00	5.00	15.00
60	S.	165	.....	30	.....	5,000	.....	16.00	12.00	28.00
61	S.	330	.....	20.5	.....	6,750	.....	24.00	12.00	36.00
62	S.	7	.....	48.3	.....	338.7	.7	5.00	29.50	34.50
63	S.	10	.5	40	5	400	.....	20.00	30.00	50.00
64	S.	320	.22	56.8	71	18,173	.....	80.00	25.00	105.00
65	M.	22	.....	61	.....	1,456	.....	24.00	20.00	44.00
66	S.	33.66	.....	88.8	.....	2,992	.....	39.00	30.00	69.00
67	S.	5	.....	125	.....	625	.....	5.00	20.50	25.50
68	S.	100	.2	40	20	4,000	10	25.00	20.00	45.00
69	S.	2.3	.....	144	.....	330.7	.....	11.00	21.00	32.00
70	S.	1.74	.....	.....	.....	381.8	.....	12.00	9.50	21.50
71	S.	39	.....	65	.....	2,559	.....	24.50	9.40	33.90
72	S.	22.9	.....	126	.....	1,443	.....	30.00	47.00	77.00
73	S.	10	.....	110.5	.....	1,105	.....	23.00	60.00	83.00
74	S.	100	.2	96	20	9,600	.....	180.00	20.00	200.00
75	S.	5	.....	100	.....	500	.....	30.00	27.50	57.50
76	S.	37	.....	57.7	.....	2,109	7.6	25.00	17.00	42.00
77	S.	10	.....	33	.....	330	3	5.00	23.00	28.00
78	S.	175	.12	45.71	20	8,000	.....	12.50	4.00	16.50
79	S.	80	.05	32.5	4	2,600	16	18.50	32.00	50.50
80	S.	200	.10	28	20	5,600	74	1.00	23.00	24.00
81	S.	353.25	.15	64.5	52.9	22,769	98.8	*10.50	*10.50	21.00
82	S.	50	.....	130	.....	6,500	12.5	10.00	37.00	47.00
83	S.	160	.....	60	.....	9,600	.....	*22.50	*22.50	45.00
84	S.	60	.....	100	.....	6,000	16.8	5.00	37.00	42.00
85	S.	8	.....	147.8	.....	1,182	.....	*15.00	*15.00	30.00

* The division of total cost between mining and reduction is estimated.

SELECTED LIST OF SILVER MINES PRODUCING LESS THAN \$25,000—Cont'd.
 COLORADO—Continued.

Enumeration.	Process.	Ore produced.			Average of gold and silver per ton.		Quantity produced.		Lead.	Average working cost per ton of ore.		
					Gold.	Silver.	Gold.	Silver.		Mining.	Reduction.	Total.
		Tons.	Ozs.	Ounces.	Ounces.	Ounces.	Tons.					
86	S.	4.81	2	59.2	9.69	285	1.6	\$40.00	\$19.00	\$59.00		
87	S.	91	.....	43	.....	4,500	.....	*10.00	*10.00	20.00
88	S.	10	1.5	76	15	760	.....	7.00	25.00	32.00	
89	M.	17	.....	64.56	.....	1,097	.....	10.00	12.00	22.00
90	S.	8	1	30	8	240	.....	3.00	20.00	23.00	
91	S.	160	.....	45	.....	7,200	.....	5.00	12.00	17.00
92	S.	40	.....	30	.....	1,200	.....	10.00	8.00	18.00
93	S.	83	.....	70.58	.....	5,858	.....	51.27	10.00	61.27
94	S.	26	.....	40	.....	1,040	.....	4.00	9.00	13.00
95	S.	3	.....	150	.....	450	1.2	6.00	14.00	20.00
96	S.	60	.....	100	.....	6,000	.....	5.00	19.00	24.00
97	S.	5	.....	400	.....	2,000	.....	12.00	30.50	42.50
98	S.	10	.....	50	.....	500	.....	5.00	21.00	26.00
		9,576.13	.....	.....	1,899.71	465,646.91	688.5	3,766.37	2,091.95	5,858.32

Total working cost \$858,624.46
 Mean working cost per ton of ore 89.66
 Mean working cost per ounce of unparted silver..... 1.84

* The division of total cost between mining and reduction is estimated.

MINES PRODUCING BETWEEN \$25,000 AND \$100,000.

COLORADO—Continued.

Enumeration.	Process.	Ore produced.	Average of gold and silver per ton.		Quantity produced.		Lead.	Average working cost per ton of ore.		
			Gold.	Silver.	Gold.	Silver.		Mining.	Reduction.	Total.
		Tons.	Ozs.	Ounces.	Ounces.	Ounces.	Tons.			
1	S.	577.75	.062	168.5	17.91	97,350.87	54.9	\$70.00	\$27.00	\$97.00
2	S.	1,200	.6	28	720	33,600	.....	15.00	15.00	30.00
3	S.	193.7	.....	151.6	.....	29,365	11.6	105.20	27.00	132.20
4	S.	227.8	.....	137	.....	31,208.6	34.2	100.00	20.00	120.00
5	S.	602	.1	76	60.2	45,742	39.1	50.00	17.00	67.00
6	C.	1,100	.....	60	.....	66,000	.....	26.89	20.00	46.89
7	S.	1,327	.5	20.6	663.5	26,540	79.6	5.40	17.00	22.40
8	S.	400	1	80	400	32,000	20	20.00	15.00	35.00
9	S.	355	.....	87.3	.....	31,000	.....	28.00	20.00	48.00
10	S.	900	.25	45.3	225	40,769	.....	15.00	15.00	30.00
11	S.	470	.40	150	188	61,100	320	18.15	7.64	25.79
12	S.	2,794.25	.....	16.4	.....	45,694	.....	8.00	10.00	18.00
13	S.	2,900	.....	.....	.....	78,000	.....	13.00	12.00	25.00
14	S.	800	.....	46.40	.....	64,000	.....	50.00	16.00	66.00
15	S.	260	.3	24.8	75	64,500	.....	10.00	10.00	20.00
16	S.	1,400	.15	50	210	77,000	.....	2.00	18.50	20.50
17	S.	800	.....	61.2	.....	49,000	80	7.58	8.50	16.08
18	S.	1,531	.19	52.2	288	80,070	.....	23.30	21.94	45.24
19	S.	80	5	400	400	32,000	.....	12.50	19.00	31.50
20	S.	972	.6	23.6	583.35	20,027.85	.....	5.00	17.00	22.00
		18,890.50	.....	.....	3,830.96	1,004,967.32	639.4	585.02	333.58	918.60

Total working cost \$652,310.93

Mean working cost per ton of ore..... 34.53

Mean working cost per ounce of unparted silver..... .646

MINES PRODUCING OVER \$100,000.

1	S.	1,004	.....	217.4	.....	213,978	80.3	100.00	20.00	120.00
2	S.	1,224.25	.....	88	.....	109,816	.....	53.75	22.90	76.65
3	S.	1,023	.....	132.4	.....	133,488	10.2	15.00	16.50	31.50
4	S.	140.47	6.14	135.57	631.45	190,044	11.2	55.00	16.00	71.00
5	S.	1,040	.5	90	520	93,600	52	20.00	20.00	40.00
6	S.	28,513	.....	45.5	.....	1,250,819	50	6.00	11.75	17.75
7	S.	3,000	.....	34.1	.....	102,450	.....	18.40	10.28	28.68
8	S.	778	.....	128.02	.....	134,886	34.9	30.00	40.00	70.00
9	S.	2,155.4	.....	108.75	.....	324,418	.....	10.50	19.00	29.50
10	S.	930	4.06	325.3	3,748.8	302,529	.....	70.00	56.50	126.50
11	S.	1,000	.3	94.00	300	94,000	50	25.00	20.00	45.00
		40,808.12	.....	.....	5,200.25	2,950,028	288.6	403.65	252.93	656.58

Total working cost \$1,170,951.68

Mean working cost per ton of ore..... 28.69

Mean working cost per ounce of unparted silver..... .40

The silver product reported by the above 129 mines represents about 38 per cent. of the total silver product of the State in 1887.

UTAH.

Enumeration of mines.	Process.	Ore produced, tons.	Gold, fine ounces.	Silver, fine ounces.	Lead, tons.	Average working cost per ton of ore.		
						Mining.	Reduction.	Total.
1	S.	32,162	927	1,968,668	2,014.6	.....	.....	\$25.00
2	S.	20,563	782	1,005,760	782.8	.....	.....	25.00
3	S.	5,269	150	118,025	2,107.6	.....	.....	25.00
4	S.	10,233	.....	500,000	1,280	.....	.....	35.00
5	S.	5,300	.....	212,000	530	.....	.....	35.00
		73,527	1,859	3,804,453	6,715	.....	.....	145.00

Total working cost \$1,993,505.00
 Mean working cost per ton of ore..... 27.11
 Mean working cost per ounce of unparted silver..... .524

The silver product reported by the above 5 mines represents about 70 per cent. of the total silver product of the Territory for 1887.

ARIZONA.

Enumeration of mines.	Process.	Tons of ore produced.	Average of gold and silver per ton, ounces.		Quantity produced.		Average working cost per ton of ore.		
			Gold.	Silver.	Gold, fine ounces.	Silver, fine ounces.	Mining.	Reduction.	Total.
1	M.	5,671	.....	21.7	.....	123,181	\$14.07	\$6.85	\$20.92
2	M.	4,130	.25	30	726	193,601	10.00	5.00	15.00
3	M.	849	.....	29.2	.....	22,829	3.60	8.00	11.60
4	M.	3,600	.....	23.61	.....	85,000	11.50	3.25	14.75
5	M.	31,190	.....	22.28	.....	694,951	10.97	9.66	20.63
		45,440	.....	.....	726	1,119,562	50.14	32.76	82.90

Total working cost \$886,985.42
 Mean working cost per ton of ore..... 19.52
 Mean working cost per ounce of unparted silver79

The silver product reported by the above 5 mines represents about 40 per cent. of the total silver product of the Territory for 1887.

MONTANA.									
Enumeration of mines.	Process.	Tons of ore produced.	Average of gold and silver per ton, ounces.		Quantity produced.		Average working cost per ton of ore.		
			Gold.	Silver.	Gold, fine ounces.	Silver, fine ounces.	Mining.	Reduction.	Total.
1	M.	3,300	.02	30.36	69	100,187	\$20.00	\$6.00	\$26.00
2	M.	19,316	.069	150.01	1,346	2,897,754	6.06	13.00	19.06
3	M.	1,500	.....	7.959	.....	11,939	4.25	4.75	9.00
4	M.	9,721	.....	32	.....	274,355	5.91	4.87	10.78
5	M.	2,250	.021	29.91	49	67,300	8.00	10.00	18.00
6	M.	1,000	.25	56	250	50,000	10.00	17.00	27.00
7	S.	16,311	.14	40	2,703	640,386	7.00	14.15	*21.15
8	M.	12,617	.129	26	1,640	328,042	3.00	7.00	10.00
9	M.	13,460	.5	25	5,313	675,752	15.00	8.87	23.87
		10,327	.3	36	3,098.1	371,772	15.00	8.87	23.87
10	M.	20,000	.....	.....	.....	600,000	.....	.....	19.00
11	M.	28,761	.....	.....	2,125	655,506	10.65	8.97	19.62
12	M.	45,000	.....	.....	.....	1,400,000	.....	.....	12.35
		183,563	.....	.....	16,593.1	8,072,993	.....	.....	239.70
Total working cost							\$3,178,739.50		
Mean working cost per ton of ore.....							17.31		
Mean working cost per ounce of unparted silver.....							.393		

* Copper pays the transportation.

The silver product reported by the above 12 mines represents about 68 per cent. of the total silver product of the Territory for 1887.

CALIFORNIA.									
Enumeration of mines.	Process.	Tons of ore produced.	Average of gold and silver per ton, ounces.		Quantity produced.		Average working cost per ton of ore.		
			Gold.	Silver.	Gold, fine ounces	Silver, fine ounces.	Mining.	Reduction.	Total.
1	M.	50	.....	160	.....	8,000	\$57.60	\$12.00	\$69.60
2	M.	9,710	.....	16.32	.....	158,537	4.00	4.37	8.37
3	M.	5,000	.....	14	.....	70,000	3.00	3.50	6.50
4	M.	20	.....	60	.....	1,200	5.00	8.00	13.00
		14,780	.....	.....	.....	237,737	69.60	27.87	97.47
Total working cost.....							\$117,512.70		
Mean working cost per ton of ore.....							8.00		
Mean working cost per ounce of unparted silver.....							.495		

The silver product reported by the above 4 mines represents about 20 per cent. of the total silver product of the State for 1887.

WORKING COST OF PRODUCING SILVER (EXCLUSIVE OF COST OF DEVELOPMENT, INTEREST ON CAPITAL, AND AMORTISATION).

Deduced in terms of the relative quantity and market value of each product.

COLORADO.

Ounces of silver produced = 4,420,642 [a], value at \$1 per ounce = \$4, 420, 642 [A].
 Ounces of gold produced = 10,930 [b], value at \$20.67 per ounce..... = 225, 923 [B].
 Tons of lead produced = 1616.5 [c], metallurgical value at \$60 per ton..... = 96, 990 [C].

Total value of product..... = 4, 743, 555 [D].
 Total working cost of product..... = 2, 681, 887 [E].

$$E \times \frac{A}{D} = \$2, 499, 320 [A'] = \text{working cost of producing all the silver.}$$

$$\frac{A'}{a} = \$0. 565 = \text{working cost of producing one ounce of unrefined silver.}$$

$$E \times \frac{B}{D} = \$127, 731 [B'] = \text{working cost of producing all the gold.}$$

$$\frac{B'}{b} = \$11. 69 = \text{working cost of producing one ounce of unrefined gold.}$$

$$E \times \frac{C}{D} = \$54, 836 [C'] = \text{working cost of producing all the lead.}$$

$$\frac{C'}{c} = \$33. 92 = \text{working cost of producing one ton of desilverized lead.}$$

Working cost of producing one ounce of unrefined silver..... \$0.565
 Add:
 For cost of transporting base bullion and doré bars to local refineries005
 For cost of acid parting and refining [average charge of United States mints on doré bars]04

Working cost of producing one ounce of refined silver..... .61

UTAH.

Ounces of silver produced = 3,804,453 [a], value at \$1 per ounce..... = \$3, 804, 453 [A].
 Ounces of gold produced = 1,859 [b], value at \$20.67 per ounce..... = 38, 425 [B].
 Tons of lead produced = 6,715 [c], metallurgical value* at \$52.40 per ton = 351, 866 [C].

Total value of product..... = 4, 194, 744 [D].
 Total working cost of product..... = 1, 993, 505 [E].

$$E \times \frac{A}{D} = \$1, 808, 023 [A'] = \text{working cost of producing all the silver.}$$

$$\frac{A'}{a} = \$0. 475 = \text{working cost of producing one ounce of unrefined silver.}$$

$$E \times \frac{B}{D} = \$18, 261 [B'] = \text{working cost of producing all the gold.}$$

$$\frac{B'}{b} = \$9. 823 = \text{working cost of producing one ounce of unrefined gold.}$$

$$E \times \frac{C}{D} = \$167, 223 [C'] = \text{working cost of producing all the lead.}$$

$$\frac{C'}{c} = \$24. 90 = \text{working cost of producing one ton of desilverized lead.}$$

Working cost of producing one ounce of unrefined silver... \$0.475
 Add:
 For cost of transporting unrefined product [base bullion] to Eastern works [based on transportation rates to New York]01
 For cost of acid parting and refining [average charge at United States mints on doré bars]04

Working cost of producing one ounce of refined silver..... .525

* Allowance made for smelting, losses, and business profits.

WORKING COST OF PRODUCING SILVER (EXCLUSIVE OF COST OF DEVELOPMENT, INTEREST ON CAPITAL, AND AMORTISATION)—Continued.

ARIZONA.

Ounces of silver produced = 1, 119, 562 [a], value at \$1 per ounce.....	= \$1, 119, 562 [A].
Ounces of gold produced = 726 [b], value at \$20.67 per ounce.....	= 15, 006 [B].
Total value of product	= 1, 134, 568 [C].
Total working cost of product.....	= 886, 985 [D].

$$D \times \frac{A}{C} = \$875, 253 [A'] = \text{working cost of producing all the silver.}$$

$$\frac{A'}{a} = \$0. 782 = \text{working cost of producing one ounce of unrefined silver.}$$

$$D \times \frac{B}{C} = \$11, 731 [B'] = \text{working cost of producing all the gold.}$$

$$\frac{B'}{b} = \$16. 16 = \text{working cost of producing one ounce of unrefined gold.}$$

Working cost of producing one ounce of unrefined silver	\$0. 782
Add:	
For cost of transporting [silver bars and doré bars] to Eastern refineries [based on transportation rates to New York].....	. 01
For cost of acid parting and refining [average charge at United States mints on doré bars].....	. 04
Working cost of producing one ounce of refined silver .....	. 832

MONTANA.

Ounces of silver produced = 8, 072, 993 [a], value at \$1 per ounce	= \$8, 072, 993 [A].
Ounces of gold produced = 16, 593 [b], value at \$20.67 per ounce.....	= 342, 977 [B].
Total value of product.....	= 8, 415, 970 [C].
Total working cost of product.....	= 3, 178, 739 [D].

$$D \times \frac{A}{C} = \$3, 049, 195 [A'] = \text{working cost of producing all the silver.}$$

$$\frac{A'}{a} = \$0. 378 = \text{working cost of producing one ounce of unrefined silver.}$$

$$D \times \frac{B}{C} = \$129, 543 [B'] = \text{working cost of producing all the gold.}$$

$$\frac{B'}{b} = \$7. 81 = \text{working cost of producing one ounce of unrefined gold.}$$

Working cost of producing one ounce of unrefined silver.....	\$0. 378
Add:	
For cost of transportation [silver bars and doré bars] to Eastern refineries [based on transportation to New York].....	. 015
For cost of acid parting and refining [average charge at United States mints on doré bars].....	. 04
Working cost of producing one ounce of refined silver .....	. 433

CALIFORNIA.

117, 512 = working cost of producing all the silver } = \$0. 495 = working cost of producing one ounce of unrefined silver.
237, 737 = ounces of silver produced. }

Add:	
For cost of transportation of unrefined product. ....	. 005
For cost of refining (average charge on silver bars) at United States mints.....	. 01
Working cost of producing one ounce of refined silver	0. 51

RECAPITULATION.

State or Territory.	Number of silver mines selected.	Product of silver.	Average working cost of producing one ounce of refined silver.	Total working cost of producing silver.	Mean working cost per ounce.
Arizona.....	5	<i>Fine ounces.</i> 1, 119, 562	\$0. 832	\$931, 475	.....
California.....	4	237, 737	. 51	121, 246	.....
Colorado.....	129	4, 420, 642	. 61	2, 696, 591	.....
Montana.....	12	8, 072, 993	. 433	3, 495, 606	.....
Utah.....	5	3, 804, 453	. 525	1, 997, 338	.....
Total	155	17, 655, 387	.....	9, 242, 256	\$0. 524

Working Cost of Producing Silver (exclusive of Cost of Development, Interest on Capital, and Amortisation.)

[Deduced substantially according to Professor Austen's procedure.]

COLORADO.

4, 420, 642 = ounces of silver produced.
 218, 600 = 10,930 ounces of gold produced taken at 20 silver to 1 gold.

4, 639, 242 = total ounces of silver containing 0.00246 per cent. of gold.

Total working cost of product = \$2, 681, 887
 Deduct metallurgical value of lead product, estimated at \$60 per ton, 1,616.5 tons at
 \$60 per ton (freight paid and desilverization charges) = 96, 990

Net working cost of silver product = 2, 584, 897

\$2, 584, 897 } = working cost of mining and reducing one ounce of unrefined silver... = \$0.557
 4, 639, 242 }

Add:
 For cost of transportation of unrefined product to local refineries005
 For cost of parting and refining the precious metals contained (average charge at
 United States mints on doré bars)01

Total working cost of producing one ounce of refined silver602

UTAH.

3, 804, 453 = ounces of silver produced.
 37, 180 = 1,859 ounces of gold produced taken at 20 of silver to 1 of gold.

3, 841, 633 = total ounces of silver containing 0.000489 per cent. of gold.

Total working cost of product \$1, 993, 505
 Deduct:
 Metallurgical value of lead product—stated by Wells, Fargo & Co. to have been
 \$52.40 per ton during 1887, freight paid and desilverization charges, 6,715 tons at
 \$52.40 = 351, 866

Net working cost of silver product..... 1, 641, 639
 \$1, 641, 639 = \$0.427 = cost of mining and reducing one ounce of unrefined silver.

3, 841, 633
 Working cost of producing one ounce of unrefined silver..... \$0. 427

Add:
 For cost of transportation of unrefined product [lead bullion] to Eastern refineries
 for desilverization, parting, and refining of the precious metals contents (esti-
 mated from transportation rates to New York)..... .01
 For cost of parting and refining the precious metals contained (average charge
 at United States mints on doré bars)04

Total working cost of producing one ounce of refined silver..... .477

Working Cost of Producing Silver (exclusive of Cost of Development, Interest on Capital, and Amortisation)—Continued.

ARIZONA.

1, 119, 562 = ounces of silver produced.

14, 520 = 726 ounces of gold taken at 20 of silver to 1 of gold.

1, 134, 082 = ounces of silver produced with 0.000648 per cent. of gold.

\$886, 985

_____ = \$0. 782 = working cost of mining and reducing one ounce of unrefined silver.

1, 134, 082

Working cost of producing one ounce of unrefined silver..... \$0. 782

Add:

For cost of transportation of unrefined product to Eastern refineries..... .01

For cost of parting and refining precious metals contained (average charge at United States mints on doré bars)04

Total working cost of producing one ounce of refined silver..... = .832

MONTANA.

8, 072, 993 = ounces of silver produced.

331, 862 = 16,593.1 ounces of gold taken at 20 of silver to 1 of gold.

8, 404, 855 = total ounces of silver containing 0.00208 per cent. of gold.

\$3, 178, 739

_____ = \$0. 378 = working cost of mining and reducing one ounce of unrefined silver.

8, 404, 855

Working cost of producing one ounce of unrefined silver..... \$0. 378

Add:

For cost of transportation of unrefined product to Eastern refineries..... .015

For cost of parting and refining the precious metals contained (average charge at United States mints on doré bars)04

Total working cost of producing one ounce of refined silver = .433

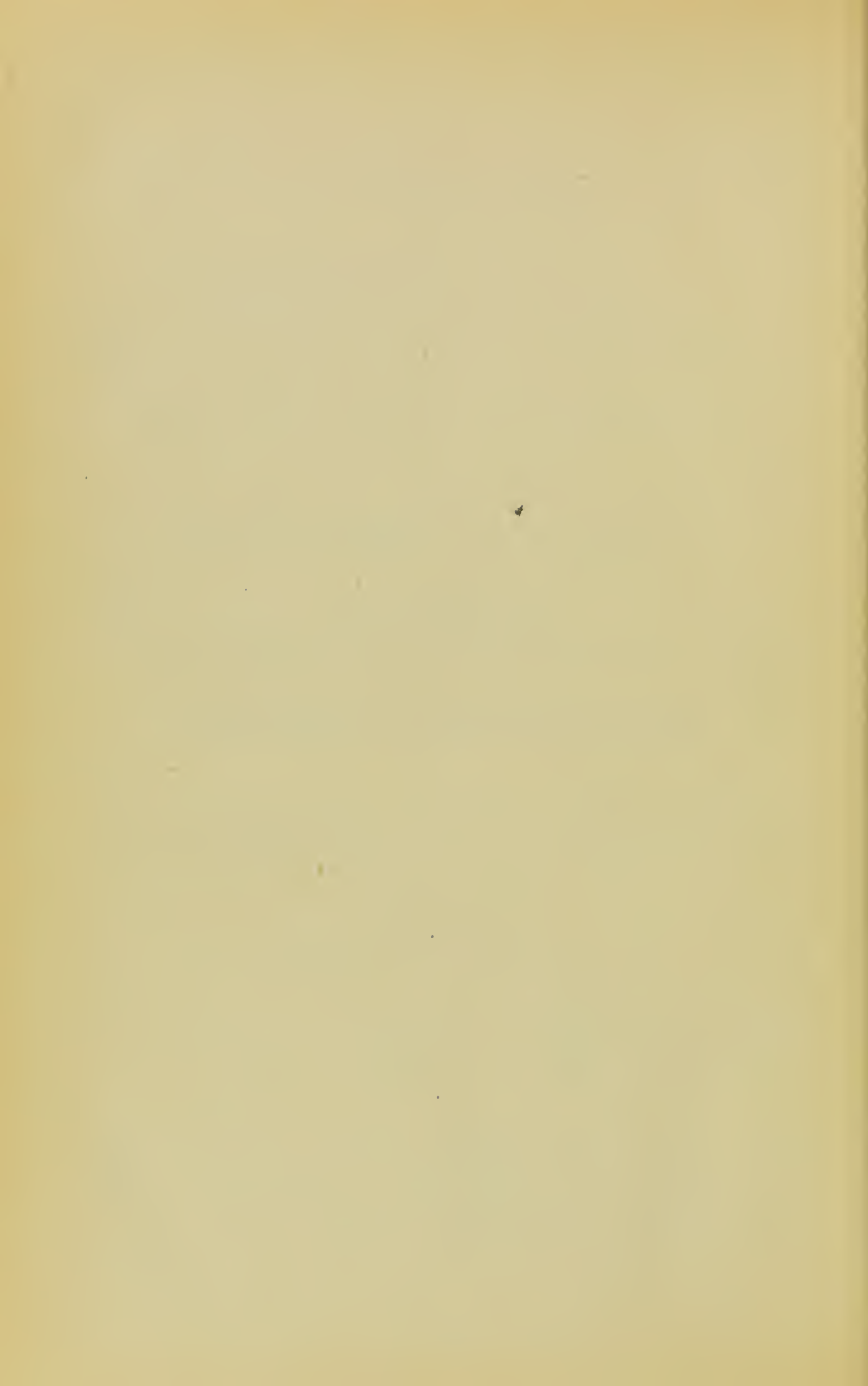
RECAPITULATION.

Substantially as reckoned by Professor Austen.

State or Territory.	Number of silver mines selected.	Product of silver.	Average working cost of producing one ounce of refined silver.	Total working cost of producing the silver.	Mean working cost per ounce.
		<i>Fine ounces.</i>			
Arizona	5	1, 119, 562	\$0. 832	\$931, 475	.....
California.....	4	237, 737	.51	121, 246	.....
Colorado.....	129	4, 420, 642	.602	2, 661, 226	.....
Montana.....	12	8, 072, 993	.433	3, 495, 606	.....
Utah	5	3, 804, 453	.477	1, 814, 724	.....
Total.....	155	17, 655, 387	.....	9, 024, 277	\$0. 511

PART II.

PRODUCTION OF STATES AND TERRITORIES.



CHAPTER I.

ALASKA.

By ISRAEL LAWTON,

Superintendent United States Mint, San Francisco, Cal.

The remoteness and comparative inaccessibility of Alaska, together with the evident disinclination of those best informed to give information in regard to the bullion output of the Territory, render difficult a satisfactory report concerning the progress of mining in that region.

The product for the year 1887 is estimated to have been: gold, \$742,950.85; silver, \$352.99.

The placers of the Yukon River, and also those of its tributary, the Stewart, have been steadily worked during the mining season of 1887.

These placers are still rich enough to pay for the short period in which work can be comfortably prosecuted in the inhospitable climate of Alaska. This period rarely exceeds from ninety to one hundred days, extending from June into September.

Very little hydraulic mining has been carried on, those who work the placers relying generally upon the primitive method of pick, shovel, and sluice-box.

The value of the bullion received at the United States mint in San Francisco directly from Alaska was only \$83,735.18 in gold and \$775.88 in silver; but this was the product of small mining only. The bullion product of the large mining companies was sent either to Portland or San Francisco and treated at private refineries.

The plant for gold quartz mining on Douglas Island has been increased until the mills are now working continuously over 300 stamps.

On Unga Island, the property of the Sitka Mining and Commercial Company, a ledge of galena ore has been discovered which carries gold and silver in paying quantities.

Another ledge on this island, carries free-milling ore assaying from \$15 to \$60 per ton in gold.

An outfit was sent from San Francisco in 1887, by the Sitka Mining and Commercial Company for the purpose of making new prospects and working the ledges already discovered on Unga Island.

CHAPTER II.

ARIZONA.

By ALEX. TRIPPEL, GLOBE, ARIZONA.

The collection and compilation of trustworthy statistics of the production of precious metals in Arizona is fraught with many serious difficulties, which reduce the desired correctness to an approximation, particularly so far as the distribution by counties is concerned. Nearest to correctness are the shipment records of bullion by express, but even they are to some extent misleading, as the bullion reported does not always originate in the county from which it is shipped, and at least in one instance, not even in the Territory. Graham County, for instance, shows a very large sum of gold shipped through one of its express offices, while but a small portion can possibly be traced to that county or to Arizona. Unfortunately the express company is enjoined from stating the sources from which the gold originates.

As to shipments of ore, concentrates, matte, and base bullion as freight, the reports can not always be reconciled with the direct statements of mine owners; and further, the declared values are neither uniform nor trustworthy as to the price attached to the silver, or as between net and gross receipts. Then, too, it would appear that the amount shipped by private carriers and conveyances is largely on the increase. In one county a major portion of the output of the leading mines was disposed of in this manner. As a matter of fact, there are no available means to ascertain absolutely correct figures.

In Yuma County much bullion is transported on the Colorado River steamers, and does not figure in express reports.

In summarizing the values of silver, when stated by separate counties, I have allowed \$1 per ounce fine; but in the general statement that value was transposed to coin value, as in previous reports to the Bureau.

The results of mining gold and silver in Arizona in 1887 are somewhat less than the estimates of Mr. Church for 1886, but more than estimated by the Bureau of the Mint for the same period. It is quite possible that more gold has been privately taken out of the Territory than could be approximated with any degree of accuracy.

The entire product is estimated as follows :

PRODUCTION OF ARIZONA, 1887.

	Gold.	Silver (coin value).	Total.
Bullion, etc., by express.....	\$552, 918	\$1, 388, 660	\$1, 941, 578
By steamer, mail, and other means.....	194, 806	114, 430	309, 236
Ore, matte, concentrates, etc.....	85, 407	2, 373, 080	2, 458, 487
Total	833, 131	3, 876, 170	4, 709, 301

DISTRIBUTION OF THE PRODUCT OF ARIZONA BY COUNTIES, 1887.

Counties.	Gold.	Silver.	Total.
Cochise.....	\$121, 699	\$1, 302, 722	\$1, 424, 421
Gila	2, 600	137, 187	139, 787
Graham	40, 000	413	40, 413
Maricopa	248, 166	74, 638	322, 804
Mohave	11, 860	52, 444	64, 304
Pima	176, 541	369, 823	546, 364
Pinal	115, 496	1, 333, 280	1, 448, 776
Yavapai.....	84, 264	339, 638	423, 902
Yuma	32, 505	266, 021	298, 526
Total	833, 131	3, 876, 166	4, 709, 299

Gold of the value of \$127,627 additional is reported as expressed from Graham County which could not be traced to that or any other county.

From the above tables it will be seen that the gold amounts in value to nearly 17.6 per cent. of the whole product.

Most unfavorable to mining was the continued depreciation in the commercial value of silver. This, combined with a low market for lead and copper, precluded the working of many mines. Towards the end of the year improved conditions at once gave a new impetus, for the time being, to the silver industry. It is incontrovertible that the great majority of valuable and paying mines produce low-grade ores, but in large quantities; and that the profits are seldom caused by rich temporary strikes, but by regular, economical, and intelligent work, by improved methods and machinery, and by ample capital. There was reported as shipped during the year 12,200 tons of ore. From a computation of values it is safe to presume that the ton averaged about \$90 to \$100 in silver and gold, assay value. This is, of course, the better class that would "stand shipping." Taking into consideration the cost of reduction and of transportation to distant works, a very moderate net profit is left to the original producer.

On the other hand, large organizations, having means and all modern appliances, mine, mill, or smelt \$30 ore at a fair profit. Gold ores, with \$4 assay yield, are milled profitably, and under less favorable conditions ores assaying from \$9 to \$12 in gold pay well. It is therefore apparent that in this Territory ore can be mined and reduced nearly as cheaply as in other States and Territories. I think there are not many silver-mills anywhere that work closer than some of the better Arizona works. It is true that in some localities where custom mills have but little patronage, the charges, and perhaps the real cost, are too high and forbidding for the prospector who has not extremely rich ore. This state of affairs prevails to a considerable extent in Gila County, and will last until some of its excellent mines are again worked upon a large scale.

Again, much difficulty is experienced through the want of working capital. The status of surface work at the hands of inexperienced persons has been passed in many properties, and more capital and skill are required for deep mining. In consequence, the individual worker is compelled to suspend further development.

Railroad facilities are still inadequate in the greater part of the Territory. It is thought that the Mineral Belt Railroad, now in course of construction, will bring some relief; but more than this one railroad is needed, in addition to well-built wagon roads, particularly in the counties of Yavapai, Gila, and Pinal, to do justice to Arizona's mineral wealth.

While all these circumstances have been a more or less severe test for successful mining, the close margin between profit and loss has stimulated the introduction of better machinery, improved methods, and more business-like management, which to-day, in several mines, are equal to the best.

Substantial progress was made in the treatment of ores and in the discrimination of milling and smelting ores.

Individual mining, or "chloriding," has succeeded fairly well in the southern counties, notably in Pima.

Yuma and Mohave Counties are not thoroughly known as yet; their auriferous lead and copper ores are worthy of fuller investigation.

The Territory of Arizona is pre-eminently a mineral country and one of the richest in the United States. The prevailing prejudice as to its being simply an arid waste is rapidly being dispelled; its climatic influences will be found more acceptable than heretofore, while fear of the savage Apaches is, in most localities at least, a thing of the past. The declared value of copper and lead shipped from the Territory in 1887, was as follows :

Copper	\$1,864,210
Lead	80,480

COCHISE COUNTY.

The estimated product of gold and silver during 1887 is as follows :

PRODUCT OF COCHISE COUNTY, 1887.

	Gold.	Silver.	Total.
Expressed	\$4,292	\$448,200	\$452,492
Other conveyance.....	65,000	5,000	70,000
Base bullion	20,000	210,000	230,000
Concentrate	22,407	164,319	186,726
Ore	10,000	180,000	190,000
Total	121,699	1,007,519	1,129,218

of which \$596,726 was shipped by rail.

The heaviest contributors during the year were the Grand Central Mining Company and the Tombstone Mill and Mining Company, viz :

Grand Central Mining Company*	\$572,740
Tombstone Mill and Mining Company*	423,626

Total

996,366

Several changes have been made in the status of these corporations during 1886 and 1887, influencing the output of the mines controlled by them. A drawback of great importance is, and will be until settled, the drainage of the mines, which should be done by co-operation, similar in method to that of several mining districts in Colorado and elsewhere. This difficulty has been the cause of retarding mining operations for years at a time.

The results of the Grand Central show that 14,500 tons of ore were worked at the mill. A part of this was directly concentrated and the concentrates shipped. The greater portion, however, was milled and the tailings were concentrated.

Fine silver produced	\$343,674
Fine gold produced	42,340
Total from milling	386,014
Gold in concentrates	\$22,407
Silver in concentrates	164,319
Total from concentrates	186,726
Grand total, ore and concentrates	572,740
Gold	64,747
Silver	507,993
Total	572,740

It will be seen that the gold was 12.7 per cent. of the entire value. The average yield in gold and silver per ton of ore was \$39.50. Average total cost per ton of ore was \$32.52.

*This includes the custom ores milled and smelted.

This cost comprises all expenses incurred during the year, including much that in justice should not be charged to any one year; also all charges and costs of reducing the ore. The above figures are therefore no criterion for the actual necessary running expenses. Since the cost of milling was not segregated from the mining, it cannot be stated separately.

The management of the Grand Central has been engaged repairing machinery of the burned hoisting works, and the mine pumps, so far as this is practicable. A new shaft, near the site of the former one, is sunk 300 feet, and small hoisting works have been erected.

Much prospecting is being done in this and other mines of the company. The Emerald has furnished much ore, having an exceptionally regular vein with uniformity in its ores.

The production of the Tombstone Mill and Mining Company up to September 1 was 4,130.6 tons of ore mined.

The yield from this and some custom ore, partly by milling and concentrating, was :

Process.	Gold.	Silver.	Total.
By milling, etc	\$22, 911	\$227, 216	\$250, 127
By smelting	12, 499	161, 000	173, 499
Total	35, 410	388, 216	423, 626

The precious metals obtained by smelting were contained in 300 tons base bullion.

The average cost per ton was \$10 for mining and \$5 for milling.

It should be understood that these figures are approximate and not absolutely accurate.

As in the Grand Central, a great portion of the output was shipped as ore, concentrates, and base bullion.

The yield of ore by the milling process does not exceed 70 per cent. in either of the two mills, but by concentrating the tailings about 90 per cent. of the assay value is saved. The mining, milling, concentrating, and smelting plants of the several companies are complete and in excellent shape for a much larger output during the coming year; yet, as already stated, until the water question is settled, work must be limited to the upper levels, from which, however, a large quantity of ore can be extracted.

There are few other mines worked independently; but many leases are given, the lessees generally making fair wages.

The "Old Guard" and "Ground Hog" are working, their ores being reduced at the Waterville mill with satisfactory results. The "Rattlesnake" will be started up soon, its mill also crushing custom ores. In general, considerable prospecting is being done.

Gold mining in the Dos Cabezas Mountains was carried on to some extent during the year, and some very rich mines have been reported. As yet a five-stamp mill only has been employed.

The celebrated "Copper Queen" and adjacent mines at Bisbee are still producing copper abundantly.

The continually growing output of smelting ores and the low yield obtained by milling, if tailings are not concentrated, make the absence of a large smelting plant, centrally located at a favorable shipping point, much felt. It is to be regretted that the smelting works at Benson did not command sufficient patronage. Although freight rates have been reduced, it is evident that well-appointed and properly conducted reduction works at a convenient point on the Southern Pacific Railroad—Tucson, for example—would be more accessible to the mining interests.

GILA COUNTY.

The production of precious metals in Gila County varies but little from that of 1886.

The bullion shipments through Wells, Fargo & Co. were made principally from Globe; a smaller quantity by way of Pinal, and, owing to the suspension of the express at Globe, a small amount was shipped from Florence.

EXPRESS SHIPMENTS, 1887.		
Points of shipment.	Gold.	Silver.
Globe		\$47,600
Pinal (estimated)		5,000
Florence (estimated)		4,000
Other points (estimated)	\$2,600	2,000
Total	2,600	58,600

Ore was shipped to Tucson, Socorro, El Paso, and other places. The return value of the same amounts to about \$47,500.

PRODUCTION OF GILA COUNTY, 1887.	
Gold bullion, or wash gold	\$2,600
silver bullion	58,600
Ore	47,500
Total	108,700

In 1886 the production of Gila County was estimated at \$75,899.

PRODUCT OF MINES IN GILA COUNTY, 1887.

Stonewall Jackson.....	\$18,500
Little Mae and Democrat.....	3,500
Hannibal.....	5,000
Richmond Basin mines.....	12,000
Fame.....	12,500
Silver Era.....	5,800
Howard.....	15,600
South Pioneer.....	3,700
Sundry mines.....	29,500
Wash gold from Pinal and Lost Gulch.....	2,600
Total.....	108,700

The entire product is the result of chloriding and prospecting by owners or lessees. No original or organized work was done in any gold or silver mine during the year, except upon a small scale at the Fame and Hannibal.

Gila County has but a small area when that portion of it included in the White Mountain Indian Reservation is left out. Yet the veins bearing gold, silver, and copper are not only numerous but powerful and extensive. Centered by the town of Globe, a mineral-bearing belt of great magnitude traverses the district from southwest to northeast, the veins being found in contact with eruptive granite, syenite, and limestone, or quartzite as walls. A succession of porphyritic dykes and, near the surface, trachytic flows, generally cross the average trend of the veins, which is northeast and southwest. In a few instances metallic deposits are found in porphyritic masses between syenite walls. Such, for instance, is the case in the Stonewall Jackson ledge, upon which a great many mines are located, the ledge itself being in places over 100 feet in width.

There seem to be three distinct divisions of ledges; in the southwest, near Globe, oxidized copper ore prevails; further northeasterly silver-bearing veins, with very high grade chloride and silver sulphurates, are encountered; and in a northwesterly direction, where the rock formation changes and shows the gneissoid and micaceous series of rocks, auriferous quartz preponderates.

The Pinal Mountains, southwest from Globe, show numerous auriferous quartz veins, but of very low assay value.

The mines located on or near the southern slope of these mountains carry antimonious and zinciferous ores almost exclusively, mostly in porphyritic ledge matter. Further south, similar ores are found in Mineral Creek mining district, also in porphyry accompanied by argentiferous lead ore, which is more developed further on towards and within the limits of Pinal County.

In the last or northeast, passing the western boundary line of the Indian reservation, the argentiferous mineral belt continues for a long distance. Among others, the Stonewall Jackson ledge can be followed by its outcrops for many miles, showing here and there rich bunches of solid horn silver.

Very little mining, in the true acceptance of the word, has been done. The only mines that have so far been worked upon a moderately large scale are a few copper mines, the Mack Morris and Stonewall Jackson silver mines, and, in a small way, the Centennial silver mine. Other silver properties were but partially opened when, for some reason, perhaps financial, work was suspended.

The most productive silver mines in the county have been the Stonewall Jackson and Mack Morris, the two having jointly produced in excess of \$1,350,000 in bullion. Neither of them, however, was worked last year (1887), except to a very small extent by lessees. The argentiferous ores found in these properties are very dissimilar. In the Mack Morris, located upon the southwest slope of Apache Mountain, in a granitic formation, the ores are more or less the products of decomposition of compound sulphurets and antimoniates, with isolated masses of pure argentite near the surface. The ores of the Stonewall Jackson, in a porphyritic formation, consist chiefly of a mixture of horn silver with argentiferous spathic iron (carbonate of iron), argentite, stephanite, and stromeyrite.

The greater portion of all silver ore found in the county is connected with copper. I have observed the usual copper ores, a mixture of the oxides of copper and iron, sprinkled with pure argentite and occasionally with native silver or gold, but this co-existence of gold and silver is limited to small bunches in otherwise non-argentiferous copper ore.

Here and there argentiferous lead ores are found, but so far no mines have been sufficiently developed to allow a satisfactory estimate of their importance or productive capacity. Should further work prove as satisfactory as is anticipated, an immense new field would be opened for a large production of silver by the smelting process, which is decidedly the best method of treatment for a large class of silver ores from this county.

Of other more or less prominent and developed silver mines, I may mention the Centennial group of three mines, with works down 250 feet; the Fame, Rescue, Democrat, Mexican, Comet (formerly Miami), Grand Prize, Silver Era, and many others, in a northeast direction from Globe; the Turk group of several mines, distinguished for argentiferous lead ores, a little north of Globe; the East and West Richmond, La Plata, Silver Nugget, and other productive mines in Richmond Basin, some 12 miles from Globe; the Hannibal, Washington, Robert E. Lee, and Little Mack, all productive, in McMillen, on the Stonewall Jackson ledge; the Stonewall Jackson No. 2, Carlisle, Black Prince, Esperanza,

and Providencia, within 3 miles of Globe in an easterly direction—the first-named, Stonewall Jackson No. 2, with a large vein of free-milling, and the two latter with argentiferous lead ores. Several hundred more or less prospected claims in the immediate vicinity of Globe might be mentioned, but the above named are among the foremost, all of them having at some time produced silver ore.

The gold produced is from placers near the foot of the Pinal Mountains, along Pinal Creek, and from Lost Gulch, among hills showing numerous gold-bearing veins of considerable extent. The surrounding region has a greatly altered formation, with gneiss and micaceous schists and intervening talcose slates. The major part of the gold-washing is done by Chinese, who about make wages.

Some of the auriferous ledges have been worked. The Golden Eagle, for instance, with a ten-stamp mill, has produced upwards of \$50,000; some gold from the Mumson, Yellow Metal, Eureka Golden Gate, and sundry additional claims, was worked in arrastras. These, however, are all within a small area and seemingly carry gold exclusively. The average assay yield of several of these ledges, which generally exceed 5 feet in width, is above \$14 per ton. The iron pyrites which appear in greater depth assay from \$14 to \$30 per ton, but as no mill near Globe is fitted with concentrators these are entirely wasted. The gold output of the county is practically at a stand-still, for want of proper appliances and adequate capital.

The natural local facilities for successful mining are ample in Gila County. Water is not scarce and wood can be obtained at reasonable prices, and in most cases mining locations are easy of access.

GRAHAM COUNTY.

In Graham County, there are no known or established mining camps producing gold and silver to any great extent, outside of a number of gold placers in the vicinity of Clifton and Duncan, both points being near the extreme eastern limits of the county and Territory.

The copper mines of Graham County are justly famous, but so far no systematized efforts have been made to work its gold or silver mines, of which several are known to exist. Nevertheless, it is reported that Wells, Fargo & Co.'s express offices at Clifton and Duncan have shipped the precious metals in the following amounts:

Points of shipment.	Gold.	Silver.	Total.
Clifton.....	\$1, 577	.....	\$1, 577
Duncan.....	166, 050	\$320	166, 370
Total.....	167, 627	320	167, 947

Under the above circumstances, it is probable that of the sum named not more than \$40,000 has come from Arizona placers, the balance, \$127,947, it is assumed, coming from New Mexico.

Although such division of the reported sum may seem arbitrary, in view of the fact that the shipments were made from Arizona express offices, there are, in the absence of obtainable knowledge, no other means for an estimate than the exercise of one's personal judgment. Hence Graham County is credited with \$40,000 gold and \$320 silver.

MARICOPA COUNTY.

This county is the largest producer of gold in the Territory, its principal gold mine being the Vulture, whose output for 1887 aggregated \$196,166 from ore averaging a fraction above \$4 per ton. The total amount produced is given below:

PRODUCTION OF MARICOPA COUNTY, 1887.

	Gold.	Silver.	Total.
Reported as expressed.....	\$177,960	.....	\$177,960
Forwarded by other conveyances.....	70,206	.....	70,206
Bullion expressed.....	.....	\$47,725	47,725
Ore shipments (estimated).....	.....	10,000	10,000
Total.....	248,166	57,725	305,891

The contribution of the several mines to the above total was as follows:

PRODUCTION OF MINES IN MARICOPA COUNTY, 1887.

Mines.	Gold.	Silver.	Total.
Vulture.....	\$196,166	.....	\$196,166
Ithaca.....	2,000	.....	2,000
Phoenix.....	45,000	.....	45,000
Placer gold.....	5,000	.....	5,000
Other mines, silver bullion.....	.....	\$47,725	47,725
Other mines, ore shipments.....	.....	10,000	10,000
Total.....	248,166	57,725	305,891

There being but few silver mines sufficiently developed for regular production, the output is small. Even some of what is reported, perhaps, although shipped from Maricopa may have come from the mines of Pinal County. It is clear, however, that a very large portion of the gold bullion found its way to the United States mints by private conveyance, as the case in Cochise County.

The northern portion of Maricopa County is pre-eminently gold-bearing. It comprises the southern end of the famous district in Yavapai

County lying south of Prescott, and through which the Cave, Haysayampa, and Agua Fria creeks run to meet the Salt River further south.

The Vulture, Ithaca, and Phoenix gold mines are all located in a direct east and west line with the Silver King and Reymert groups of mines of Pinal County. The formation, chiefly granite, not only corresponds with that of the gold-bearing districts east but continues unbroken through Yuma County to the Colorado River.

The results of the Vulture mine, in working ores assaying less than \$5 with a substantial profit, are, or ought to be, highly encouraging to those who are doubting the possibility of making such low-grade ores profitable. They show, furthermore, that with good management ledges carrying from \$5 to \$10 per ton, though not so large as the Vulture vein, should yield ample profits. The late able manager, Mr. Cyrus Gribble, who was recently murdered by Mexicans, while transporting his last gold bar to Phoenix City, informed me that the Vulture ores bear 3 per cent. of auriferous pyrites which now are saved by Fruevanners, as concentrates from the tailings, and that he expected to save about two tons, worth over \$400, daily.

Cave Creek district has lately advanced in development. It is reported that the Mirage, Wall Street, New York, and Silver Bromide produce moderately high-grade silver ores of a character similar to that of the Reymert mines.

The Union and Contention, two gold properties situated within fifteen miles of Phoenix City, have been worked, with results so far small.

MOHAVE COUNTY.

From the meagre information obtained, it appears that no mining operations of great magnitude have been carried on in this county during 1887.

PRODUCTION OF MOHAVE COUNTY, 1887.

	Gold.	Silver.	Total.
Expressed	\$4,860	\$3,060	\$7,920
By mail and otherwise (estimated)	7,000	2,500	9,500
Ore shipments (estimated) .....	.....	35,000	35,000
Total	11,860	40,560	52,420

Most of the mining accomplished was assessment mining, by prospecting work and the working of gold placers.

The principal mountain ranges containing metalliferous deposits or veins are the Peacock and Cottonwood ranges in the east; the Hualapai

in the south; and, north of the Atlantic and Pacific Railroad, the Cerbat range; all of which are north and south ranges. Most of the claims which are at this time producing ore, are located in the vicinity of Mineral Park, Stockton, and Kingman. So far there is but little capital invested by corporations; what work is done is generally by poor prospectors, who, by hard toil and indomitable perseverance, manage to make it pay.

The rock formation of the ranges mentioned is of azoic character and favorable to vein structure. The veins, or the majority of them, are regular and unfaulted, and the ore, in the average, of good quality, yet far too base for the ordinary home treatment by free-milling. Much of it is therefore shipped to San Francisco and to eastern works, many of the mines being not very distant from the Colorado River, or from the Atlantic and Pacific Railroad.

PIMA COUNTY.

The output of gold and silver in this county in 1887 was considerably above that of the preceding year, many more mines being worked in a small way, owing to lower freight rates, and cheaper and better reduction facilities, and to the presence of newly constructed sampling works at Tucson where small lots of ore could be disposed of at fair prices. While these points were favorable the low price of silver acted in opposition, and had it not been for this much more would have been produced. The record of the county against \$115,972 in 1886 is as follows:

PRODUCTION OF PIMA COUNTY, 1887.

	Gold.	Silver.	Total.
Gold and silver bullion by express.....	\$158,541	\$116,020	\$274,561
By individuals and mail.....	10,000	1,500	11,500
By freight, ore, concentrates and base bullion	8,000	168,500	176,500
Total	176,541	286,020	462,561*

In stating the amount of bullion shipped by express, allowance has been made for that portion of it produced in Pinal County but shipped at Tucson.

As seen above, no great output from any one mine is reported. The aggregate is made up of small amounts, chiefly shipped as ores and concentrates from many mines.

The Santo Domingo mine, near Greaterville, produced about 75 tons of smelting ore, averaging 42 ounces in silver and \$4 in gold, or a total valuation of \$3,000 silver and \$300 gold.

The Locomotive, Quijota district, shows an output of \$85,000 silver, from the milling of 3,600 tons of ore; hence a yield of 26.6 ounces per ton, with a cost of \$11.50 for mining and \$3.25 for milling.

In the Oro Blanco and Arivaca districts some placer mining was done by Mexicans, and several hundred tons of low and medium grade ore was milled in the Arizona mill. But little beyond some prospecting was done in these districts. The ores extracted, generally of a milling character, assaying between \$50 and \$500, were shipped either to the smelting works at Nogales or to the sampling works at Tucson, the prospectors about making wages.

The mining industry in Harshaw and Washington districts, in the southern portion of the county, was very brisk, and a great deal of ore taken from the several mines and shipped, mostly via Crittenden. Both these and the Oro Blanco and the Arivaca districts, in the Patagonian Mountain range, have a great number of very large argentiferous lead veins, which await extensive working and smelting facilities. A smelter built in Crittenden by a Chicago company, is an experimental one, instead of an approved pattern. Its success is therefore awaited with a certain degree of anxiety, since much of the immediate prosperity of the surrounding country depends upon it.

The mines of the Santa Rita Mountains have been prospected in 1887, and some important developments made, but outside of the gold production of Greaterville and vicinity, in itself notable, no very large results were obtained.

One of the foremost mining districts of Pima County, easy of access and near Tucson, is the San Xavier district in the Tucson Mountains. The San Xavier and Olive groups comprise the Arizona Queen, San Xavier, Veta, Democrat, Banner, Santa Cruz, Warshaw, Patterson, Olive, and quite a number of others. The ore deposits of these mines are more or less in a limestone formation, with nearly self-fluxing carbonates in some spots and milling ore in others, but the presence of galenite everywhere proves the smelting character of the average ore.

From work prosecuted on the San Xavier with a few men, the following results were obtained:

Ore mined, 1,500 tons, carrying 22 per cent. lead and 27 ounces silver per ton. The cost of mining was \$3, hauling to Tucson \$1, and cost of reduction at El Paso, including freight charges to that point, \$15 per ton; total, \$19. It is evident that the cost could be reduced by more elaborate mining appliances, and facilities for reduction at Tucson.

PINAL COUNTY.

The production of gold and silver during the year 1887, for Pinal County, is as follows:

PRODUCTION OF PINAL COUNTY, 1887.

	Gold.	Silver.	Total.
Bullion shipments by express, declared value.....	\$496	\$386, 183	\$386, 679
By mail and otherwise.....	5, 000	3, 000	8, 000
Through Tucson, Ariz. (express).....	110, 000	.....	110, 000
Value of concentrations.....	.....	481, 970	481, 970
Estimated gross value of ore shipments from various mines.....	.....	160, 000	160, 000
Total.....	115, 496	1, 031, 153	1, 146, 649

Of this amount—

The Silver King contributed.....	\$694, 951
The Mammoth, Southern Belle, and Tortillitas.....	110, 996
The Vekol.....	123, 181
The Reymert group.....	22, 827
All other mines.....	194, 694
Total.....	1, 146, 649

NOTE.—Allowance is made for bullion shipped by express, produced in Gila County, and also for bullion shipped from Pinal County mines through Tucson, Pima County.

The gold and silver output of this county for 1886 was \$1,125,439.

The chief silver producer, as in previous years, has been the Silver King mine, which this year mined 31,190 tons of ore of two distinct characters; one class with the metallic portion imbedded in porphyry and assaying an average of 21.08 ounces of silver per ton, the other being baryto-quartzose ore with an average assay value of 32.47 ounces to the ton; 31,821 tons of ore were treated. The metalliferous character of the ore material is well known, its constituency being galena, argentiferous zincblende, fahlite, and chalcopyrite mixed with native silver. 26,981.75 tons, assaying 21.8 ounces silver per ton, were treated by concentrating, the result being 577.8 tons of concentrations assaying 834.13 ounces; and by the reconcentration of tailings, 1,261.55 tons seconds, assaying 33.77 ounces. The aggregate loss in concentrating was 1.73 ounces per ton, or 8.2 per cent., with a cost of but \$3.42 per ton of ore. The percentage of first and second concentrations jointly was 6.81 of the bulk of the original ore treated. This result is exceedingly favorable and proves the continually growing appreciation of the importance and economy of ore concentration. 4,840 tons of higher grade ore, carrying 32.47 ounces of fine silver, were treated by roasting and amalgamation. Owing to the presence of considerable metallic silver the chlorination at first was 66.6 per cent., with from 2½ to 3 per cent. salt used; but subsequently, owing to a change in the ore character, the chlorination increased to 86.25 per

cent. with but 1 to $1\frac{1}{2}$ per cent. salt, and a pan run of from two to two and one-half hours, the resulting silver from the whole amounting to 96.39 per cent. as compared with the assay of the roasted pulp. The quicksilver lost per ton of ore averaged 1.46 pounds.

A new feature was presented, by a change of a part of the ore body to a very cupriferous character, which led to a trial of the lixiviating process, which proving satisfactory was introduced, and a third system of metallurgical treatment thus provided. The total cost of mining the ton of ore was \$10.97; that of milling, including roasting, \$9.69.

Considering the high price of fuel at the works—\$9 to \$10 per cord of wood—and the necessarily expensive mine timbering, the cost of mining and milling must be considered as very favorable and economical. In addition about 3,875 tons of old tailings were treated, of an average assay value of 12 ounces silver per ton, yielding by rapid raw amalgamation 7.55 ounces.

Many improvements were instituted at the mine during 1887. To take the place of four smaller engines, a compound upright engine of 175 horse-power was built, by which great saving of fuel is effected. It is contemplated to use petroleum as fuel in place of wood. Other additions of machinery, pumps, and appliances have also been made.

The chief ore supply of the Silver King mine came from the 800-foot level, but several new ore bodies of fair quality have been opened in the upper levels.

The next important silver property of the county is the Vekol, located about 40 miles south of Casa Grande Station on the Southern Pacific Railroad, and upon the line of Pima County. The ore occurs within a limestone belt, and consists chiefly of chloride of silver and lead with comparatively few sulphurets. Mining has been prospected energetically, with the production of less high-grade ores than formerly. The ore is reduced in a ten-stamp mill near the mine.

The ore treatment is by raw amalgamation in pans, with a pan run of six hours, of which one hour is taken up in grinding. The charges were 3,000 pounds ore with 10 pounds salt and 3 pounds sulphate of copper. The consumption of quicksilver was five-eighths pound per ton of ore, with 120 pounds used for each pan charge. Forty pounds of cyanide of potassium and 2 pounds of sodium were consumed per month. Wood cost \$6 per cord, and 1,597 $\frac{1}{2}$ cords were burned during the year.

The total amount of ore mined was 5,671 $\frac{1}{2}$ tons, assaying, from battery samples, 23.03 ounces fine silver per ton; 123,181 ounces of silver were produced, or about 83.3 per cent. of the assay value.

The cost of mining and milling per ton was \$14.07, or 67.3 per cent. of the amount produced, the average value of silver realized during the year being 97.16 cents. Profits per ton of ore treated \$6.85. The expenses include all dead work done but not those of the plant.

An important mine adjoining the Vekol is the "Great Eastern," but

no reliable account was received as to its product. The Rocky produced but slightly.

A promising group of mines of recent development is the Reymert, located on a ledge of porphyritic character with large masses of black manganic spar cropping out boldly for a long distance. The ore itself is a mixture of argentiferous lead minerals and baryta sulphate, with some silver sulphides and the oxides of manganese, averaging, it is asserted, throughout the entire width of the ore body, so far developed over 14 feet, about 30 ounces of silver per ton. There are eighteen locations on the ledge, the majority being under the control of the Reymert Company. The Farlow and Blackbird are two worked by individual owners.

The ore is treated in a 10-stamp mill. It is estimated that 849 tons, assaying 29.2 ounces, were mined, the output being 22,827 ounces fine silver, at a cost of \$3.60 for mining and \$8 for milling per ton of ore.

The Woodpecker, another property in the neighborhood, aside from mining a few car-loads of ore, as a test of the quality, has done but little.

Native copper ore is found in Mineral Creek district in the Ray mines, frequently associated with native silver. In the Poor mine, large nuggets of native silver are found attached to pure cuprite, almost in the same manner as in certain of the Lake Superior copper mines.

Mineral Creek district, of which Riverside on the Gila River is the centre, has progressed somewhat during the year, but has not been as yet materially productive. Apart from numerous promising copper mines, of which a few are fairly developed, the district has gold and silver resources. The easterly portion of the district has a number of argentiferous lead mines, all carrying some gold; but the ores, while smelting excellently as lead ores, are considered low grade, although large bodies average from 10 to 20 ounces in silver and from \$2 to \$10 in gold. Some of the ores, chiefly from near the surface, are very rich in both metals, numerous assays made by myself amply attesting the fact.

The western portion shows several ledges of antimonious and cupriferous silver ore of excellent quality in porphyry, and although a well-appointed and nearly new 5-stamp mill is erected in that locality, but little use has been made of it.

At Riverside, or near by, large bodies of more or less decomposed ferruginous lead ores are found in the Victoria and other mines, assaying from \$2 to \$10 in gold. A small 2-stamp mill near the river has treated the better class with fair results. The entire district seems to be the southwestern portion of a belt of auriferous ores, which embraces, more to the east, the Southern Belle, the Tortillitas, and Mammoth groups of mines, with the Golden Cross as the most northerly part of the belt, little south of the Gila River and east of its confluence with the San Pedro. This belt actually extends, in width, between the northern slope of the Catalina Mountains south and the Gila River north.

As a matter of mineralogical interest it should be stated that there exists a certain uniformity in minerals found in the whole auriferous belt of Pinal County, and also in a similar gold region in Yuma County. In the prospected mines of the latter locality anglesite, cerussite, galenite, wulfenite, and vanadinite are found, the two last named in exceptionally fine crystallized forms. A few other lead combinations have not yet been examined.

The principal gold producers of Pinal County were the Mammoth, the Southern Belle, and the Tortillitas groups. Apart from these some gold was shipped from placer workings and from the 2-stamp mill at Riverside.

The Mammoth mine, however, is the only one which is greatly developed. During 1887 the productive mine work was carried on for five or six months, after which negotiations with an English syndicate led to certain prospect work by the latter, in sinking the main shaft down to 500 feet and driving several levels.

The mines embraced in the Mammoth group are numerous, and each one has been more or less prospected with satisfactory results. The Mammoth ledge itself ranges from 10 to 20 feet in width between syenite and rhyolite walls. The ore near the surface was fairly free-milling, averaging about \$9 per ton. This value is increased at greater depth to \$15 per ton, but the ore then becomes more impregnated with iron pyrites, and is consequently less free-milling. Less than 50 per cent. of gold value was saved in treating ore of this character. The mill heretofore used is a 20-stamp mill, but it has no concentrators, and other parts of it are not in a satisfactory condition. It is now in contemplation to enlarge the mill and entirely reconstruct it. The product of the year is reported over \$100,000. The cost of milling, mining, and hauling was about \$4 per ton of ore.

The Southern Belle mine, another gold property located immediately northwest of the Catalina Mountains, near American Flag, shows no important product in 1887. •

The Tortillita mines in Owl's Head district, were gold producers during the year. Very little systematic work has been done beyond what seemed necessary to ascertain definite information as to the vein structure. Connected with these mines is a 5-stamp mill which is in operation part of the time. I have been unsuccessful in my endeavors to obtain correct data of the gold production of these mines, but estimate the gross amount at \$10,000.

Very valuable prospects have lately been worked in Buuker Hill district, partly located in Graham County, some 12 miles east of the Mammoth. From these were taken carbonate ores, some being high grade in silver.

In this report of Pinal County the productive mines chiefly are mentioned, especially such as have something of a record. As a whole the county has maintained its output for 1886. During 1887 many valuable

mines have been more or less prospected and developed, and the interest shown in gold and silver mining has made positive progress. In the way of copper, Pinal has fine opportunities, the mines being much nearer to railroad communication than those of Gila County.

YAVAPAI COUNTY.

The gross result of mining in this county exceeds that of 1886. While there was no large producing mine in operation, the number of smaller workings was increased in many instances, with profitable returns.

I regret to report that to many official inquiries but few replies were received, even after repeated requests, so that my information depended, to some extent, upon special correspondence.

Yavapai is the largest county in Arizona, embracing about 30,000 square miles, and possessing at the present time thirty distinct mining districts. Part of the county, more especially the portion north of the Colorado, is but little known. The principal mining region is south of the line of the Atlantic and Pacific Railroad centered by Prescott, the Territorial capital, and extending from that point in different directions, chiefly along the Hassayampa, Lynx, Agua Fria, and numerous other water-ways. The formation is almost exclusively composed of crystal-line rocks, such as granite, gneiss, metamorphic slates, etc., while the veins are generally regular and well defined, seldom showing the disturbances so frequently observed in the southern mining regions of Arizona, nearer the centre of eruptive activity. The various districts are nearly all well watered and more or less timbered. Gold placers found in many of the dry gulches and along the creeks leading from the mountains are generally worked with good profit.

In former years Yavapai County was the principal gold producer of Arizona, although the miners' outfits were confined to cradles and arrastras; later on, its silver mines were prospected and some of them yield to-day considerable metal. In 1886 the output of gold and silver had become reduced to between \$200,000 and \$300,000 (allowing for ore shipments and gold bullion handled privately). The output for 1887 is estimated as follows:

PRODUCTION OF YAVAPAI COUNTY, 1887.

	Gold.	Silver.	Total.
Expressed	\$29,264	\$7,675	\$36,939
By mail and privately	30,000	5,000	35,000
Ore shipments	25,000	250,000	275,000
Totals.....	84,264	262,675	346,939

The great proportion of gold disposed of by mail and private carriers comes chiefly from interior districts, where no express offices exist, and includes much placer gold. Silver ore was shipped in great quantity

from the Lawler Mining Company's and the Hillside mines in the Santa Maria district by a branch of the Arizona Central Railroad from Garland Station.

Important silver products were also shipped from mines in Walker and Lynx districts. The Amulet shipped high-grade ore assaying 359 ounces of silver and 46 per cent. lead. The Morning Star also shipped some good ore. The balance of what was mined was reduced at a small mill leased for that purpose. It should here be mentioned that silver ore which assays less than \$50 per ton can not be profitably shipped, owing to the long mountainous roads traversed to the railroad.

From the same districts auriferous quartz, from various prospects, was treated in the described mill with following results: 161 tons of ore treated, of an average assay value of \$10.65 per ton, of which was saved \$8.90 per ton, or about 83.5 per cent.

Number of tons.	Assay values, gold.	Tailings.
20 tons	\$10.00	\$2.00
10 tons	17.50	1.75
10 tons	9.25	.50
10 tons	10.00	2.50
20 tons	10.72	.60
10 tons	10.42	2.00
5 tons	10.72	Trace.
38 tons	10.04	.45
13 tons	10.59	8.00
20 tons	9.23	1.25
5 tons	14.25	.75
Total, 161 tons	*10.65	

*Average value.

Considering that the mill was not provided with concentrators, the results show very well; but all the ore milled came from near the surface, and was therefore in a condition where the loss should have been the least. I suppose that the 13-ton lot was pyritous and hence the great waste.

This illustration is of interest, as it shows an average return from various lots of auriferous quartz coming from this and neighboring districts.

Several mills were added to the reduction capacity of the county during the year, and quite a number of mines developed and prepared for a regular output. Among them is the Etta gold mine, in Cherry Creek district, prospected down to 200 feet, with 250 feet of drifts, and showing a uniform and regular vein, 5 to 6 feet wide, with an average assay value of \$29 gold per ton. Auriferous quartz ledges are uncovered in the Eighty-Five and Ocoala mines in Payson district, both being fairly developed, with veins from 3 to 5 feet, and high-grade free-milling ore averaging over \$30 in gold per ton. The two latter mines are only worked for arrastras, so far, with profitable returns.

In Marting district the Congress group, owned by the Congress Mining Company, were exploitered with good results, the veins being large and yielding 50 to 150 ounces of silver per ton, with very high-grade ore for shipment.

The building in 1886-'87 of a reservoir dam on the Hassayampa, in Walnut Grove district, will furnish ample water facilities for the many placer diggings in the vicinity. It is expected that this locality will considerably swell the gold output for the coming year.

Gold quartz was discovered in the Howard mine, on the Hassayampa, with a 20-inch vein near the surface, assaying high in gold, some of the quartz literally yellow with metal. At 30 feet depth the rich pay streak is said to be 12 inches wide. There has been much excitement over this discovery, as within a few weeks quartz valued at many thousand dollars was extracted and shipped; but as now understood the very rich ore was confined to a small chimney.

Tip-Top and Lynx mining districts had several producing mines in 1887, although several of the best known and formerly very prolific properties were but slightly operated. The mineral belt passing through these districts shows both gold and silver in the ore. The belt itself is over 6 miles in length and has hundreds of locations, some appearing to be extremely promising and valuable.

In Turkey Creek district the Arizona Mutual Silver Company have several claims, including the Morning Glory, but have done but little outside of assessment work.

Peck, Bradshaw, Big Bug, Walker, and Groom Creek districts have contributed precious metals to a certain extent. None of the many mines were largely operated, but, generally speaking, development work was prosecuted more vigorously than in the preceding year.

To summarize, mining in Yavapai County, so far as relates to the extraction of precious metals, has been more active and successful in years past than for the past twelve months, but, in most cases, it should be considered preparatory for more extensive and systematic work.

The milling or reduction facilities are deficient and transportation of ore to far distant railroad shipping points very expensive.

There are at this time eleven mills within a radius of 50 miles from Prescott, representing 120 stamps. Most of them are not supplied with first-class machinery and but few are fitted with concentrators.

It should be mentioned that various combinations of vanadium are found in Agua Fria district.

Arsenical pyrites, sometimes auriferous, are found in Payson district and elsewhere.

YUMA COUNTY.

Although Yuma County in past years produced greater quantities of gold and silver, particularly the latter, than at present, it yet appears prominently among the other subdivisions of the Territory.

Many difficulties have been encountered in the collection of statistics,

caused by the backwardness of producers to satisfy inquiries as to the output of precious metals in the various localities. These have been remedied very greatly by the courteous aid extended by Mr. Joseph Stein and two or three other citizens of the county, to whom acknowledgment is hereby made.

The production of gold and silver for the year, actually ascertained and estimated, conforms closely to the following :

PRODUCTION OF YUMA COUNTY, 1887.			
	Gold.	Silver.	Total.
By express	\$27, 505	\$8, 200	\$35, 705
Steam and express .....	.....	57, 500	57, 500
Mail and privately	5, 000	12, 000	17, 000
As ore (estimated) .....	.....	128, 040	128, 040
Total,	32, 505	205, 740	238, 245
Of which Clip contributed.....		Silver..	\$57, 500
Red Cloud, Black Rock, and others		do....	124, 200
Castle Dome		do....	840
Eureka		do ...	3, 000
Ehrenberg, Gila City, Laguna, etc.....		Gold..	26, 315
Sundry mines (silver \$20,200 and gold \$6,190)			26, 390
Total			238, 245

North Silver district.—Among the prominent mines may be mentioned the Clip, which was continuously worked up to January, 1887, and its extensions, known as the Expectations and Alberta. The country rock is granite and limestone, but with the attainment of depth the veins are found as fissures in granite.

During 1887 but little ore was mined from the Clip and neighboring claims. The tailings from former milling operations were reworked, however, yielding an estimated value in silver bullion of \$57,500, all of which was shipped to San Francisco. The reworking of tailings, through the Clip 10-stamp mill, was commenced April 18, 1887, continuing with several slight stoppages to the end of the year. The Clip vein is from 6 to 20 feet wide, the ore being silver chloride assaying from 15 to 100 ounces per ton.

The Expectations shows a vein 5 feet in width averaging 50 ounces per ton.

The Rover has a large vein and carries from 40 to 100 ounces per ton of silver. It was not worked during the year. The Red Cloud mine workings uncovered a large ledge of low-grade ore with intervening seams which return very high assays. The vein itself is a true fissure in granite, the silver appearing principally as chloride and sulphide. The mine was discovered in 1878, since which time work has progressed more or less regularly. The main shaft is down 510 feet. Water was

encountered at the 500-foot level. This will be handled by pumps. From such data as could be obtained it is calculated that 621 tons of ore, valued at \$124,200, was shipped from the Red Cloud, Black Rock, and other mines, the former producing by far the greater quantity. The Black Rock is situated in the immediate vicinity. The ores mentioned are generally sulphides of silver and carbonates of lead, the lead ore averaging 40 per cent. metal.

Numerous other locations exist in the district, several of which were worked in a small way, producing slightly. Handsome specimens of vanadinite of lead are taken from the Elena. Wulfenite crystals are found in several of the claims.

Castle Dome district.—The principal mines were practically idle during 1887. The amount of ore reported as shipped appears to have been about 12 tons, carrying \$840 silver and 60 per cent. lead. Handsome specimens of fluorspar and of molybdate of lead are often found. Considerable placer mining was done, the placers being worked with dry washers, the gold being unusually coarse and pure, most of which was shipped through Wells, Fargo & Co.'s express, at Yuma, and the balance by private conveyance.

Eureka district.—There are in and near the principal camp of the district called Eureka more than twenty distinct mines, all of which show ledges of varying widths of argentiferous lead ores. Owing to the "sprinkling" of the better quality of ore throughout the veins concentrating works will be needed to effect profitably a large silver output. The location can hardly be surpassed for economical mining and reduction, as the camp is situated directly along the east bank of the Rio Colorado, a navigable stream, and wood is cheap and plentiful. The best known mines are the Silver, Bastante, and Eureka, the surrounding formation being limestone and granite. Twenty tons of galena ore shipped by steamer to Yuma City, assayed \$150 silver per ton, a total valuation in that metal of \$3,000.

Small quantities of silver ores, the result of assessment work and desultory mining by prospectors, were shipped into California for reduction, of which no exact account is now available.

Harcurar, William's Fork, and Santa Maria districts may be mentioned particularly for the copper mines contained within their respective confines. Harcurar district formerly produced considerable silver, although but little was mined recently.

Seneca district.—The mines of this district are looking well and the mining population is gradually increasing. The Oregon, Powhatan, Agnes, Greece, and Macy and Mack mines are being energetically prospected. A. Frank, of Yuma, is erecting a 10-stamp mill for the reduction of gold ores. An important strike of copper ore is reported as having been made in the Oregon mine, samples of the ore assaying high in gold. The commencement of the renewed activity of this district dates from the last two months of the year, as previously mining had been extremely dull.

Ellsworth district.—There are some fifty locations in the district, most of them being gold or copper. Among the gold claims several show large bodies averaging \$15 per ton, worked in arrastras. The Caddo mine, near Gila City, is a ledge 20 feet wide, and carries from \$10 to \$50 in gold per ton. But little outside of assessment work has been done upon it so far.

Placer mining has been generally done in San Pablo Gulch, Laguna, Ehrenberg, Gila City, and near Castle Dome. There are large fields of gravel at Gila City and Laguna which are being worked in a primitive way, mostly by Mexicans, who make wages and sometimes a little more.

CHAPTER III.

CALIFORNIA.

By ISRAEL LAWTON,

Superintendent of United States Mint at San Francisco, Cal.

I have estimated the production of the precious metals in the State of California for the calendar year 1887 to have been \$15,220,618.09, of which \$13,588,614.18 was gold and \$1,632,003.91 silver. This is a considerable decline from the amount estimated to have been produced in the year 1886.

The winter of 1886-'87 was extremely severe, causing many large properties which had not been closed for years to suspend operations. In some places land-slides occurred, which carried away strongly constructed ditches, thus cutting off the water supply, while in others the water supply was too large to be controlled.

REPORTED BULLION PRODUCT OF MINES OF CALIFORNIA, BY COUNTIES, 1887.

County.	Gold.	Silver.	Total.
Amador	\$1,784,956.68	\$2,068.82	\$1,787,025.50
Butte	472,902.12	6.28	472,908.40
Calaveras	470,417.89	1,477.29	471,895.18
Colusa	2,389.85	71.63	2,461.48
El Dorado	551,871.38	365.01	552,236.39
Fresno	145,242.09	274.37	145,516.46
Humboldt	71,532.25	.....	71,532.25
Inyo	649.22	8,370.00	9,019.22
Kern	27,358.07	150.00	27,508.07
Lassen	24,108.93	303.70	24,412.63
Mariposa	47,165.14	96.34	47,261.48
Merced	767.27	5.45	772.72
Mono	302,498.29	48,945.90	351,444.19
Napa	22,500.00	.....	22,500.00
Nevada	1,519,574.25	2,476.56	1,522,050.81
Placer	705,509.69	555.62	706,065.31
Plumas	498,068.97	15.50	498,084.47
Sacramento	158,525.80	176.49	158,702.29
San Bernardino	7,850.00	733,267.88	741,117.88
San Diego	6,900.00	198,537.00	205,437.00

REPORTED BULLION PRODUCT OF MINES OF CALIFORNIA, BY COUNTIES,
1887—Continued.

County.	Gold.	Silver.	Total.
San Luis Obispo.....	1,740.00	.....	1,740.00
Shasta.....	377,681.81	40,204.06	417,885.87
Sierra.....	1,137,468.58	201.59	1,137,670.17
Siskiyou.....	516,859.09	176.86	517,035.95
Stanislaus.....	43,297.01	.....	43,297.01
Trinity.....	353,051.27	923.76	353,975.03
Tulare.....	10,640.66	167.46	10,808.12
Tuolumne.....	254,662.02	3,166.34	257,828.36
Yuba.....	87,425.85	.....	87,425.85
	9,693,614.18	1,042,003.91	10,645,618.03

UNREPORTED BULLION PRODUCT OF MINES OF CALIFORNIA, BY COUNTIES,
1887.

County.	Gold.	Silver.	Total.
Amador.....	\$195,000	.....	\$195,000
Butte.....	160,000	.....	160,000
Calaveras.....	170,000	.....	170,000
Colusa.....	5,000	.....	5,000
El Dorado.....	155,000	.....	155,000
Fresno.....	60,000	.....	60,000
Humboldt.....	40,000	.....	40,000
Inyo.....	10,000	\$95,000	105,000
Kern.....	45,000	.....	45,000
Lassen.....	15,000	.....	15,000
Los Angeles.....	25,000	25,000	50,000
Mariposa.....	140,000	.....	140,000
Merced.....	10,000	.....	10,000
Mono.....	80,000	70,000	150,000
Nevada.....	1,200,000	.....	1,200,000
Placer.....	150,000	.....	150,000
Plumas.....	200,000	.....	200,000
San Bernardino.....	20,000	400,000	420,000
San Diego.....	60,000	.....	60,000
Shasta.....	250,000	.....	250,000
Sierra.....	365,000	.....	365,000
Siskiyou.....	90,000	.....	90,000
Stanislaus.....	10,000	.....	10,000
Trinity.....	200,000	.....	200,000
Tulare.....	5,000	.....	5,000
Tuolumne.....	250,000	.....	250,000
Yuba.....	75,000	.....	75,000
Total.....	3,985,000	590,000	4,575,000

WELLS, FARGO & Co.'s SHIPMENTS OF GOLD AND SILVER FROM THE COUNTIES
OF CALIFORNIA FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1887.

County.	Gold.	Silver.	Total.
Amador	\$1, 780, 118	\$557	\$1, 780, 675
Butte	457, 619		457, 619
Calaveras	569, 890		569, 890
El Dorado	386, 939		386, 939
Fresno	160, 608	225	160, 833
Humboldt	985		985
Inyo	30, 880	400	31, 280
Kern	43, 612		43, 612
Lassen	4, 018		4, 018
Los Angeles	18, 258	19, 032	37, 290
Mariposa	136, 025		136, 025
Merced	7, 186		7, 186
Modoc	25, 011		25, 011
Mono	430, 532	11, 975	442, 507
Napa	10		10
Nevada	1, 992, 927	2, 733	1, 995, 660
Placer	622, 807		622, 807
Plumas	655, 318		655, 318
Sacramento	311, 059		311, 059
San Bernardino	23, 608	761, 855	785, 463
San Diego	123, 574	151, 099	274, 673
Shasta	492, 220	498	492, 718
Sierra	1, 007, 719		1, 007, 719
Siskiyou	251, 310		251, 310
Stanislaus	22, 372		22, 372
San Joaquin	1, 800		1, 800
Tehama	24, 415		24, 415
Trinity	14, 218	1, 025	15, 243
Tulare	396, 931		396, 931
Tuolumne	473, 518		473, 518
Yuba	279, 232	2, 500	281, 732
Miscellaneous	24, 333	20, 808	45, 141
Total	10, 769, 052	972, 707	11, 741, 759
Estimate by other conveyance	1, 076, 905		1, 076, 905
Ores and base bullion by freight		853, 259	853, 259
Total	11, 845, 957	1, 825, 966	13, 671, 923

BULLION PRODUCT OF MINES OF CALIFORNIA FOR THE TWELVE

[Combined reported and

County.	Gold.		
	Reported.	Unreported.	Total.
Amador.....	\$1,784,956.68	\$195,000	\$1,979,956.68
Butte.....	472,902.12	160,000	632,902.12
Calaveras.....	470,417.89	170,000	640,417.89
Colusa.....	2,389.85	5,000	7,389.85
El Dorado.....	551,871.38	155,000	706,871.38
Fresno.....	145,242.09	60,000	205,242.09
Humboldt.....	71,532.25	40,000	111,532.25
Inyo.....	649.22	10,000	10,649.22
Kern.....	27,358.07	45,000	72,358.07
Lassen.....	24,108.93	15,000	39,108.93
Los Angeles.....		25,000	25,000.00
Mariposa.....	47,165.14	140,000	187,165.14
Merced.....	767.27	10,000	10,767.27
Mono.....	302,498.29	80,000	382,498.29
Napa.....	22,500.00		22,500.00
Nevada.....	1,519,574.25	1,200,000	2,719,574.25
Placer.....	705,509.69	150,000	855,509.69
Plumas.....	498,068.97	200,000	698,068.97
Sacramento.....	158,525.80		158,525.80
San Bernardino.....	7,850.00	20,000	27,850.00
San Diego.....	6,900.00	60,000	66,900.00
San Luis Obispo.....	1,740.00		1,740.00
Shasta.....	377,681.81	250,000	627,681.81
Sierra.....	1,137,468.58	365,000	1,502,468.58
Siskiyou.....	516,859.09	90,000	606,859.09
Stanislaus.....	43,297.01	10,000	53,297.01
Trinity.....	353,051.27	200,000	553,051.27
Tulare.....	10,640.66	5,000	15,640.66
Tuolumne.....	254,662.02	250,000	504,662.02
Yuba.....	87,425.85	75,000	162,425.85
Total.....	9,603,614.18	3,985,000	13,588,614.18

MONTHS ENDING DECEMBER 31, 1887.

unreported product.]

Silver.			Total.		
Reported.	Unreported.	Total.	Gold.	Silver.	Total.
\$2,068.82		\$2,068.82	\$1,979,956.68	\$2,068.82	\$1,982,025.50
6.28		6.28	632,902.12	6.28	632,908.40
1,477.29		1,477.29	640,417.89	1,477.29	641,895.18
71.63		71.63	7,389.85	71.63	7,461.48
365.01		365.01	706,871.38	365.01	707,236.39
274.37		274.37	205,242.09	274.37	205,516.46
			111,532.25		111,532.25
8,370.00	\$95,000.00	103,370.00	10,649.22	103,370.00	114,019.22
150.00		150.00	72,358.07	150.00	72,508.07
303.70		303.70	39,108.93	303.70	39,412.63
	25,000.00	25,000.00	25,000.00	25,000.00	50,000.00
96.34		96.34	187,165.14	96.34	187,261.48
5.45		5.45	10,767.27	5.45	10,772.72
48,945.90	70,000.00	118,945.90	382,498.29	118,945.90	501,444.19
			22,500.00		22,500.00
2,476.56		2,476.56	2,719,574.25	2,476.56	2,722,050.81
555.62		555.62	855,509.69	555.62	856,065.31
15.50		15.50	698,068.97	15.50	698,084.47
176.49		176.49	158,525.80	176.49	158,702.29
733,267.88	400,000.00	1,133,267.88	27,850.00	1,133,267.88	1,161,117.88
198,537.00		198,537.00	66,900.00	198,537.00	265,437.00
			1,740.00		1,740.00
40,204.06		40,204.06	627,681.81	40,204.06	667,885.87
201.59		201.59	1,502,468.58	201.59	1,502,670.17
176.86		176.86	606,859.09	176.86	607,035.95
			53,297.01		53,297.01
923.76		923.76	553,051.27	923.76	553,975.03
167.46		167.46	15,640.66	167.46	15,808.12
3,166.34		3,166.34	504,662.02	3,166.34	507,828.36
			162,425.85		162,425.85
1,042,003.91	590,000.00	1,632,003.91	13,588,614.18	1,632,003.91	15,220,618.09

CHAPTER IV.

COLORADO.

By GEORGE C. MUNSON,

Assayer in charge, United States Mint, Denver, Colo.

In reviewing the mining operations in Colorado for the year 1887, several features may be worthy of a brief notice.

The average value of the ore produced was less than during the year 1886.

The tonnage of the mineral delivered to the ore markets was much greater.

Both of these prominent facts were due to increased facilities for transporting the ore, lessened cost of its reduction, and to the introduction of concentrating machinery, all of which advantages enabled producers to realize a profit from low-grade ores, and materially stimulated production.

It is a well-known fact that as the development of mineral-bearing veins advances with larger outputs of rich mineral, there is, naturally, a corresponding increase in the production of low-grade mineral from the same sources, which give encouragement and support to auxiliary industries by way of reducing its bulk to an enriched mineral product of commercial value.

The concentrating industry attracted much intelligent thought in this State, and received many actual tests for the determination of an appropriate system, based upon conditions of locality and character of the mineral. It is a well-demonstrated fact that a margin of profit was generally realized by this process from low-grade minerals.

Last year mine proprietors employed more skilled operators than formerly, and gave their attention to systematic development of the mines and to the use of approved machinery.

Stamp milling received more careful attention than heretofore, and was attended with good results. Concentrating machinery was employed in most of the stamp mills, and mineral values heretofore carried to waste with the outflow of the tailings, were recovered. This is noticeably true in Gilpin County, where each stamp mill is equipped

with, comparatively, automatic machinery, complicated neither in construction nor operation. These machines are a much modified form of the "percussion table." They are found to be very beneficial in the treatment of tailings flowing from the amalgamation tables. They have not reached that perfection of work which they seem capable of performing; probably because the operators overload them, and confine attention to the concentrates forming, to the neglect of values that escape with the sands. It is doubtful if as satisfactory results from the use of the same machine would be had in other localities, where entirely different circumstances and character of mineral prevail.

Jigs for the coarser granulated mineral, and endless rubber belt machines for fine stuffs, each with special advantages, were extensively used throughout the State for concentrating.

Scheming and speculative mining on a paper basis found no encouragement in Colorado during 1887. Prudent capitalists sought for and obtained developed mines with paying mineral in sight, and their ventures were generally richly rewarded.

Many mines more advanced in the process of development, or mines of formerly rich products, long idle from lack of facilities, were re-opened to active operations.

Throughout the older mining districts powerful hoisting and pumping plants were in operation, and may be accepted as evidence of the permanency of the mineral-bearing veins of Colorado, and in settlement of early doubts on this subject. Many mines were profitably worked at depths from 1,000 to 1,900 feet. The last half of the past year witnessed extraordinary activity in all branches of mining. A much larger yield in the precious and other metals during the present year is therefore indicated.

The year 1887 was exceptionally fruitful in interesting features of new finds and rich ones in old localities.

The bullion product of 1887 was mainly from vein mines. Few of the placers were in active operation and some of them not at all, although many were very productive in the year 1886. Extensive preparations are now being made for their development.

Ore-sampling and smelting companies enjoyed a prosperous year. Several of the smelting companies increased their smelting capacity by the addition of more furnaces. One company, operating with a large smelting plant, increased its ore tonnage by the enlargement of each of its furnaces to a demonstrated maximum efficiency.

Two systems of smelting were in use in Colorado. One of these reduced the ores to a copper matte, separating the fine silver by leaching, and precipitating it upon metal copper plates. The gold was recovered by a method developed in the experiment. The other system employed the water-jacket furnace and smelted the ore to base bullion, which was shipped to distant refineries in Nebraska, Illinois, Missouri, and Pennsylvania.

The chlorination and lixiviation treatment of ores remains to be introduced in Colorado. The quantity and variety of the ores mined and surfaced are steadily increasing.

The system of desulphurizing, chlorinating, and amalgamating was in operation in Pitkin County. Two stamp mills, the one of twenty and the other of ten stamps, were at work during a portion of the year. The stamps weighed 850 pounds each, and were run at a speed of eighty-five to ninety falls per minute, with a drop of eight inches, discharging dry through a thirty-mesh steel wire screen. The ore, an iron oxide, carried lead and zinc sulphides with iron pyrites, in a gangue of silica, and was desulphurized and chlorinated in a revolving cylinder furnace. Four per cent. of salt (costing three-quarters of one cent a pound) was used in chlorinating each ton of ore. Two thousand pounds of roasted ore and 400 pounds of quicksilver constituted each charge for amalgamating in iron pans. In the twenty-stamp mill four thousand tons of ore were thus worked during the season (nine months) of 1887, yielding 189,134 ounces of low-grade bullion of a net value of \$60,880. The average gold contents consisted of four-tenths of an ounce to the ounce of bullion. The cost of treatment was not over \$6 per ton. The ten stamps, during a forty-days run, recovered 3,000 ounces of gold and silver bullion. These mills were in comparatively new localities. Operations will be resumed during the coming season.

Copper was not a product of importance, except as an associate of the precious metals. The late advance in the price of copper has stimulated prospecting upon old locations. Thorough tests on a working basis have been in progress two or three years for the production of fine copper, and works are now in course of construction in connection with one of the Pueblo smelting establishments.

The manufacture of coke in quantity and quality to meet all the requirements of the many ore-smelting furnaces, in place of that heretofore obtained from Pennsylvania, was an important industry in the State.

Gilpin County has a record of a considerable increase in the values of the ores mined over the output for the year 1886. Lower grades of ore were worked at a greater profit than at any time in the history of the county, owing to the recovery of a large percentage of the mineral values from the tailings. This county has for many years been classed as a gold-producing county only, but during the past year silver was actively mined at several points.

ESTIMATED VALUE OF THE GOLD AND SILVER OUTPUT OF GILPIN COUNTY,
FROM 1859 TO 1887.

Year.	Value.	Year.	Value.	Year.	Value.
1859.....	\$250,000.00	1870.....	\$1,552,000.00	1881.....	\$2,110,000.00
1860.....	900,000.00	1871.....	1,400,000.00	1882.....	2,006,516.00
1861.....	750,000.00	1872.....	1,389,289.00	1883.....	1,850,000.00
1862.....	1,200,000.00	1873.....	1,340,502.00	1884.....	2,310,000.00
1863.....	1,600,000.00	1874.....	1,531,863.00	1885.....	2,639,500.00
1864.....	1,800,000.00	1875.....	1,533,909.00	1886.....	1,496,990.26
1865.....	1,500,000.00	1876.....	2,105,544.00	1887.....	1,732,547.50
1866.....	750,000.00	1877.....	2,208,037.00	Total	47,463,318.76
1867.....	1,000,000.00	1878.....	2,280,871.00		
1868.....	1,300,000.00	1879.....	2,625,750.00		
1869.....	1,680,000.00	1880.....	2,620,000.00		

The Fancomb Hill district of Summit County is remarkable for the seams of free or native gold which are found traversing the slate formation. From the regular character of the forms occurring upon their surfaces, the ore receives the name, locally, of crystallized gold.

The estimated value of the gold, silver, and lead produced in this county since the year 1860 is shown in the following table :

PRODUCTION OF SUMMIT COUNTY.

Years.	Gold.	Silver and lead.	Total.
1860 to 1870	\$5,500,000.00	.....	\$5,500,000.00
1870.....	100,000.00	.....	100,000.00
1871.....	70,000.00	.....	70,000.00
1872.....	60,000.00	.....	60,000.00
1873.....	101,000.00	*\$200,000.00	301,000.00
1874.....	76,408.00	50,000.00	126,408.00
1875.....	72,413.00	50,000.00	122,413.00
1876.....	150,000.00	200,000.00	350,000.00
1877.....	150,000.00	40,000.00	190,000.00
1878.....	165,774.00	155,000.00	320,774.00
1879.....	75,000.00	150,000.00	225,000.00
1880.....	63,000.00	330,000.00	393,000.00
1881.....	35,000.00	2,120,000.00	2,155,000.00
1882.....	60,000.00	1,000,000.00	1,060,000.00
1883.....	15,000.00	350,000.00	365,000.00
1884.....	20,000.00	300,000.00	320,000.00
1885.....	218,525.14	303,000.00	521,525.14
1886.....	164,221.64	676,786.32	841,007.96
1887.....	291,111.56	391,791.84	682,903.40
Total	7,387,453.34	6,316,578.16	13,704,031.50

*Total to 1873.

The subject of ore dressing, as applied to the handling of low-grade sulphide ores, received a great deal of attention during the past year at Leadville, in Lake County. The total capacity of the various con-

centrating mills, independent of the ores treated by hand jigs, was 570 tons per day. Four large mills were in operation, the largest of which handled 200 tons per day and the smallest 100 tons per day. The average value of the ores treated in these mills did not exceed \$5 in gold, silver, and lead, with an average of 15 per cent. of zinc sulphide. The general character of these mills is the same. The ore is first crushed in rock breakers, then passed through rolls, sized in revolving screens, and treated on the ordinary four-compartment Hartz jigs. The slimes are handled upon various kinds of tables of the endless belt pattern. The work accomplished at these mills is claimed to be highly satisfactory, leaving, in the concentrates, not more than 3 or 4 per cent. of zinc sulphide.

Placer mining has, probably, been more successfully carried on in Park County during the past year than in any other part of the State.

One interesting feature of the placer mining of Park County is the fact that a very large part of the gold recovered did not pass through any of the United States mints or assay offices, but was shipped directly to Europe, in the original form of nuggets, for manufacture into native gold jewelry. In this manner the mines alone shipped between 7,000 and 8,000 ounces.

The principal mining centre of Eagle County is located between Red Cliff and Gilman. These towns are located about 3 miles apart, by road, the town of Gilman being some 1,000 or 1,500 feet higher than Red Cliff. At Gilman the surface-ore deposits consist of iron oxide with lead-carbonate, and some galena, in a contact formation of lime and porphyry. At a distance of 600 feet below the surface the oxidized character of the ore changes, being replaced by heavy sulphides of iron, zinc, and lead. Following down the face of the mountain, some 500 feet from the oxidized outcrop referred to above, a well-defined formation of quartzite, some 5 feet thick, is observed. In this formation a distinct and apparently new character of ore deposit has been found. It occurs in channels or pipes as they are locally called, and consists of a very wet and decomposed talc. Some of the ore found in these channels is remarkably rich in both gold and silver.

Below the quartzite formation, it is claimed, several excellent fissure veins have been lately opened up.

A remarkable instance of the appearance of large quantities of native silver was in one of the re-opened mines of Gunnison County. The silver was found in masses, frequently resembling large bunches of moss. During the past year hardly any of the ore was shipped which did not show more or less native silver. In another mine of this county, pyrargyrite or ruby silver occurred in beautiful crystals, some of which were very large.

ESTIMATED PRODUCT IN GOLD AND SILVER OF GUNNISON COUNTY FROM 1879 TO 1887.

Year.	Value.	Year.	Value.
1879.....	\$25,000.00	1885.....	\$600,000.00
1880.....	300,000.00	1886.....	264,168.00
1881.....	410,000.00	1887.....	294,133.86
1882.....	600,000.00	Total.....	3,803,301.86
1883.....	750,000.00		
1884.....	560,000.00		

Comparatively new mineralogical conditions were found near the town of Aspen, the chief mining centre of Pitkin County. Mining claims were located there under the law vesting certain rights in "true fissure" veins. This resulted in complex and vexatious conflicts, which greatly retarded the development of this remarkably valuable district. Nearly all of these conflicts have been amicably adjusted. This fact, combined with the completion during the latter part of last year of two competing railway lines to Aspen, has produced very marked results beneficial to the mining industry of the county.

YIELD OF GOLD AND SILVER FROM CLEAR CREEK COUNTY FROM 1859 TO 1887.

[After the year 1867 mostly silver with some gold.]

Year.	Value.	Year.	Value.
1859 to 1865.....	\$2,000,000.00	1878.....	\$2,261,105.85
1866 and 1867, silver.....	40,500.00	1879.....	1,967,000.00
1868.....	141,820.35	1880.....	2,358,000.00
1869.....	400,354.00	1881.....	2,200,000.00
1870.....	481,354.08	1882.....	1,900,000.00
1871.....	869,046.34	1883.....	1,830,000.00
1872.....	1,503,391.43	1884.....	2,178,053.99
1873.....	1,259,761.06	1885.....	2,000,000.00
1874.....	2,203,947.97	1886.....	2,643,823.53
1875.....	1,928,161.74	1887.....	2,117,244.12
1876.....	1,982,548.31	Grand total.....	35,502,690.68
1877.....	2,206,577.91		

PRODUCT OF CUSTER COUNTY.

Year.	Gold and silver.	Year.	Gold and silver.
1874 and prior.....	\$40,000.00	1882.....	\$500,000.00
1875.....	294,827.58	1883.....	820,000.00
1876.....	351,121.06	1884.....	590,000.00
1877.....	354,081.34	1885*.....	.....
1878.....	452,500.50	1886.....	320,591.84
1879.....	367,000.00	1887.....	159,855.85
1880.....	880,000.00	Total.....	5,929,978.17
1881.....	800,000.00		

* No reliable estimate.

In tabulating the reports from the various mines, the names of properties which produced nothing, or practically nothing, during the calendar year 1887 have been given as well as of those that were productive. In accounting for the large number of unproductive properties it should be borne in mind that the greater number were not beyond the embryo class of "prospects;" others were only worked to the requirements for holding legal possession. They would not be mentioned in this report but for the fact that their names and reports were furnished to this office.

Earnest and energetic efforts were made to obtain reports of the operations of each mine, upon the aggregate of which to base an estimate of the total yield of the State. To this end were secured the services of Mr. Sherman G. Sackett E. M. and of Mr. A. F. Wuensch, who personally visited Chaffee, Pitkin, Lake, Eagle, Summit, Park, Boulder, Clear Creek, and Gilpin counties, and collected the data not reported directly to this office. In addition I found it necessary to visit Rio Grande, San Juan, Ouray, and Gunnison counties.

During my visit to the county of San Juan, I discovered that over forty mines that had been worked during the previous summer, and which will probably be worked the coming season, were closed and the operators scattered. Strenuous efforts were made to locate and reach all of the absentees in this and in the other counties. In some instances an estimate of the yield of the unreported properties is based upon information obtained from buyers, and others in a position to form an intelligent opinion. The early months of the year 1887 were, more generally than heretofore, devoted to systematic development and preparation of the mines. Mineral was broken and surfaced, but large quantities were not moved to the railway stations until spring. I am glad to say that, generally, all parties when approached have shown much interest in the collection of mining statistics, giving cheerfully the information sought, not only in regard to their own properties, but also in regard to the mineral production of other properties where data were refused by reticent mine owners and superintendents. The refusals noted have added labor and inconvenience to the force at this mint, by necessitating the verifying of all estimates. The failure to obtain correct reports in isolated localities can be avoided hereafter through the services of a special officer, whose duty it shall be to canvass each mining district.

It is a pleasure to acknowledge my obligations to the principals of the many smelting companies and ore-sampling works, and to the miners and superintendents of mines who have cheerfully imparted information. Also to the clerical force of this mint, which has faithfully and voluntarily given extra hours to the labor of compiling the statistics of this report. Mr. Sherman G. Sackett, employed in the field, has performed much hard labor not without exposure to snow-storms and drifts in the precipitous and perilous mountain districts visited. His

work has proved very thorough and intelligent. Mr. A. F. Wuensch, of Lake County, rendered very valuable and thorough service. Mr. H. W. Tallant, chief clerk of this mint, has rendered untiring energies in verifying and checking all reports, and in compiling and tabulating statistics.

The aggregate of all the reports received from those in charge of the several mines was \$4,841,387.66 gold, \$15,660,236.65 silver, or a total of \$20,501,624.31.

Gold has been reckoned at \$20 per ounce fine; silver has been estimated at the coinage rate of \$1.2929 per ounce fine, while lead was calculated at 4.5 and copper at 11.25 cents per pound.

MINES OF COLORADO.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Boulder County.</i>						
Acme*						
Alconda						
Atchison Milling and Mining Company*						
Amalgam Thief	\$540	\$232	\$772			\$772
Americo*						
Alamakee	37,800		37,800			37,800
American Eagle*						
Alpine	240	10	250			250
Bulmer*						
Big Blossom	4,920	95	5,015			5,015
Bismarck*						
Belecher*						
Boston	5,220	219	5,439			5,439
B. and M.	316	16	332			332
Bella*						
Boulder Company*						
Belle of Memphis	140	12	152			152
Black Cloud Milling and Mining Company*						
Bond-holder*						:
Belle of Titusville*						
Big John	50		50			50
Bunker Hill	80	1,292	1,372			1,372
Buckhorn*						
Blue Bird*						
Caribou	60	29,090	29,150			29,150
Cleveland*						
Chingkus Kahn	3,600	77	3,677			3,677

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Boulder County—Continued.</i>						
Charcoal.....	\$280	\$6	\$286			\$286
Cora Belle*.....						
Cash.....	7,750	3,402	11,152			11,152
Clarenco*.....						
Cold Spring†.....						
Columbia.....	23,438	2,019	25,455			25,455
Columbia No. 7.....	1,940	193	2,133			2,133
Colorado.....	1,640	31	1,671			1,671
Chicago and Colorado Mining Company*.....						
Centennial*.....						
Clipper*.....						
Carbonate.....	596		596			596
Dimo*.....						
Dingo*.....						
Dog Cansoo.....	1,580	103	1,683			1,683
Evans*.....						
Emancipation.....	13,500	1,500	15,000			15,000
El Dorado*.....						
Eureka*.....						
Ellen*.....	2,726	352	3,078			3,078
Elmora*.....						
Eclipse*.....						
Emerson*.....						
Freiburg*.....						
Franklin.....	266	241	507			507
Five Brothers*.....						
First National Bank.....	100	1,728	1,828			1,828
Forlorn Hope*.....						
Forest*.....						
Graphic*.....						
Graphic Extra*.....						
Grand View*.....						
Grand Central.....	2,450	245	2,695			2,695
Gray Eagle.....	16,600	10,795	27,395			27,395
Grant Company*.....						
Golden Age*.....						
Grand View.....	1,880	1,726	3,606			3,606
Good Hope Mining Company*.....						
Gold Ring*.....						
Gold Metal*.....						
Grand Union*.....						
Gardner.....	80	1	81			81
Goldon Eaglo.....	832		832			832
Golden Belle*.....						
Hereafter*.....						
Hereules Mining Company*.....						

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Boulder County—Continued.</i>						
Idaho		\$16, 155	\$16, 155			\$16, 155
Ingram	\$1, 520	142	1, 662			1, 662
Inter-Ocean*						
Indopondence*						
King William*						
Kokomo*						
Jules*						
J. S. Sanders*						
Little Pittsburgh	492	5	497			497
Logan	2, 880	155	3, 035			3, 035
Livingston	38	193	231			231
Little Johnnie	1, 148	57	1, 206			1, 206
Little Mary*						
Lost Lode*						
Longfellow*						
Long Gulch*						
Little Fred	3, 000	1, 163	4, 163			4, 163
Little Pet*						
Limbo	582		582			582
Little Corporal*						
Lillie*						
Modoc*						
Morning Star*						
Milwaukee						
Miners Luek*						
Morning Glory						
Mack	860		860			860
Montezuma	274	34	308			308
Montreal*						
Mountain Lion	19, 628	906	20, 534			20, 534
New Discovery*						
New Enterprise*						
Night Shade*						
Nil Desperandum	190	12	202			202
New York*						
Nelson	3, 480	664	4, 144			4, 144
Native Silver		5, 978	5, 978			5, 978
Nugget Group	1, 100	990	2, 090			2, 090
Osecola	17, 000	1, 034	18, 034			18, 034
Orion		646	646			646
Ophir*						
Ocidental*						
Ogallala	60	892	952			952
Poor Man	800	64	864			864
Pride*						
Phil. Sheridan*						
Prussian*						

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Boulder County—Continued.</i>						
Puzzler*						
Pine Shade*						
Phillips Placer	\$2, 274		\$2, 274			\$2, 274
Romance*						
Rip Van Dam*						
Richmond Group	5, 500	\$1, 973	7, 473			7, 473
Railroad Boy*						
Rebecca*						
Red Cloud*						
Revenue		1, 806	1, 806	\$32		1, 838
R. Potter*						
Senator Hill	560		560			560
Sax and Fox*						
Sugar Loaf*						
Smoky Hill	130	28	158			158
Sitting Bull	60	42	102			102
St. George*						
Sterling*						
St. Joe*						
Slide	4, 200		4, 200			4, 200
Sovereign People*						
Standard	2, 000	258	2, 258			2, 258
Smuggler	8, 455	445	8, 900			8, 900
Seven Thirty*						
Sanders Hope*						
St. Clare*						
Sherman*						
Scottish Mining Company	20, 000	1, 034	21, 034			21, 034
Three Brothers*						
Telephone*						
Twin Blossom	114	12	127			127
Tambourine	500	129	629			629
Utica	26, 800		26, 800			26, 800
Victoria*						
Ward Lanson*						
Webster*						
Wild Tiger	1, 220	36	1, 256			1, 256
Williams Tunnel*						
Western Slope	11, 240	363	11, 603			11, 603
White Crow †						
Washington	300	6	306			306
Washington Irving*						
Wisconsin*						
West Point*						
Yellow Pine Group	22, 800		22, 800			22, 800
Young American*						

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Boulder County—Continued.</i>						
Miscellaneous mines.....	\$2,000	\$4,848	\$6,848			\$6,848
Confidential reports.....	17,049	1,130	18,179			18,179
Total production during 1887.....	306,879	94,611	401,491	\$32		401,523
<i>Clear Creek County.</i>						
Albro.....	48,640	10,770	59,410		\$891	60,301
Alliunde*.....						
Astor-Alliance.....		14,483	14,483	203		14,692
Aetna*.....						
Anglo Saxon Extra*.....						
Arizona*.....						
Apex.....	729	2,172	2,892			2,892
Argo.....	4,040	27,357	31,397			31,397
Argo (Seaton Mountain)*.....						
Antelope*.....						
Brazil*.....						
Black Hawk*.....						
Bullion.....	129	5,547	5,676	477		6,154
Backbone.....	1,500	8,500	10,000			10,000
Baldwin Milling and Mining Company.....		12,785	12,785			12,785
Beecher*.....						
Black Prince.....		387	387			387
Bismarck*.....						
Baltimore Tunnel*.....						
Blue Ridge.....	130	4,388	4,518			4,518
Benton*.....						
Broville*.....						
Burrell*.....						
Black Bear*.....						
Bald Eagle.....	28	310	338			338
Bush*.....						
Burleigh Tunnel.....	134	7,703	7,837	9,100		16,937
Brunswick.....		5,818	5,818			5,818
Comet*.....						
Colorado United Mining Company.....	358	125,867	126,225	4,835		131,111
Cold Stream.....		35,200	35,200	320		35,520
Colorado Central.....		276,658	276,658	7,148		283,806
Cliff (estimated).....		1,939	1,939			1,939
Crown Prince*.....						
Cashier*.....						
Charter Oak*.....						
Continental.....	13,620	8,806	22,426		884	23,310
Crystal.....	8,000	31,029	39,029			39,029
Cincinnati*.....						
Crockett*.....						

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Clear Creek County—Cent'd.</i>						
Denver City*						
Dunderburg		\$2,000	\$2,000			\$2,000
Diamond Tunnel Company		141,984	141,984			141,984
Dubuque*						
Davenport*						
Dera*						
Deves Nest	\$2,260	678	2,938			2,938
Danube	9	171	180			180
Emma C.*						
Emma †						
East Dives*						
Equator		23,272	23,272	\$427		23,699
Everett*						
Eclipse	960	15,515	16,475	534		17,009
European*						
Edgar*						
Edna*						
Fletcher Mining Company		1,797	1,797			1,797
Esmeralda		562	562			562
Empire City	3,228	161	3,489			3,489
Freeman	540	4,995	5,535			5,535
Fourth July	316	1,190	1,506			1,506
Franklin	2,094	21,263	23,357	3,792		27,149
Fraction		1,259	1,259			1,259
Freighters' Friend*						
Frontenac	17,880	10,661	28,541			28,541
Financier*						
Freeland	86,694	19,161	105,855			105,855
Foxhall Tunnel Company	960	3,930	4,890			4,890
Fred Rogers		15,514	15,514			15,514
Fall River*						
Gem (estimated)	1,000	2,585	3,585		\$450	4,035
Grantham	696	7,757	8,453	249		8,702
Gold Dust*						
Grand View*						
Golden Leaf*						
Gladstone*						
Gilman*						
Griffith*						
Gilpin*						
G. A. Dunkin*						
Globe*						
Gold Bug	2,400		2,400			2,400
Gold and Silver Coin	2,018	2,320	4,338		466	4,804
Humboldt*						
Hood	760	1,047	1,807			1,807
Head Light	3,228	80	3,408			3,408

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Clear Creek County—Cont'd.</i>						
Hidden Treasure						
Hunkill						
Invincible*						
Inter-Ocean*						
Independence	\$306	\$8,242	\$8,548	\$136		\$8,684
Jos. A. Horno*						
Junction and Gallic Group†						
Johnson	1,154	6,833	7,987			7,987
Joe Reynolds		175,176	175,176			175,176
J. W. Gonley*						
Kangaroo	3,000	6,464	9,464			9,464
Kangaroo No. 2	108	2,520	2,628	864		3,492
Kolly*						
Kitty Clyde	1,600	2,400	4,000			4,000
Kirtley		11,325	11,325			11,325
Kohinoor & Donalson Mining Company	2,096	1,607	3,703			3,703
Lamartine*						
Lexington*						
Love & Mercy	450	6,303	6,753			6,753
Little Emma*						
Little Mattie	14,400	43,442	57,842			57,842
Little Casino	652	514	1,166			1,166
Lake	3,156	5,466	8,622	3,166	\$250	12,038
Lonky Hesperus		6,464	6,464			6,464
Lebanon Tunnel		32,323	32,323			32,323
Louisa*						
Little Jack*						
Lawson*						
Loncy Group*						
May Flower	4,609	9,245	13,854	1,746		15,600
Molly Bacon*						
Morgan*						
Miller*						
Metropolitan	1,820	3,914	5,734			5,734
Moline*						
Mendota	836	25,303	26,139	21,379		47,518
Mamie*						
Murray	180	3,103	3,283		405	3,688
Mansfield Milling and Mining Company	1,836	517	2,353		36	2,389
Mono*						
Mint*						
Mammoth*						
Magnet*						
McClellan	245	14,774	15,020	278		15,298
Nabot*						

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Clear Creek County—Cont'd.</i>						
Norman*						
Night Hawk*						
Native American*						
Oneida Mining Company	\$7,016	\$2,407	\$9,423	\$753	\$404	\$10,580
Ohio*						
O. K.*						
Oregon Hall Placer*						
Patten		256	256			256
Park						
Pay Rock*						
Pelican-Dives		37,994	37,994	1,035		39,029
Polar Ex.*						
Puritan Gold and Silver Mining Company (estimated)	1,200	387	1,587		202	1,789
Plutus	57,188	56,251	113,439			113,439
Pioneer	7,999		7,999			7,999
Pulaski	2,000	646	2,646			2,646
Paymaster		2,099	2,099	3,151		5,250
Pauline Placer†						
Republican Mount†						
Royal Oak*						
Refugee	2,500	646	3,146			3,146
Red Elephant*						
Seven Twenty (estimated)	774	5,560	6,334	691		7,025
Silver City	4,000		4,000			4,000
Silver Age Milling and Mining Company	1,444	9,464	10,908			10,908
South American	60	407	467	21		488
Sunny South	274	1,128	1,402	439		1,841
Standard*						
Santa Fé	130	2,013	2,143			2,143
Sweet Home*						
Solid Muldoon	706	2,144	2,850			2,850
Specie Payment*						
Seaton (385)	750	1,777	2,527			2,527
Sporting Times	758	1,163	1,921	1,102		3,023
Seven-Thirty		136,684	136,684	6,447		143,131
Stevens	1,354	17,476	18,830	17,922		36,752
Shafter Mining Company	8,500	2,197	10,697			10,697
Senator*						
Shively*						
Sulphide and Phosphate*						
Silver Queen	155	4,988	5,143	333		5,476
Ship Ahoy	700	5,818	6,518			6,518
Silver Cloud*						
Saint Peter*						
Seaton	270	1,939	2,209	213		2,422

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Clear Creek County—Cont'd.</i>						
Silver Glance *						
Silver Ring		\$3, 878	\$3, 878			\$3, 878
Tinte *						
Tropic	\$2, 560	14, 105	16, 665	\$1, 708		18, 374
Tunnel Lode, No. 2	12, 630	24, 623	37, 253			37, 253
Tiger *						
Turbet *						
Talbert *						
Twin Sisters Mining Company	1, 220	58, 998	60, 218	3, 471		63, 689
Thismoingo *						
Terrible *						
Tabor		20, 066	20, 066	2, 848		22, 914
U. P. R *						
Victor	300	4, 040	4, 340	156		4, 496
Virginia	1, 546	1, 232	2, 778			2, 778
Virginia City	202	9, 651	9, 853	510		10, 363
Videan *						
Vulcan		4, 137	4, 137	10		4, 147
Wallace		43	43			43
Wheeling *						
West *						
Washington	180	5, 226	5, 406	578		5, 984
Young American *						
Total of confidential reports	27, 778	53, 973	81, 751	3, 358		85, 109
Miscellaneous	750	16, 290	17, 040	267	\$337	17, 644
Total production during 1887	383, 939	1, 733, 305	2, 117, 244	99, 728	4, 325	2, 221, 297
<i>Chaffee County.</i>						
Alaska	180	447	627	348		975
Baraconta *						
Bristol *						
Brunswick Mining Company *						
Contact *						
Croesus and Robert Wilson		736	736			736
Caledonia	16	137	153	19		172
D. A. Mason *						
Desdemona		226	226			226
Eclipse		66, 594	66, 594	278, 521		345, 115
Eureka *						
Emma Stradley	16	636	652			652
Fortune	900	1, 280	2, 180			2, 180
Fredonia	2, 160	768	2, 928	23		2, 951
Free Gold	1, 560		1, 560			1, 560
Gladstone		647	647	111		758
Gulch	1, 960	11, 015	12, 975			12, 975

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Chaffee County—Continued.</i>						
Goldfield *						
Hancock *						
Monarch *						
Mary Murphy	\$383,067	\$248,080	\$631,147	\$107,523		\$738,670
Mollie Mack †						
Om. Pertune *						
Pinion		2,146	2,146	179		2,325
Paymaster		306	306	993		1,299
Pat Murphy and Iron Chest.	19,000	49,131	68,131			68,131
Rainbow *						
Rouley Mining Company *						
Ready Cash †						
Silent Friend	760	4,882	5,642	16,801		22,443
Shamrock	3,584	3,307	6,891	5,104		11,995
Sedalia Cu. Syndicate		139	139		\$3,828	3,967
Swiss Boy	440	15,075	15,515			15,515
Silver Shrine	40	924	964	42		1,006
Snow Flake	110	4,764	4,874			4,874
Tressa C *						
The United Claim Mining Company	480	7,461	7,941	1,993		9,934
Tom Paine *						
Uranus		1,635	1,635			1,635
Wild Horse	18,170	5	18,175			18,175
Miscellaneous mines	1,000	1,939	2,939			2,939
Twin Lakes Hydraulic Gold Mining Company †						
Madonna †						
Total	433,444	422,289	855,733	411,657	3,828	1,271,218
Total of confidential reports	61,647	149,689	211,336	395,371		606,707
Total production in 1887.	495,091	571,977	1,067,069	807,029	3,828	1,877,926
<i>Custer County.</i>						
Aspen		659	659			659
Ben Eaton	200	1,000	1,200			1,200
Ben Franklin *						
Boulder, Buffalo, Hunter Mining Company		1,396	1,396			1,396
Bull Domingo *						
East Leviathan *						
Globo *						
Hudson Mining Company *						
Humboldt *						
Immortal	200	2,585	2,785	223		3,008
Julianna Mining Company *						
Leavenworth *						

* No production during 1887.

† Production reported confidentially.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Custer County—Continued.</i>						
Leviathan *						
Little Nellie *						
Lady Franklin *						
Mavorick *						
Minnio *						
Mountain View.....	\$165	\$270	\$435		\$133	\$568
Midnight.....	49	34	83	\$9		92
Polonia *						
Pioneer.....		3,396	3,396			3,396
Powhatan *						
Plymouth *						
Pocahontas.....		85,333	85,333			85,333
Ruby Cliff *						
Red Creek Spring Mining Company *						
Rocky Smolting Company.....		2,952	2,952	183	884	4,019
Robert E. Leo.....		2,500	2,500			2,500
Security Mining Company.....		13,500	13,500			13,500
Song-Bird Mining Company*						
Sailor Boy.....		36,202	36,202			36,202
Twenty-Six.....		879	879			879
Terrible (estimated).....		6,464	6,464	289,250		295,714
Vanderbilt *						
Victoria.....		900	900			900
Virginia.....		1,167	1,167			1,167
Total.....	614	159,241	159,855	289,665	1,017	450,537
<i>Dolores County.</i>						
Bancroft *						
Blackhawk *						
Black Diamond *						
C. H. C. *						
Chestnut (included in Swansea $\frac{2}{3}$ c.).....						
Ethlena †.....						
Grand Lake Mining Company*						
Grand View *						
Johnny Bull *						
Little Susie *						
Maggie *.....						
Magpie *.....						
Nebraska *						
Princeton †.....						
Parole *.....						
Polar *.....						
Puzzle Ext.....		3,320	3,320			3,320
Swansea Gold and Silver Mining Company.....	11,188	111,980	123,168	979	3,825	127,972

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Dolores County—Continued.</i>						
Silver Pick *						
Sunlight *						
Santa Clara Mining Company*						
Silvernado Cu. Mining Company*						
Uncle Remus *						
Total confidential reports...	\$604	\$44,335	\$44,939			\$44,939
Total production during 1887.....	11,792	159,635	171,427	\$979	\$3,825	176,231
<i>Eagle County.</i>						
Accidental No. 2.....		8,500	8,500			8,500
Alligator.....	1,840	549	2,389			2,389
Alps*						
Alleghany*						
Bleak House Group.....	10,400	121,018	131,418	6,230		137,648
Ben Butler.....	20,000	19,300	39,300			39,300
Black Iron†						
Black Tiger.....	203	434	642			642
Belden (estimated).....	2,800	9,050	11,850	1,246		13,096
Cross Creek Mining and Milling Company †						
Clinton.....	2,000	5,818	7,818	8,900		16,718
Crown Point and Senator....	128	479	607			607
Champion.....	4,878	6,098	10,976			10,976
Combined Discovery.....		3,555	3,555	881		4,436
Cora.....		4,381	4,381			4,381
Eighty-Four.....		1,991	1,991			1,991
Eureka.....	3,750	11,250	15,000			15,000
Eagle Bird and Silver Wave*						
Emma L†						
First Chance.....	18,620	11,407	30,027			30,027
Ground Hog.....	40,000	15,515	55,515			55,515
Golden Comet*						
Gold Park Mining Company*						
Henrietta.....		1,729	1,729			1,729
Horn Silver.....		497	497			497
Highland Mary*						
Island Mask, Group (estimated).....	2,000	5,818	7,818	8,900		16,718
J. Best*						
Little Chief*						
Larimer.....		239	239			239
Last Chance*						
Mount Christo*						
Potoin*						
Percy Chester*						

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Eagle County—Continued.</i>						
Polar	\$26, 200	\$44, 088	\$70, 288			\$70, 288
Pine Martin Group.....	52, 080	25, 250	77, 330			77, 330
Pargourd and Golden Wonder	30, 900	23, 442	54, 342			54, 342
Rocky Point.....	21, 855		21, 855			21, 855
Raymond*.....						
Star of the West.....	10, 000	3, 000	13, 000			13, 000
Scorpion.....		2, 068	2, 068			2, 068
Spirit.....	3, 556	3, 622	7, 178	\$6, 304		13, 482
Sylph.....		1, 347	1, 347			1, 347
T. V. Powderly*.....						
Tip Top*.....						
T. C. Garbutt		4, 949	4, 949	8, 366		13, 315
Warrior's Mark	14, 370	1, 973	16, 343			16, 343
Confidential reports	200	5, 585	5, 785	19, 233		25, 018
Total production during 1887.....	265, 785	342, 964	608, 749	60, 059		668, 809
<i>Fremont County.</i>						
Cotopaxi Group.....	225	640	865	320	\$506	1, 691
Gem*.....						
Green Mountain Mine*.....						
Martha Washington*.....						
Total	225	640	865	320	506	1, 691
<i>Gilpin County.</i>						
Arizona Gold and Silver Mining Company*						
Alps.....	26, 100	2, 257	28, 357		839	29, 196
Aduddel.....	13, 270	34, 314	47, 584			47, 584
Burreughs.....	50, 438	3, 422	53, 860		1, 702	55, 562
Adelaino*.....						
Banta.....	4, 500	53, 000	57, 500			57, 500
Bullion Mines*.....						
Black Hawk Placer.....	3, 026	40	3, 066			3, 066
Barker*.....						
Boss*.....						
Bates*.....						
Buffalo and Central Mining Company*						
Belmont Mining Company	18, 096	6, 649	24, 745			24, 745
Carr*.....						
Colorado*.....						
Columbia Property*.....						
Cylops.....		8, 985	8, 985			8, 985
Cooper*.....						
Colton	1, 500	500	2, 000			2, 000
Consolidated Black Tail Company (with Gregory B. T.).....						

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Gilpin County—Continued.</i>						
Dasey Mining Company †						
Deadwood Placer Mining Company *						
Denver Gold Company (limited)	\$12,500	\$1,265	\$13,765			\$13,765
Egyptian	13,658	2,155	15,813			15,813
Enterprise*						
Fontenae Mining Company	11,666	25,894	37,560			37,560
Fisk †						
Free American	5,822		5,822			5,822
Farming*						
Flock	7,020	625	7,645		\$226	7,871
Fourth of July *						
Freiburg Gold and Silver Mining Company *						
Gibson *						
Gettysburg	4,460	543	5,003			5,003
Gregory Bobtail	109,480	9,095	118,575			118,575
Gunnell	374,226	2,512	376,738			376,738
Gardner*						
Garden	13,332	8,618	21,950			21,950
Grover Cleveland*						
German Consolidated Mining Company	70,580	6,061	76,641			76,641
Hill's Gold and Silver Mining Company *						
Hawkeye M. and T. Company *						
Hubert	147,660	32,155	179,815			179,815
Homer*						
Hillhouse	10,140		10,140			10,140
Hyndman-Burroughs	20,980	620	21,600			21,600
Ivanhoe	15,120	232	15,352			15,352
Iowa*						
Jefferson	945		945			945
King*						
Kent County Gold Mining Company	630	365	995			995
Leavenworth	4,100	471	4,571			4,571
Lost Nevada*						
Little Annie	7,640		7,640			7,640
Manhattan*						
Mascot		3,183	3,183			3,183
Mammoth*						
McAllister	500		500			500
Mary Miller	8,000	41,373	49,373	\$1,780		51,153
Mountain Lion†						
Newfoundland*						
New California	82,200	6,804	89,004			89,004

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Gilpin County—Continued.</i>						
Parigo*						
Pyrenees*						
Post-hole*						
Prize Consolidated Milling and Mining Company*						
Pearly Hill Group*						
Quartz Hill Mining Company*						
Republic	\$114,160	\$15,908	\$130,068			\$130,068
Rollins Mining Company*						
Rhoderick Dhu (estimated)	25,463	426	25,890			25,890
Running†						
Saratoga Mining Company	43,940	3,858	47,798			47,798
Silver-Dollar*						
Symonds*						
San Juan*						
St. Louis*						
Surprise*						
Searle*						
Success*						
Topeka	12,670	10,817	23,487		\$145	23,933
Toronto		38,340	38,340			38,340
Ute*						
Winnebago Mining Company	11,800	103	11,903			11,903
Whiting	91,800	24,875	116,675		5,966	122,638
Widow Woman	3,304	9,369	12,673	\$10,558		23,231
Vanderbilt	1,000		1,000			1,000
Total of confidential reports.	31,381	4,589	35,970		992	36,962
Total production during 1887	1,373,109	359,438	1,732,547	12,338	10,167	1,755,052
<i>Gunnison County.</i>						
Augusta	450	19,393	19,843			19,843
Anna Dedreka		775	775			775
Anne Hudson*						
Bullion King		27,955	27,955			27,955
Black Queen*						
Belle of Titusville*						
Big Bonanza*						
Big Comet*						
Blaine*						
Crested Butte*						
Chicago*						
Chatauqua Group*						
Cumberland*						
Chronicle*						
Denver City*						
Daisy†						
Domingo	40	724	764			764

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Gunnison County—Cont'd.</i>						
Doctor *						
Excelsior		\$3,361	\$3,361			\$3,361
Eureka Nest Egg		19,493	19,493	\$13,840		33,333
El Dorado *						
Emma *						
El Capitan *						
Forest Queen †						
Gold Cup *						
Grey Copper *						
Golden City *						
Gold Belt *						
Gunnison Milling and Mining Company *						
Homestake *						
Iron Placer *						
Jimmy Mack		1,900	1,900			1,900
Jacob Stender *						
Lilly		929	929			929
Lewiston	\$2,000	500	2,500			2,500
Legal Tender *						
Little Crown		594	594			594
Little Giant Placer *						
Lost Contact *						
Little May Milling and Mining Company *						
Manitou and Sheo	7,200	13,963	21,163			21,163
Mazeppa *						
Michigan and Colorado Mining Company *						
Midnight *						
Mountain Boy *						
Minstrel Boy *						
Monte Vista *						
Napoleon *						
North Star *						
Oracle *						
Old Dan Joe *						
Old Lot	10,000		10,000			10,000
Payroll *						
Robert E. Lee (estimated)		9,000	9,000			9,000
Rochester *						
Ruby Chief *						
Sylvanite †						
Sacramento *						
Silent Friend *						
Silver Queen *						
Silver Cup *						
Silver Islet (estimated)	1,000	1,292	2,292			2,292

* No production in 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Gunnison County—Cont'd.</i>						
Silver Bell *.....						
Twilight.....	\$800	\$905	\$1,705			\$1,705
Tenderfoot Placer *.....						
Terrible.....		16,013	16,013			16,013
Trevalyn *.....						
Tin Cup *.....						
Union Park Placer Mining Company *.....						
Volunteers †.....						
Virginia *.....						
Webb Mines*.....						
Miscellaneous.....	400	3,878	4,278	\$178		4,456
Confidential reports.....	39,240	112,321	151,561	5,340		156,901
Total production during 1887.....	61,130	233,003	294,133	24,358		318,491
<i>Hinsdale County.</i>						
Argenta Falls Silver Mining Company *.....						
Alpha & \diamond						
Belle of the West *.....						
Big Casino *.....						
Bonanza King.....	1,100	1,131	2,231		\$1,059	3,290
Capitol City Group.....		25	25	3		28
Capitol City.....		517	517	1,157		1,674
Dawn of Hope.....	10	129	139			139
Frank Hough *.....						
Fair View, &c.*.....						
Gold Quartz *.....						
Golden Fleece *.....						
Henson Creek Reduction Company *.....						
Hannibal *.....						
Hamilton.....	2,100	18,584	20,684			20,684
Independence *.....						
John Hough.....	15	402	477	666	146	1,289
Lightning Striker *.....						
Little Casino *.....						
Myrtle-Queen*.....						
Newport *.....						
Nellie M*.....						
Ocean Wave.....		3,258	3,258	1,744		5,002
Pentarch *.....						
Polar Star*.....						
Pearl *.....						
Red Rover*.....						
Scotia *.....						
Ulay.....	1,645	39,498	41,143	19,242		60,385

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Hinsdale County—Cont'd.</i>						
Vermont.....	\$344	\$33,356	\$33,700	\$6,736		\$40,436
Vuleau*						
Yellow Medicine*		25,000	25,000			25,000
Total production during 1887.....	5,214	121,965	127,179	29,548	\$1,204	157,931
<i>La Plata County.</i>						
Ashland	260	12	272			272
Bessie G.f.....						
Bulldozer	5,530	3,166	8,696	2,136		10,832
Bendon*						
Century Group†						
Cora G		165	165			165
Comstock*						
Eureka	1,800	367	2,167			2,167
Eagle Pass.....	4,320	1,768	6,088			6,088
Four Per Cent*						
Gold Bug*						
Good Hopes.....	183	187	370			370
Golden Circle		137	137			137
Golden Rose*						
Jenny Liud*						
Harrisburg Monitor Silver Mining Company		418	418			418
La Fayette Reduction Company*						
Little Baker	150		150			150
Laura A	24	112	136			136
Lewis.....	70		70			70
Michigan Milling and Mining Company*						
New York and San Juan Smelting Company	40	2,042	2,082			2,082
Passaic Consolidated Company*						
Primea*						
Snow Storm Milling and Mining Company*						
Saxou.....	240	38	278			278
Sultana	23	393	416			416
Shoo Fly*.....						
Tip Top.....	400	9	409			409
Tippecanoe*						
Monitor	20	620	640	143		783
Total confidential reports....	2,036	178	2,214			2,214
Total production during 1887.....	15,097	9,618	24,715	2,278		26,993

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Lake County.</i>						
Argent Mining Company*						
Agassiz Mining Company*		\$310,303	\$310,303	\$427,200		\$737,503
Argentine Mining Company†		387,878	387,878	89,000		476,878
Antioch	\$25,000		25,000			25,000
A. Y. & Minnie		1,447,269	1,447,269	501,732		1,949,001
Allegheny*						
Amity*						
Atlantic*						
Australian*						
Augusta		5,171	5,171			5,171
Adams Mining Company	221	70,134	70,355	122,976		193,331
Brian Boru	1,540	135	1,675	205		1,880
Belle	2,000	8,000	10,000			10,000
Benton Mining Company		2,947	2,947	5,073		8,020
Boreel Mining Company*						
Buckoyo State		30,000	30,000			30,000
Black Tail*						
Big Chief*						
Breece Mining Company*						
Beccher & Custer		2,016	2,016	1,869		3,885
Belle of the West		1,947	1,947			1,947
Castle View*						
Consolidated Virginia	372	8,272	8,644			8,644
Crysolite		168,604	168,604	7,330		175,934
Col. Sellers		388,755	388,755	262,700		651,455
Catalpa		25,269	25,269			25,269
Clear Grit*						
Cyclops*						
Continental Chief†		34,909	34,909	16,020		50,929
Cleveland	10,400	5,882	16,282	14,463		30,745
Compromise Mining Company		6,464	6,464			6,464
Crescent		21,156	21,156			21,156
Daisy Mining Company		581	581			581
Davis		34,000	34,000			34,000
Dunkin Mining Company		219,797	219,797	20,575		240,372
Dinero Mining Company†		92,444	92,444			92,444
Experiment*						
Eliza*						
Evening Star		38,206	38,206			38,206
East 6th Street Shaft*						
Excelsior*						
Emmet†		77,575	77,575			77,575
Enterprise*						
Fryo Hill Mining Company*						
Flag Staff		17,066	17,066	14,685		31,751
Forest Rose*						
Frenchman*						
Gunnison		2,921	2,921			2,921

* No production in 1887.

† Estimated production in 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Lake County—Continued.</i>						
Florence*						
Colorado No. 2 and Lewisville	\$30,000	\$193,939	\$223,939	\$333,750		\$557,689
Griffin*						
Great O'Sullivan		1,939	1,939			1,939
Great Hopes Mining Company		188,509	188,509			188,509
G. M. Favorite	2,000	1,292	3,292	445		3,737
Garibaldi*						
Golden Curry		1,743	1,743			1,743
Gertrude		4,137	4,137			4,137
Highland Mary*						
Hennes*						
Humboldt Mining Company	16,144	16,144	32,288	8,072		40,360
Hard Cash*						
Harvard*						
Henrietta and Maid of Erin Consolidated Company		319,999	319,999	1,835,625		2,155,624
Iowa Gulch*						
Iroquois Mining Company*						
Ideal	1,200	2,715	3,915	8,010		11,925
Iron Silver Mining Company†		734,321	734,321	376,915		1,111,236
Imes and Iron Hill Consolidated Company	4,062	15,755	19,817	36,152		55,969
Jay Eye See*						
Jay Bird*						
Jamie Lee*						
Little Johnnie*						
Lady Alice Combination*						
Little Pittsburgh		21,514	21,514			21,514
La Plata		22,474	22,474	42,560		65,034
Leadville Consolidated Mining Company		111,793	111,793	3,893		115,686
Little Chief Mining Company		50,363	50,363	2,315		52,678
Little Silver Mining Company		8,727	8,727			8,727
Lee Basin Mining Company		184,614	184,614			184,614
Lillian Mining Company	33,000	8,000	41,000	2,000		43,000
Lvey L.*						
Little Ellen	600	3,878	4,478	6,975		11,453
Long & Derry*						
Litler Consolidated Mining Company*						
Aztec Mining Company †						
Crown Point Pinnacle †						
Cora Bell †						
Highland Chief †						
Tip Top †						
Saint Louis †						
	12,000	213,934	225,934	9,693		235,627

* No production in 1887.

† Estimated production in 1887.

‡ Confidential report.

MINES OF COLORADO—Continued.
 [Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Lake County—Continued.</i>						
Moffat Shaft*						
Miami*						
Meyer Mining Company*						
Mansfield Mining Company*						
Mike & Star*						
Matchless		\$78,480	\$78,480			\$78,480
Morning Star		147,207	147,207	\$587,364		734,571
Maria Louise	\$100	1,939	2,039	222		2,261
Houghton Combination		77,897	77,897	18,847		96,744
New Tiger*						
New Pittsburg		10,343	10,343			10,343
New Year	120,144	90,611	210,755	89,213		299,968
Olathe Silver Mining Company*						
O. K.*						
Opulent*						
Only Chance		3,102	3,102	5,340		8,442
Oro City		8,727	8,727	6,007		14,734
Printer Boy*						
President	16,180	52,631	68,811			68,811
Poehontas*						
Quartette*						
R. E. Lee Mining Company		241,871	241,871			241,871
Ruby*						
Red Hook		29,414	29,414			29,414
Silver Cord	19,206	65,790	84,996	49,377		134,373
St. Kevin	385	14,672	15,057			15,057
Small Hopes		1,617,354	1,617,354	1,699		1,619,053
Satellite*						
Sierra Nevada		15,838	15,838	6,230		22,068
Sullivan*						
Snow*						
Smuggler		29,090	29,090	53,400		82,490
Sequin		7,500	7,500	7,500		15,000
Treasury Vault*						
Tiger & Shields		35,555	35,555			35,555
Terrible	400	7,240	7,640	3,560		11,200
Venture		40,000	40,000			40,000
Vernes*						
Vanderbilt*						
Virginus*						
Wilkes Barre No. 2*						
Wolcott Mining Company*						
Weldon*						
William Wallace		2,585	2,585	5,340		7,925
Wiles*						
Total	294,954	8,091,369	8,386,323	4,984,332		13,370,655

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Ouray County.</i>						
Alaska	\$1,080	\$19,306	\$20,386	\$15,272		\$35,658
Alabama*.....						
Alexandria*.....						
American Girl*.....						
Amador*.....						
Black Girl*.....						
Black Lightning*.....						
Bonnell*.....						
Brookline Group*.....						
Belle of the West.....	1,000	8,600	9,000			9,000
Belcher.....	172	5,557	5,729	4,673		10,402
Blackbird*.....						
Candice*.....						
Carbonate King*.....						
Charter Oak*.....						
Calliope.....	1,500	83,393	84,893	3,560		88,453
Copper King.....		438	438	62		500
Carbonate Queen*.....						
Congress*.....						
Capitol.....						
Dutch Bog*.....						
Dutton.....						
El Mahdi Group.....	185	15,269	15,454	678		16,132
Enterprise*.....						
Forest*.....						
Gray Eagle*.....						
Gertie & Raven.....	1,800	12,905	14,705		\$9,450	24,155
Grand Prize*.....						
Gustin*.....						
Galena Lion*.....						
Genessee*.....						
Iron Chest*.....						
J. V. Dexter.....	605	62,613	63,218	6,047		69,265
Lost Mine (estimated).....	100	517	617			617
Little Mollie*.....						
Little Annie*.....						
Lake (Red Mt.)*.....						
Lookout*.....						
Leadville.....	620	10,343	10,963			10,963
Mickey Breen.....	1,000	7,508	8,508			8,508
Monongahela*.....						
Mineral Farm.....		665	665	742		1,407
Miser's Dream.....		5,171	5,171	2,225		7,396
Maud S. & Brooklyn.....	386	8,998	9,384	620		10,004
Ophir*.....						
Old Lout.....	1,460	85,194	86,654			86,654
Old Kentneck*.....						

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Ouray County—Continued.</i>						
Poney Express *						
Portland*						
Paymaster	\$20	\$1, 241	\$1, 261	\$178		\$1, 439
Poughkeepsie (estimated)		3, 807	3, 807			3, 807
Queen of Ouray*						
Ruby Forest	2, 000	500	2, 500			2, 500
Rose Group*						
Rock of Ages		150	150			150
Sidney Group	2, 495	14, 620	17, 115	5, 839		22, 954
Silver Bell	2, 400	77, 600	80, 000			80, 000
Saratoga	1, 420	23, 495	24, 915			24, 915
Savage and Black Bird*						
Scotchman*						
St. Lawrence *						
Silver Lake	7, 808	52, 999	60, 807	95, 551		156, 358
Trout and Fisherman		4, 848	4, 848			4, 848
Terrible	40	174, 502	174, 542	38, 221		212, 763
Treasure Trove	1, 000	4, 525	5, 525			5, 525
U. S. Depository	307	15, 887	16, 194	1, 593		17, 787
Virginus		302, 479	302, 479			302, 479
Vanderbilt	180	2, 909	3, 089	134		3, 222
Wheel of Fortune		4, 590	4, 590			4, 590
Woodstock *						
Yankee Girl †						
Yankee Boy Group		1, 680	1, 680			1, 680
Total of confidential reports.	80	273, 670	273, 750			273, 750
Total production during 1887	27, 659	1, 285, 391	1, 313, 050	175, 391	\$9, 451	1, 497, 892
<i>Park County.</i>						
Atlantic	420		420			420
Accidental and Little Harry*						
Alma Placer †						
Atlanta *						
Bemrose Placer	300		300			300
Baltic		14, 118	14, 118			14, 118
Bullion *						
Benedict *						
Badger Boy		400	400	216		616
Bannon *						
Black Bear *						
Centennial	1, 007		1, 007			1, 007
Champaign *						
Copper Bonanza	80	35	115			115
Clover *						
Dauser *						
Dolly Varden		26, 569	26, 569			26, 569

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Park County—Continued.</i>						
Danville Group.....	\$250		\$250			\$250
Everlasting.....		\$11, 104	11, 104			11, 104
Frisco *.....						
Forest Queen †.....						
Fairbury *.....						
Fairbury Placer.....	20, 000		20, 000			20, 000
Gratlon <i>et al.</i> *.....						
Grand Prize.....	194	3, 371	3, 565			3, 565
Great West *.....						
Gertrude *.....						
Good Samaritan.....	320	3, 878	4, 198			4, 198
Guinea Pig *.....						
Giant Silver *.....						
Golden Mines *.....						
Great Eastern.....		472	472			472
Hock Hocking.....		11, 895	11, 895			11, 895
Hill Top <i>et al.</i> *.....						
John A. Logan *.....						
K. P. and U. P. *.....						
Key Stone *.....						
Lucky Queen.....	2, 167	6, 908	9, 075			9, 075
London Milling and Mining Company *.....						
Lone Star.....		1, 400	1, 400			1, 400
Ling †.....						
Liebelt.....	494	6	500			500
Little Rose *.....						
Morse Mining Company.....		1, 745	1, 745			1, 745
Monte Vista *.....						
Mudsill Group *.....						
Mary Adair *.....						
New York *.....						
Nestor *.....						
Novazembla *.....						
Oxford.....		1, 882	1, 882			1, 882
Oliver Twist *.....						
Only Chance Mining Company.....		31, 069	31, 069	\$35, 644		66, 713
Pennsylvania Placer †.....						
Present Help.....		3, 232	3, 232			3, 232
Phillips Mining Company.....	3, 600	1, 163	4, 763			4, 763
Palmer Group *.....						
Peerless *.....						
Peabody Placer.....	9, 288		9, 288			9, 288
Pay Rock.....		233	233	222		455
Quail <i>et al.</i>	55	58	113			113
Russian.....		3, 868	3, 868			3, 868
Roberts Placer *.....						

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Park County—Continued.</i>						
Rebecca	\$600	\$129	\$729			\$729
Silver Issue*						
Sweet Home*						
Shelby	3,000	11,636	14,636	\$2,164		16,800
Sacramento Mining Company		8,069	8,069			8,069
Sherwood		808	808			808
Silver Gem*						
Sovereign Mining Company*						
Three Brothers*						
Ute and Pinto Claim	180		180			180
Wheeler	1,500	310	1,810			1,810
Wyandotto*						
Western Pass Mine*						
Zulu Chief*						
Total of confidential reports	741,408	760	742,168			742,168
Total production during 1887	784,864	145,126	929,990	38,247		968,237
<i>Pitkin County.</i>						
Ashcroft*						
Aspen Consolidated Mining Company*						
Aspen Mining and Smelting Company†						
Aspen Mining Company (estimated)	4,500	91,151	95,651	3,338		98,989
Bay State (estimated)†	400	5,171	5,571	890		6,461
Best Friend		427	427			427
Buckhorn*						
Boulder*						
Bonnybell		303,080	303,080			303,080
Castle Peak*						
Camp Bird*						
Castle Rock Mining Company*						
Cleveland*						
Climax*						
Charles L.*						
Enterprise Mining Company		63,352	63,352	7,120		70,472
Express Group Mining Company*						
Eva Bolle*						
Franklin		794	794	41		835
Grand Union Group*						
Hewitt Smolting Works		1,987	1,987			1,987
Highland Light*						
Hidden Treasure*						
Justico Mining Company		2,920	2,920			2,920

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Pitkin County—Continued.</i>						
Little Annie*						
Little Rule*						
Last Dollar*						
Little Lottie*						
Liona*						
Libbio Bell		\$45,428	\$45,428	\$562		\$45,990
La Salle		646	646			646
Late Acquisition Mining Company*						
Lonisa*						
Montezuma*						
M. and Y.*						
Millime		1,865	1,865			1,865
Monument Tunnel Association*						
New York*						
O. K.*						
Oakland No. 2*						
Pitkin Mining Company						
Princess Lenise*						
Pioneer*						
Petroleum		1,429	1,429			1,429
Percy Consolidated Mining Company*						
Regent Group*						
Silver Star*						
Smuggler (estimated)	\$400	12,412	12,812			12,812
Standard Mining Company (estimated)	6,000	121,535	127,535	4,450		131,985
J. C. Johnson and Chatfield.						
Tam O'Shaunter*						
Terrible*						
Waverly†						
Total confidential reports		174,394	174,394	3,101		177,495
Total production during 1887	11,300	826,597	837,897	19,503		857,400
<i>Río Grande County.</i>						
Aztec Mining Company†						
Esmond*						
Golconda	25,000		25,000			25,000
Globet.						
Iowa and Colorado Consolidated Mining Company*						
Little Annie Gold Mining Company	99,456	808	100,264			100,264
Missionary Mill*						
Wightman Placer	5,000		5,000			5,000

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Rio Grande County—Cont'd.</i>						
Rio Grande*						
San Juan Consolidated Gold Mining Company*						
Sunny Side		\$646	\$646			\$646
Sistor Ida (included with Little Annie)						
Total of confidential reports	\$18,666	9,334	28,000			28,000
Total production during 1887	148,122	10,788	158,910			158,910
<i>Saguache County.</i>						
Atlantic*						
Antoro*						
Arkansas*						
Bonanza*						
Boss Mammoth	3	445	448			448
Buckhorn Mining Company and Crystal Hill Mining Company		2,200	2,200			2,200
Cresus*						
Coronet*						
Empress Josephine	287	2,181	2,469			2,469
Eagle*						
Euema*						
Hortonse*						
Isabella*						
Legal Tender*						
Othello*						
Paragon	625	2,000	2,625			2,625
Revenue*						
Sasthenis*						
Shawmut*						
St. Louis*						
Townsend*						
Spring Chicken and Little Ada*						
Yellow Type		160	160			160
Whalo		2,727	2,727	\$678		3,405
Total production during 1887	915	9,713	10,629	678		11,308
<i>San Juan County.</i>						
Alletha*						
Atlas*						
Aristook*						
American Eagle*						
Aspen (estimated)		64,646	64,646	13,350		77,996
Ajax*						
Blizzard*						

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>San Juan County—Cont'd.</i>						
Bob Ingorsoll*						
Buckeyo	\$200	\$1,745	\$1,945	\$1,691		\$3,636
Bandora*						
Black Lightning*						
Black Diamond	6,520	620	7,140	12,015		19,155
Boar	10	38	48			48
Chili*						
Caribou	60	2,257	2,317	469		2,786
Clinton*						
Columbia*						
Carbon Lake*						
Croquer*						
Dives*						
Duquesne Mining Company	300	140	440			440
Emma*						
Empire*						
Emerald	160	5,171	5,331	7,120		12,451
Enterprise <i>et al.</i>	60	323	383			383
Forest*						
Fearless*						
Fredrica*						
Gray Eagle*						
Galena		426	426	267		693
Great Eastern	400	10,343	10,743			10,743
Green Mount*						
Galena Queen*						
George Washington	25	695	720			720
Homestake*						
Hough*						
Hawkeye*						
Hudson*						
Highland Chief*						
Ico Lake*						
Iron Crown*						
Indox*						
Idaho*						
Lone Star*						
Lackawanna*						
Little Dora*						
Leavenworth*						
Lookout		195	195			195
Mt. Queen (estimated)		5,688	5,688	9,790		15,478
Mazeppa*						
Mineral King*						
McMillan*						
Maid of the Mist	80	3,361	3,441	1,424		4,865
Mastodon*						

* No production during 1887.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>San Juan County—Cont'd.</i>						
Maybell	\$1, 373	\$165	\$1, 538	.....	.....	\$1, 538
Midland Mining Company* ..	.....	.....	.....	.....	.....	.....
Mountain King* .....	.....	.....	.....	.....	.....	.....
New Silverton Mining Company	5, 760	103, 524	109, 284	.....	.....	109, 284
North (King Solomon Mountain) † .....	.....	.....	.....	.....	.....	.....
Oriental* .....	.....	.....	.....	.....	.....	.....
Pearce* .....	.....	.....	.....	.....	.....	.....
Polar Star* .....	.....	.....	.....	.....	.....	.....
Pride of the West* .....	.....	.....	.....	.....	.....	.....
Pee Wee* .....	.....	.....	.....	.....	.....	.....
Pickett* .....	.....	.....	.....	.....	.....	.....
Queen Anne .....	.....	155	155	\$178	.....	333
Queen of the Cement .....	.....	.....	.....	.....	.....	.....
Red Cloud* .....	.....	.....	.....	.....	.....	.....
Round Mountain	26	134	160	263	.....	423
Russell* .....	.....	.....	.....	.....	.....	.....
Racine Boy* .....	.....	.....	.....	.....	.....	.....
St. Paul* .....	.....	.....	.....	.....	.....	.....
San Juan Chief .....	.....	387	387	.....	.....	387
Sailor Boy* .....	.....	.....	.....	.....	.....	.....
Sulphurette* .....	.....	.....	.....	.....	.....	.....
Sampson Mining Company ..	11, 500	.....	11, 500	.....	.....	11, 500
Sunnyside	28, 500	.....	28, 500	.....	.....	28, 500
Scotia* .....	.....	.....	.....	.....	.....	.....
Snow Drift* .....	.....	.....	.....	.....	.....	.....
Silver Ledge	38, 820	553	39, 373	.....	.....	39, 373
Silver Lake	5, 620	38, 148	43, 768	62, 522	.....	106, 290
Star of the West* .....	.....	.....	.....	.....	.....	.....
Sultan Mining Company* ..	.....	.....	.....	.....	.....	.....
Silver Bell	160	1, 137	1, 297	.....	.....	1, 297
Tribune* .....	.....	.....	.....	.....	.....	.....
Titusville .....	.....	3, 705	3, 705	.....	.....	3, 705
Tower Mountain Gold and Silver Mining Company* ..	.....	.....	.....	.....	.....	.....
The Hidden Treasure* .....	.....	.....	.....	.....	.....	.....
Titusville	1, 060	1, 525	2, 585	.....	.....	2, 585
Tornado* .....	.....	.....	.....	.....	.....	.....
Victoria* .....	.....	.....	.....	.....	.....	.....
Veta Madre	44	2, 585	2, 629	.....	.....	2, 629
Whale	9, 600	3, 232	12, 832	.....	.....	12, 832
Yellow Jacket* .....	.....	.....	.....	.....	.....	.....
Zuni	400	7, 240	7, 640	6, 586	.....	14, 226
Confidential reports	36, 069	284, 153	320, 222	16, 011	.....	336, 233
Total production during 1887	146, 749	542, 304	689, 053	131, 686	.....	820, 739

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>San Miguel County.</i>						
Alamo*						
Andrus*						
American Exchange	\$10,000	\$1,939	\$11,939			\$11,939
Alta*						
Armsborough*						
American Flag*						
Belmont	31,783	754	32,537			32,537
Big Chicago*						
Ballard	2,370	38	2,408			2,408
Cimarron	4,000	6,387	10,387	\$1,762		12,149
Cincinnati*						
Crown Point*						
Columbia	240	960	1,200			1,200
Caribou	1,059	29,438	30,497	8,797		39,294
Cottonwood Placers						
Crown Jewel		8,404	8,404	1,112		9,516
Carbinero*						
Clara						
Dixie						
Flora						
Golden Group Milling and Mining Company†						
Gold King*						
Gold Chief	100	6	106			106
Golden Butterfly*	820		820			820
Golden Chicken*						
Globe	1,440		1,440			1,440
Ivanhoe Placer*						
Joe Quin*						
Leaman Placer*						
Mendota†						
Mountain Chief†						
Marshall Basin Company*						
May Flower*						
Montana*						
Mocking Bird	500		500			500
Montezuma		17,426	17,426	7,988		25,414
Nelly Company*						
Nevada*						
Osecola		500	500			500
Oriental*						
Parsons*						
Pandora*						
San Miguel Hydraulic Placer Mining Company	2,600		2,600			2,600
Silver Bell*						
Suffolk	400	25	425			425
Sheridan†						

* No production during 1887. † Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>San Miguel County—Cont'd.</i>						
Smuggler †						
Seventy-six *						
Sulphurette *						
San Bernado †						
Stalsburg *						
Single Standard *						
Terrible		\$7,757	\$7,757	\$1,495		\$9,252
Tidal Wave *						
Union †						
What Cheer *						
Total confidential reports	\$150,078	591,462	741,540	7,832		749,372
Total during 1887	205,391	665,100	870,491	28,987		899,478
<i>Summit County.</i>						
American Eagle*						
Ada Placer	4,560		4,560			4,560
Alsatan		1,567	1,567			1,567
Bell		5,171	5,171			5,171
Bullion *						
Buda Mining Company	20	368	388			388
Brooks-Snyder†						
Boss Mining Company	280	197	477		\$10	487
Briar Rose		5,818	5,818			5,818
Brown's Gulch	640		640			640
Bonanza Group*						
Belle*						
Blanchard Mill Mine	9,260		9,260			9,260
Brittle Silver*						
Copenhagen	3	297	300			300
Chautauqua *						
Cashier*						
Clarion	30	426	456	240		696
Continental Gold and Silver Mining Company		2,307	2,307			2,307
Crown Point*						
Colorado King	300	982	1,282			1,282
Cæsus, etc*						
Cincinnati*						
Colorado Chief*						
Chihuahua*						
Champion Tunnel Mining Company*						
Col. Sellers*						
Columbia*						
Country Boy*						
Cassidy Group*						
Dixie	9	83	92			92

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.
[Cents have been dropped in printing this list]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Summit County—Continued.</i>						
Darnell Placer.....		\$1, 290	\$1, 290			\$1, 290
Detroit*						
Delaware	\$300		300			300
Dianthia*						
Discovery*						
Delaware Gulch*						
Discovery Double*						
Eureka*						
Empress*						
Eberlin Placer†						
Elephant*						
Emperor*						
Erickson*						
Eldorado	160	310	470			470
Frenchman*						
Felicia Grace		9, 309	9, 309			9, 309
French Gulch Placer†						
Glendalo		438	438			438
Governor*						
Gold Pan	1, 000		1, 000			1, 000
Germania Gold and Silver Mining Company*						
Geo. King*						
Gray Eagle*						
Gold River Mining Company*						
Galena Gulch Placer.....	1, 988		1, 988			1, 988
Grand View Mining Company†						
Harrison.....		533	533	\$135		669
Horse-shoe Mining Company		290	290			290
Honestake*						
Hudson River Lode*						
Herman*						
Hunkidori*						
Hight & Blodgett Placer....	136		136			136
Ida Belle*						
Irishman*						
Idalia*						
Iowa*						
I. X. L.*						
Jersey Queen*						
Jumbo Mining Company....	74, 000	2, 709	76, 709			76, 709
Josephine*						
Kehoe*						
Kellogg Group*						
King Fisher*						
Kit Carson*						
Last Chance.....		1, 551	1, 551			1, 551

* No production.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Summit County—Cont'd.</i>						
Little Undine.....		\$7, 570	\$7, 570			\$7, 570
Luckey *.....						
Little Corporal*.....						
Little Morgan*.....						
Little Ernie.....	\$80		80			80
Lanrium *.....						
Livonia.....		1, 344	1, 344			1, 344
Little Mountain Milling and Mining Company.....	394	8, 114	8, 508	\$1, 444		9, 952
Mohawk.....		194	194	413		607
Missouri Boy.....	2	45	47	13		60
Mt. Glazier Milling and Transportation Company.....		1, 357	1, 357	267		1, 624
Maid of Orleans.....	7	87	94	56		150
May Flower.....	340	116	456		\$23	479
Minnie.....	980	6, 562	7, 542			7, 542
Morning Star.....	1, 700	426	2, 126			2, 126
Morrow Placer*.....						
Mark Twain.....		582	582	106		688
Mammoth*.....						
Montezuma.....		342	342	809		1, 151
Manitou *.....						
Monroe Mining Company †.....						
Nova Scotia Boy No. 2 †.....						
Nettie B*.....						
North Star Group*.....						
N. Y. Lodes*.....						
Ohio *.....						
Ontario*.....						
Oro Cache*.....						
Old Bill*.....						
Old Times.....		108	108	246		354
Oro.....	2, 567	3, 879	6, 446			6, 446
Puzzle.....	120	1, 049	1, 169			1, 169
Pacific*.....						
Queen of the West*.....						
Queen*.....						
Queen of the Forest*.....						
Robinson Consolidated Mining Company †.....						
Rattler.....		3, 307	3, 307			3, 307
Rose.....		217	217	198		415
Result.....		2, 266	2, 266			2, 266
St. John's Mining Company*.....						
Star of the West*.....						
Silver Wave.....	580	7, 714	8, 294	7, 030		15, 324
Silver Bowl.....		11, 813	11, 813			11, 813
St. Louis*.....						

* No production during 1887.

† Confidential report.

MINES OF COLORADO—Continued.

[Cents have been dropped in printing this list.]

Name of mine.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
<i>Summit County—Cont'd.</i>						
Standard*						
Snow Drift		\$7,757	\$7,757		\$45	\$7,802
Silver Chain*						
Silver King		511	511			511
Silver Prince*						
Sarsfield*						
Semper Idem*						
Sun Down*						
St. Elmo*						
Tiger		410	410			410
Thirty Per Cont*						
Tringle*						
Tariff*						
Union*						
Victoria Mining Company	\$160,000		160,000			160,000
Washington*						
Winning Card		2,585	2,585		60	2,645
Wheel of Fortune*						
Warrior's Mark*						
White Quail	3,900	46,510	50,410	\$83,705		134,115
Young America*						
Yubadamn	1,450		1,450			1,450
Yellow Jacket*						
Yorkshire*						
Total confidentially reported.	26,303	148,599	174,902			174,902
* Total production during 1887.	291,111	297,127	588,238	94,666	137	683,041

* No production during 1887.

SMELTERS.

[Cents have been dropped in printing this table.]

Name of smelter.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
American	\$69,616	\$1,369,372	\$1,438,988	\$761,430	.....	\$2,200,418
Arkansas Valley	80,626	1,830,026	1,910,652	815,138	.....	2,725,790
Aspon Mining and Smelting Company *						
Boston and Colorado Smelting Company	550,700	1,748,970	2,299,670	.....	\$186,933	2,486,603
Golden Smelting Company	28,178	578,970	607,148	165,288	.....	772,436
Gunnison Smelting Company *						
Harrison Reduction Works	136,435	1,310,882	1,447,317	490,323	.....	1,937,640
Holden Smelting Company	163,600	2,095,070	2,258,670	631,824	.....	2,890,494
La Plata	16,353	569,002	585,355	242,027	.....	827,382
Manville	60,404	527,080	587,484	231,420	.....	818,904
New York and San Juan	52,680	733,173	785,853	198,489	28,350	1,012,692
Pueblo Silver Reduction Company	95,270	1,291,141	1,386,411	402,063	11,974	1,800,448
Omaha and Grant	1,013,705	3,733,005	4,766,710	1,057,154	81,720	5,905,584
Royal Gorge	6,080	132,730	138,810	62,646	.....	201,456
Tomichi Valley *						
Grand View Smelting Company	14,957	233,161	248,118	44,274	.....	292,392
Colorado Smelting Company	65,432	307,399	372,831	663,860	.....	1,036,691
Total	2,354,037	16,479,986	18,834,023	5,765,936	308,977	24,908,936
<i>United States mints and assay offices.</i>						
Denver	1,673,453	21,322	1,694,775	.....	.....	1,694,775
Philadelphia	9,516	8,007	17,523	.....	.....	17,523
San Francisco	1,697	19	1,716	.....	.....	1,716
Carson City *						
Saint Louis assay office	20,045	324	20,369	.....	.....	20,369
New York assay office	559,176	59,285	618,461	.....	.....	618,461
Boisé City assay office *						
Helena assay office *						
Total	2,263,888	88,958	2,352,846	.....	.....	2,352,846
Total smelters and mints	4,617,925	16,568,945	21,186,870	5,765,936	308,977	27,261,783
Amount deposited by Boston and Colorado Smelting Company at the United States mint, Denver, Colo.	398,059	592	398,651	.....	.....	398,651
Total production for 1887, less amount deposited by Boston and Colorado Smelting Company	4,219,865	16,568,353	20,788,218	5,765,935	308,977	26,863,132

* No Colorado bullion received.

GROSS VALUE OF THE PRINCIPAL METALS PRODUCED IN COLORADO DURING
THE CALENDAR YEAR 1887.

[Tabulated by counties.]

[Cents have been dropped in printing this table.]

County.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Grand total.
Arapahoe.....	\$215		\$215			\$215
Boulder.....	306, 879	\$94, 612	401, 491	\$32		401, 523
Clear Creek.....	383, 939	1, 733, 305	2, 117, 244	99, 727	\$4, 326	2, 221, 297
Chaffee.....	495, 092	571, 977	1, 067, 069	807, 029	3, 828	1, 877, 926
Custer.....	614	159, 241	159, 855	289, 665	1, 017	450, 537
Dolores.....	11, 792	159, 635	171, 427	979	3, 825	176, 231
Eagle.....	265, 785	342, 964	608, 749	60, 060		668, 809
Fremont.....	225	640	865	320	506	1, 691
Gilpin.....	1, 373, 110	359, 437	1, 732, 547	12, 338	10, 167	1, 755, 052
Gunnison.....	61, 130	233, 003	294, 133	24, 358		318, 491
Hinsdale.....	5, 214	121, 965	127, 179	29, 547	1, 205	157, 931
Jefferson.....	1, 139	7	1, 146			1, 146
La Plata.....	15, 096	9, 619	24, 715	2, 278		26, 993
Lake.....	294, 954	8, 091, 369	8, 386, 323	4, 984, 332		13, 370, 655
Las Animas.....	1, 358	10	1, 368			1, 368
Montrose.....	603	12	615			615
Ouray.....	27, 660	1, 285, 390	1, 313, 050	175, 392	9, 450	1, 497, 892
Park.....	784, 864	145, 126	929, 990	38, 247		968, 237
Pitkin.....	11, 300	826, 597	837, 897	19, 503		857, 400
Rio Grande.....	148, 122	10, 788	158, 910			158, 910
Routt.....	8, 126	289	8, 415			8, 415
Saguaeche.....	915	9, 714	10, 629	679		11, 308
San Juan.....	146, 748	542, 304	689, 052	131, 687		820, 739
Summit.....	291, 111	297, 127	588, 238	94, 665	138	683, 041
San Miguel.....	205, 391	665, 100	870, 491	28, 987		899, 478
Total.....	4, 841, 388	15, 660, 236	20, 501, 624	6, 799, 826	34, 462	27, 335, 912

The following comprises the names of the mines in Colorado, tabulated by counties, from which no reports or trustworthy estimates could be obtained of the value of the precious metals produced :

<p><i>Boulder County.</i></p> <p>Belcher. Grand View. Prussian. Ward Lamon. Alconda. Puzzler.</p>	<p><i>Gunnison County.</i></p> <p>Little May M. & M. Co. Denver City. May Mazeppa. Iron Placer. Tenderfoot Placer. Michigan and Colorado Mining Company. Lost Contact. Big Comet. Blaine. Silver Bell. Monte Vista. Chronicle. Silver Cup.</p>	<p>Colorado King. Woodstock.</p>
<p><i>Clear Creek County.</i></p> <p>East Dives. Griffith. Young American. Mammoth.</p>	<p><i>Hinsdale County.</i></p> <p>Fair View. Gold Quartz. Hannibal. Red Rover. Independence. Dawn of Hope.</p>	<p><i>Rio Grande County.</i></p> <p>Rio Grande.</p> <p><i>San Juan County.</i></p> <p>American Eagle. Sailor Boy. Sulphurette. Green Mountain. Alletha.</p>
<p><i>Custer County.</i></p> <p>Humboldt. East Leviathan. Bull Domingo. Globe.</p>	<p><i>La Plata County.</i></p> <p>Passaic Concentrating Company. Snow Storm Milling and Mining Company. Tippecanoe. Bendon. Primea.</p>	<p><i>San Miguel County.</i></p> <p>Alta. Cottonwood Placer. Gold King. Ivanhoe Placer. Mountain Chief. May Flower. Nelly Company. Silver Bell. Carbinero. Single Standard. Joaquin. Golden Chicken.</p>
<p><i>Dolores County.</i></p> <p>Bancroft. Blackhawk. Little Susie. Maggie. Magpie. Polar. Sunlight. Nebraska. Black Diamond. Grand View Mining Company.</p>	<p><i>Pitkin County.</i></p> <p>Pitkin County Mining Company.</p>	<p><i>Summit County.</i></p> <p>The Boston Silver Mining Association. Star of the West. Washington. Nettie B. Croesus. Lucky. Colorado Chief. Col. Sellers. Grey Eagle.</p>
<p><i>Eagle County.</i></p> <p>Gold Park Mining Company. Raymond.</p>	<p><i>Ouray County.</i></p> <p>Black Girl.</p>	
<p><i>Gilpin County.</i></p> <p>Manhattan.</p>		

VALUE OF GOLD AND SILVER PRODUCED IN COLORADO AND DEPOSITED AT
THE UNITED STATES MINT AT DENVER DURING THE CALENDAR YEAR 1887.

County.	Gold.	Silver (coinage rate).	Total.
Arapahoe.....	\$215.32	\$0.06	\$215.38
Boulder.....	46,968.33	529.35	47,497.68
Clear Creek.....	37,180.62	615.87	37,796.49
Chaffee.....	55,462.28	532.72	55,995.00
Eagle.....	778.21	8.95	787.16
Gilpin.....	715,237.62	9,237.53	724,475.15
Gunnison.....	359.27	5.64	364.91
Hinsdale.....	123.56	5.00	128.56
Jefferson.....	1,139.70	7.18	1,146.88
Lake.....	50,690.06	868.61	51,558.67
Las Animas.....	1,358.23	10.62	1,368.85
Montrose.....	603.66	12.04	615.70
Ouray.....	1,328.12	24.80	1,352.92
Park.....	32,894.65	364.83	33,259.48
Rio Grande.....	8,232.37	94.73	8,327.10
Routt.....	8,126.55	288.87	8,415.42
San Juan.....	9,741.36	109.97	9,851.33
San Miguel.....	71,968.99	1,779.64	73,748.63
Summit.....	181,037.11	3,641.37	184,678.48
County unknown.....	450,007.44	3,184.34	453,191.78
Total.....	1,673,453.45	21,322.12	1,694,775.57

VALUE OF DEPOSITS AT THE UNITED STATES MINT AT DENVER DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1887.

Locality, etc.	Gold.	Silver.	Total.
Colorado:			
Arapahoe County.....	\$215.32	\$0 05	\$215 37
Boulder County.....	46,968.33	608.47	47,576.80
Clear Creek County.....	37,180.62	707.74	37,888.36
Chaffee County.....	55,462.28	613.92	56,076.20
Eagle County.....	778.21	10.32	788.53
Gilpin County.....	715,237.62	10,645.54	725,883.16
Gunnison County.....	359.27	6.50	365.77
Hinsdale County.....	123.56	3.87	127.43
Jefferson County.....	1,139.70	8.28	1,147.98
Lake County.....	50,690.06	1,001.01	51,691.07
Las Animas County.....	1,358.23	12.25	1,370.48
Montrose County.....	603.66	13.87	617.53
Ourray County.....	1,328.12	28.57	1,356.69
Park County.....	32,894.65	420.45	33,315.10
Rio Grande County.....	8,232.37	109.17	8,341.54
Routt County.....	8,126.55	332.91	8,459.46
San Juan County.....	9,741.36	126.79	9,868.15
San Miguel County.....	71,968.99	2,050.89	74,019.88
Summit County.....	181,037.11	4,196.41	185,233.52
County unknown.....	450,007.44	3,669.71	453,677.15
Total.....	1,673,453.45	24,566.72	1,698,020.17
Arizona.....	65,602.27	1,060.34	66,662.61
Idaho.....	8,014.29	116.28	8,130.57
California.....	849.58	4.69	854.27
New Mexico.....	65,848.11	709.46	66,557.57
Oregon.....	112.62	.69	113.31
Wyoming.....	3,518.89	25.42	3,544.31
Mexico.....	763.93	7.34	771.27
Total States and Territories.....	1,818,163.14	26,500.94	1,844,664.08
United States gold coin.....	1,095.00	.....	1,095.00
Jewelry.....	4,317.47	228.44	4,545.91
Re-deposits.....	7,267.44	162.66	7,430.10
Location unknown.....	347.31	3.16	350.47
Grand total.....	1,831,190.36	26,895.20	1,858,085.56

ESTIMATED COIN VALUE OF THE GOLD AND SILVER PRODUCED IN COLORADO,
FROM 1859 TO 1887.

Year.	Gold.	Silver.	Total.
1859 to 1870.....	\$27,213,081.00	\$330,000.00	\$27,543,081.00
1870.....	2,000,000.00	650,000.00	2,650,000.00
1871.....	2,000,000.00	1,029,046.34	3,029,046.34
1872.....	1,725,000.00	2,015,000.00	3,740,000.00
1873.....	1,750,000.00	2,185,000.00	3,935,000.00
1874.....	2,002,487.00	3,096,023.00	5,098,510.00
1875.....	2,161,475.02	3,122,912.00	5,284,387.02
1876.....	2,726,315.82	3,315,592.00	6,041,907.82
1877.....	3,148,707.56	3,726,379.33	6,875,086.89
1878.....	3,240,384.26	6,041,807.81	9,282,192.17
1879.....	2,920,326.43	12,068,930.27	14,989,256.70
1880.....	3,206,500.00	18,615,000.00	21,821,500.00
1881.....	3,300,000.00	17,160,000.00	20,460,000.00
1882.....	3,360,000.00	16,500,000.00	19,860,000.00
1883.....	4,100,000.00	17,370,000.00	21,470,000.00
1884.....	4,300,000.00	16,000,000.00	20,300,000.00
1885.....	4,165,794.00	15,824,557.00	19,990,351.00
1886.....	4,446,417.07	18,209,406.40	22,655,823.47
1887.....	4,874,387.66	15,668,236.65	20,542,624.31
Grand total.....	82,640,875.92	172,927,890.80	255,568,766.72

CHAPTER V.

DAKOTA.

BY AUGUSTINE HEARD.

The production of the precious metals in Dakota during the year 1887 presents no feature of especial interest. The extraction of gold and silver has followed its normal course, and the aggregate does not differ widely from the results of former years. As hitherto has been the case, almost all the gold has found its way to the United States Assay Office at New York, though but little silver has done so. The figures of these deposits, classified by mines, are appended :

DEPOSITS OF GOLD AND SILVER FROM DAKOTA AT THE UNITED STATES ASSAY OFFICE AT NEW YORK, 1887.

Mines.	Gold.	Silver.*	Total.
Caledonia.....	\$278,533.76	\$3,782.61	\$282,316.37
Deadwood-Terra.....	631,459.29	7,769.72	639,229.01
Homestake.....	928,350.03	10,492.19	938,842.22
Highland.....	406,170.27	4,783.27	410,953.54
Cedar Rapids.....	769.91	14.24	784.15
Richmond.....	368.95	11,494.29	11,863.24
Unknown.....	154,834.18	1,412.71	156,246.89
Totals.....	2,400,486.39	39,749.03	2,440,235.42

* At coining value.

The mint at Philadelphia received during 1887, from Dakota, only 86.022 standard ounces of gold and 6.78 standard ounces of silver, of the coining value of \$1,600.44 and \$7.89, respectively.

It is worthy of note that the amount of gold derived from the Territory has been gradually decreasing, and is now fully \$1,000,000, or 25 per cent. less than in 1881. In that year the Director of the Mint estimated the production of gold in Dakota at \$4,000,000, and a liberal estimate to-day would not carry the figures over \$2,600,000. It will be

interesting to note the progressive falling off as detailed in the following table :

PRODUCTION OF GOLD IN DAKOTA.		
Year.	Annual production of gold and silver in Dakota, as estimated by the Director of the Mint.	Gold from Dakota deposited at United States mints and assay offices.
1881.....	\$4,000,000	\$3,474,837
1882.....	3,300,000	3,141,737
1883.....	3,200,000	3,075,911
1884.....	3,300,000	3,010,730
1885.....	3,200,000	2,865,166
1886.....	2,700,000	2,522,408
1887.....	2,600,000	2,402,333

On the other hand, silver, as was natural from the greater facilities afforded by the extension of the railroads for the transportation of supplies and of ore and from the cheapening of labor, has been produced in increasing quantities. Unfortunately for our purposes, only one silver mine has reported its operations in any detail, and we are forced to depend for our estimate almost entirely on the figures supplied by Messrs. Wells, Fargo & Co., the carrying agents. These figures are given to them by the shippers, and as they are those on which freight is to be paid they are not likely to err on the side of exaggeration. The amount stated is \$473,285 coinage value, and although silver is bulky and heavy, and might be expected to be chiefly transported by this mode of conveyance, it may be pointed out that last year Messrs. Wells, Fargo & Co. reported only \$251,437, whereas the amount deposited in United States mints and assay offices was \$422,599, an excess of \$171,622, which must have found its way out of the Territory by other means. To this amount of \$473,285 must be positively added the silver parted from the gold, say over \$30,000. We may fairly estimate the entire production of silver during 1887 at \$550,000 coinage value.

PRODUCTION OF SILVER IN DAKOTA.			
Year.	Annual production of silver in Dakota as estimated by the Director of the Mint.	Year.	Annual production of silver in Dakota as estimated by the Director of the Mint.
1881.....	\$70,000	1885.....	\$100,000
1882.....	175,000	1886.....	425,000
1883.....	151,000	1887.....	550,000
1884.....	150,000		

In the table, found below, of the production of the leading mines nothing is attributed this year to the "Father de Smet," it having entirely ceased working, and for the first time in its history the "Homestake" falls below a million dollars. Both the "Homestake" and the "Highland" each produce about \$100,000 less than last year, but the increase in the "Deadwood Terra" and the "Caledonia" makes up in some degree this deficiency. The former has commenced paying dividends, but the receipts of the "Caledonia" have been entirely absorbed by working expenses and development. The "Iron Hill" has been producing largely, but owing to a cave in the mine late in the year which cut off approach to the ore bodies, the output does not equal that of 1886. It is reported to be 194,179 ounces fine silver and 430 ounces fine gold from 6,930 tons of ore; or, at the rate of 29 ounces silver and 0.65 ounce gold per ton, equal, at the mint valuation of \$1.2929 per ounce silver and \$20.67 per ounce gold, to \$251,054.03 and \$8,888.10, respectively, or an aggregate of \$259,942.13.

PRODUCTION OF THE LEADING MINES OF DAKOTA FOR FOUR YEARS.

Mines.	1884.	1885.	1886.	1887.
Homestake	\$1,255,790	\$1,307,039	\$1,030,758	\$936,282
Father de Smet.....	474,553	381,697	73,069	.....
Deadwood-Terra.....	485,401	441,491	589,657	637,326
Highland	511,421	416,686	518,387	409,781
Caledonia.....	.....	.....	200,227	281,391
Iron Hill.....	.....	13,394	372,120	259,942
Total	2,727,165	2,560,307	2,784,218	2,524,722

In addition to the above, the Bank of Custer City reports having received during 1887 the value of \$4,918.58 placer gold, and the First National Bank of Rapid City, from various sources, \$21,000 gold, all of which probably found its way to the assay office at New York, and is included in the figures under this head.

Mr. F. J. Cross reports the following production of the placer districts of Pennington County during 1887:

Castle Creek.....	\$10,000
Battle Creek.....	7,000
Rockerville.....	9,100
Total.....	26,100

as against \$41,500 from the same districts last year. This gold is almost all sold to Rapid City, Custer City, and Deadwood banks, and ultimately comes to New York, as indicated above.

The reduction of the ores of the Bald Mountain district has formed one of the interesting problems of the year, and is commented on in a

subsequent part of this paper. The entire production of the mines of this district is estimated at between \$50,000 and \$60,000. We have no exact data.

DIVIDENDS DECLARED BY DAKOTA MINING COMPANIES DURING 1887 AND THE PRECEDING YEAR.		
Mines.	1886.	1887.
Homestake	\$600,000	\$300,000
Deadwood-Terra.....		100,000
Caledonia.....	20,000	
Big Bend Hydraulic		48,000
Hermosa Hydraulic.....		25,000
Iron Hill.....	112,500	43,750
Total	732,500	516,750

Messrs. Wells, Fargo & Co. report the transport by express from the Territory during 1887 of gold \$2,385,320, and silver \$473,285; and by other conveyance gold \$200,000, which latter is the same amount as was estimated last year.

As a résumé of the above memoranda, I place the total production of the Territory for 1887 at—

Gold.....	\$2,600,000
Silver	550,000
	3,150,000

Railway communication by the extension of the Fremont, Elkhorn and Missouri Railroad now reaches near the heart of the Black Hills at Whitewood, and affords greatly increased facilities for the transportation of ore.

In my report of 1885 I alluded to the establishment of a School of Mines at Rapid City as an incident worthy of note, and the following information with regard to it, supplied by F. R. Carpenter, esq., dean of the school, will be read with interest.

It was inaugurated by him on a somewhat different plan from all other such schools in the country, and he at once asked for a complete metallurgical laboratory, with machinery upon a working scale, in order that its faculty might be able to study the "Hills" ore satisfactorily. The mill building is 60 by 138 feet, and contains the following plant upon working scale:

1. A complete stamp-mill for free gold ore.
2. A complete stamp-mill, with amalgamating pans, settler, etc., for refractory ores.
3. A complete leaching-mill for Plattner-Russell and Clark processes.
4. A Brueckner cylinder for roasting.
5. A reverberatory smelting furnace.
6. A complete concentrating plant.

Throughout the Hills are vast deposits of auriferous pyrites, the decomposed onterop of which caused the erection of many now useless stamp-mills.

In the Northern Hills, where igneous rocks occur at contacts between quartzite and lime shales, are found numerous shoots of highly silicious gold ores. Many attempts, with unsatisfactory results, have been made to work these. By fire assay they yield about \$25 in gold on an average, but no trace of gold can be found by pan test, or be seen under the microscope.

The School of Mines succeeded in working these ores by the Plattner process, and about the same time the problem of their reduction was undertaken anew by the Deadwood Reduction Company, who employed Mr. R. D. Clark, a man of wide experience with "dry" ores. He also was successful in all his laboratory tests, and is making a test of 5 tons at the School of Mines, so that there may be no doubt about the matter before erecting proposed works at Deadwood.

The great "Belt" or Homestake mines have already to solve a similar problem. The ore carries from 7 to 10 per cent. of sulphuret, which is increasing with depth. From this, of course, but little gold is obtained by free milling process. The concentrates yield about \$30 per ton, and there seems to be no difficulty, writes Mr. Carpenter, in testing them by the Plattner process. At the "Caledonia" both the percentage of concentrates and the yield per ton are greater.

In addition to these gold ores there are varying quantities of "dry" silver ores, suitable for milling process. It is in the solution of such questions as these that the School of Mines may be expected to justify its establishment.

The proposed works of the Deadwood Reduction Company will have a capacity of 50 tons a day, and if successful will probably be the forerunner of a number of works.

CHAPTER VI.

IDAHO.

By H. F. WILD,

Assayer in charge United States Assay Office at Boisé City, Idaho.

An estimate, based upon reports from the various samplers, reduction works and mines, together with information obtained from individuals best acquainted with particular localities, of the value of the gold and silver produced in Idaho Territory during 1887 is \$5,816,645.

This is an increase of \$702,323.38 over the production of 1886. Silver in both cases has been valued at the coining rate, viz, \$1.2929 per fine ounce.

Deposits at the mints and assay offices of the United States of unrefined bullion produced in Idaho during the year 1887 were as follows :

GOLD AND SILVER PRODUCED IN THE TERRITORY OF IDAHO DEPOSITED AT GOVERNMENT INSTITUTIONS DURING THE CALENDAR YEAR 1887.

Institutions.	Gold.		Silver (\$1.16 $\frac{1}{4}$ per standard ounce).	
	Standard ounces.	Value.	Standard ounces.	Value.
MINTS.				
Philadelphia.....	236.109	\$4,392.72	250.43	\$291.41
San Francisco.....	12,428.006	231,218.71	3,935.34	4,579.30
Carson.....	49.220	915.72	3.62	4.21
ASSAY OFFICES.				
Denver	430.768	8,014.23	89.70	104.33
Boisé City	34,294.276	638,033.04	14,556.30	16,938.23
Helena	6,998.087	130,196.97	1,283.20	1,493.18
New York	1,319.738	24,553.27	143,306.53	166,736.69
	55,756.204	1,037,324.72	163,425.12	190,167.40
Total value gold and silver				1,227,492.12

The following estimate of the production of the Territory is based on reports of mine owners, managers of reduction works, purchasers of "dust" or bullion, and others:

ESTIMATE OF THE PRODUCTION OF GOLD, SILVER, AND LEAD IN THE
TERRITORY OF IDAHO DURING THE CALENDAR YEAR 1887.

Production.	Value.
Gold	\$2, 417, 303
Silver (\$1.16 $\frac{4}{11}$ per ounce standard)	3, 399, 342
Total	5, 816, 645
Lead (51,335,404 pounds at 4.94 $\frac{1}{2}$ cents)	2, 536, 770

REVIEW.

The product of Ada County was about the same as in the preceding year.

In Alturas County the gold product of the mines of Rocky Bar increased, but owing to the decrease in the product of Wood River the total production of the county was less than in 1886.

Boisé County, owing to a plentiful supply of water and the development of deep mining, had an increased product.

In Custer, Idaho, and Lemhi Counties the product did not undergo any material change, development work having been satisfactorily prosecuted.

In Owyhee County many old mines have been re-opened, and explorations and development pushed more actively than for a number of years.

In Shoshone County the product has increased, and the completion of railroad communication and building of concentrating mills have placed the county in a much better position for mining operations.

This has been a prosperous year in the mining regions, and while the product has not greatly increased, a large amount of development has been done, and connections by rail and wagon road have been improved.

GOLD AND SILVER PRODUCT OF MINES

Authority.	District.	County.
United States assay office, Boisé City.....	.....	Ada.....
Do.....	Hailey.....	Alturas.....
Do.....	Rocky Bar.....	do.....
Do.....	Snake River.....	do.....
Purchasers and shippers.....	Rocky Bar.....	do.....
Do.....	Wood River.....	do.....
Do.....	Boisé Basin and Banner.....	Boisé.....
United States assay office, Boisé City.....	do.....	do.....
Do.....	Quartzburgh (Gold Hill mine).....	do.....
Do.....	Idaho City (Forest King mine).....	do.....
General Custer mine.....	Clayton.....	Custer.....
Governor's Report.....	Various.....	do.....
Hon. N. B. Willey.....	Florence.....	Idaho.....
Do.....	Elk City.....	do.....
Do.....	Salmon River.....	do.....
Do.....	Warren.....	do.....
Governor's Report.....	Various.....	Lemhi.....
United States assay office, Boisé City.....	do.....	do.....
Do.....	Silver City.....	Owyhee.....
Purchasers and shippers.....	do.....	do.....
Bank of Murray.....	Cœur d'Alene.....	Shoshone.....
Total.....	.....	.....

IN IDAHO DURING 1887 (REPORTED).

Fine gold.	Value of gold.	Fine silver.	Coining value of silver.	Total value of gold and silver.
<i>Ounces.</i>		<i>Ounces.</i>		
113	\$2,336	37	\$48	\$2,384
542	11,204	1,578	2,041	13,245
13,983	289,054	6,334	8,189	297,243
1,788	36,961	232	300	37,261
1,270	26,253	570	737	26,990
595	12,300	883,469	1,142,263	1,154,563
11,220	231,938	118,373	153,048	384,986
6,378	131,845	1,782	2,303	134,148
3,429	70,884	839	1,085	71,969
629	13,003	303	392	13,395
6,047	125,000	96,679	125,000	250,000
4,533	93,700	724,170	936,300	1,030,000
1,860	38,449	1,200	1,551	40,000
3,079	63,648	1,044	1,352	65,000
2,169	44,838	125	162	45,000
6,827	141,127	2,993	3,873	145,000
27,252	563,349	289,837	374,739	938,081
1,047	21,643	213	275	21,918
2,189	45,251	3,241	4,190	49,441
2,352	48,620	2,532	3,273	51,893
7,367	152,290	297,505	384,645	536,942
104,669	2,163,693	2,433,056	3,145,766	5,309,459

TOTAL PRODUCTION OF GOLD, SILVER AND LEAD IN IDAHO FOR 1887, "REPORTED AND ESTIMATED."

Counties.	Value of gold.	Value of silver at coining rate.	Lead.	Value of lead.	Total value of gold, silver and lead.
			<i>Pounds.</i>		
Ada	\$2, 336	\$48			\$2, 384
Alturas.....	375, 788	1, 324, 870	20, 375, 404	\$1, 018, 770	2, 719, 428
Bingham	71, 152	90			71, 242
Boisé	502, 246	179, 854			682, 100
Cassia	5, 954	46			6, 000
Custer.....	218, 700	1, 061, 300	6, 000, 000	300, 000	1, 580, 000
Idaho.....	345, 656	8, 344			354, 000
Lemhi	585, 000	375, 000	13, 000, 000	620, 000	1, 580, 000
Nez Percés	16, 537				16, 537
Owyhee.....	90, 883	7, 451			98, 334
Shoshone	175, 144	442, 339	11, 960, 000	598, 000	1, 215, 483
Washington	27, 907				27, 907
Total	2, 417, 303	3, 399, 342	51, 335, 404	2, 536, 770	8, 353, 415

RECAPITULATION.

Value of gold	\$2, 417, 303
Value of silver.....	3, 399, 342
Total value of gold and silver	5, 816, 645
Value of lead.....	2, 536, 770
Total value of gold, silver and lead	8, 353, 415

CHAPTER VII.

MICHIGAN.

With the exception of an annual product of silver, valued at from \$20,000 to \$30,000, extracted from the copper ores of Lake Superior, Michigan has not ranked as a producer of the precious metals until the last few years, when the discovery of gold quartz in the neighborhood of Ishpeming led to considerable exploration and the formation of numerous mining companies, none of which, however, with the exception of the Ropes Mining Company, are considerable producers of gold. No special collection has been made of statistics relating to the small production of the precious metals in this State. All that has been accomplished in the way of production will be here briefly recapitulated.

The Ropes gold mine located some four years ago, is situated about six miles northwest of Ishpeming. It is now between 500 and 600 feet deep, and is reported to have a large quantity of low-grade milling-rock at the bottom of the mine.

The mill equipment consists of 45 gravity stamps, the necessary running machinery, boilers, engines, hoisting machines, etc. The quartz averages as high as \$6 per ton, but the average amount of gold and silver recently saved was less than \$3.50 per ton. Although the mine has produced considerable gold and silver, the product being given below, it has been run at a loss each year, and assessments, amounting to \$103,200, have been levied, the last in July, 1887.

According to the official reports of the company its product has been as follows:

PRODUCTION OF THE ROPES MINE, MICHIGAN.		
Years.	Gold.	Silver.
March 1, 1885-'86	\$29,452.11	\$3,558.59
March 1, 1886-'87	38,499.93	4,653.92
March 1, 1887-'88	32,338.63	2,592.03
Total.....	100,290.67	10,804.54

Its product during the calendar year 1887 was, approximately, gold \$33,000, silver \$2,600.

The mine of the Michigan Company has produced some very rich specimens of gold quartz, but with the exception of specimens of selected ore no product is reported, and the extent and richness of the ore body are still in doubt. A shaft has been sunk some 10 feet on the vein. Gold ore has also been taken from the shaft of the Lake Superior Iron Company.

The deposits of gold and silver at the mints of the United States from the State of Michigan during the last three calendar years have been as follows:

DEPOSITS AT THE MINTS OF GOLD AND SILVER PRODUCED IN MICHIGAN.

Calendar years.	Gold.	Silver.
1885.....	\$13,286.28	\$30,098.88
1886.....	26,290.50	30,437.75
1887.....	25,239.88	34,470.89
Total.....	64,816.66	95,007.52

CHAPTER VIII.

MONTANA.

By SPRUILLE BRADEN,

Assayer in charge United States Assay Office, Helena, Montana.

In many respects the production of gold and silver in Montana Territory during the year 1887 did not justify the expectations of interested parties. The increased output in copper, however, partially compensated for the somewhat disappointing totals of gold and silver.

A controversy occurred during the summer between the owners of the silver mills in Butte and a railroad company as to the transportation of salt, and before a final settlement was reached the Alice mine and mill closed, and remained closed the rest of the year. The net price of this very important article was materially reduced.

The new mills mentioned in the report for 1886 have all been working during the past year, and the increased output is due to improvements in milling and transportation facilities. The St. Paul, Minneapolis and Manitoba Railway has completed its western extension as far as the Great Falls of the Missouri River, and there connects with its Montana branch, the Montana Central Railway, to Helena.

A tunnel is being driven through the range between Helena and Butte, and during the coming season rails will be laid to that camp, when it will be upon the line of a third trans-continental railway.

The Northern Pacific has built a branch to Marysville, where the celebrated "Drum Lummon" mine is located; a branch to Phillipsburgh, in the vicinity of which is the Granite Mountain mine; a branch to Boulder, in Jefferson County, and a branch up the Bitter Root River from Missoula.

There remained but two important lead smelters in the Territory, namely, the smelter of the Helena Mining and Reduction Company, at Wickes, and that of the Hecla Consolidated Mining Company at Glendale.

In the last days of the year the Montana Smelting Company was organized for the location and erection of works at Great Falls. The vast water-power at this point, together with facilities offered by the Manitoba Railway, and the close proximity of the Sandcoulee coal-fields, which

are said to be rich in good coking coal, will undoubtedly prove most important factors in the development of the mining industry in Montana.

In Beaverhead County the Glendale smelter and another at Argenta were operated during the greater part of the year, and the capacity of the former was increased by the addition of a new blast furnace.

Mining has not been extensively prosecuted in Choteau County during the year, but now that the Indian reservation has been opened, it is expected that a decided influx of settlers and miners will occur during the coming season.

It seems likely that from this source the best supply of steam and coking coal will be derived.

The large output of the Granite Mountain mine, in Deer Lodge County, increased the production of this district. The Bi-Metallic is a new, and the Blue-Eyed Nellie a continued, producer.

Many prospects are being developed in Jefferson County in the vicinity of Boulder and Wickes, and the older producers continue to turn out bullion.

The Montana Company, at Marysville, in Lewis and Clarke County, continues the leading gold producer in the Territory.

A new sixty-stamp mill was erected by the Empire Company, limited, intended to work low-grade ores.

Large quantities of ore were shipped from Madison County.

A promising district will be opened along the line of the Bitter Root Railway, in Missoula County.

Butte City and vicinity, in Silver Bow County, continues the most important district in Montana. Having been first prospected and the surface ores worked for silver only, it has since developed into what is essentially a copper district. A combination of the Montana Copper Company's interests with those of Mr. C. X. Larrabee (owner of the Mountain View) and others has been effected and the immediate erection of larger smelters is contemplated.

The Parrot continues to produce black copper, the silver apparently increasing as depth is attained.

The Blue Bird, a productive mine, works ninety stamps.

PRODUCTION OF GOLD AND SILVER IN MONTANA, 1887.

County and producer.	Gold.	Silver.	Total.
<i>Beaverhead County.</i>			
Deposited, United States assay office	\$80,000.00		
Argenta, sundry producers		\$45,000.00	
Hecla Consolidated Mining Company (4,663,148 pounds lead, 123,642 pounds copper)	9,115.47	612,387.51	
Tuscarora Mining Company		60,000.00	
Sundry producers and ores		150,000.00	
	89,115.47	867,387.51	\$956,502.98
<i>Choteau County.</i>			
Deposited, United States assay office	18,771.77		
Chinamen and others	4,000.00		
	22,771.77		22,771.77
<i>Deer Lodge County.</i>			
Beartown and Pioneer	100,000.00		
Bi-Metallic Mining Company	2,521.74	252,140.82	
Black Line Mining Company		15,401.31	
Blackfoot District	100,000.00		
Blue-Eyed Nellie mine		150,000.00	
Bullion mine		3,870.00	
Cable mine (estimated)	50,000.00		
Clark & Larrabee	98,182.50		
Chinamen	25,000.00		
Granite Mountain Mining Company	27,821.82	3,738,102.66	
Hope Mining Company		353,917.95	
Pyrenees mine		75,000.00	
Sundry producers and ore shipped	20,000.00	452,515.00	
	423,526.06	5,040,947.74	5,464,473.80
<i>Fergus County.</i>			
Maginnis Mining Company	63,649.00		
Spotted Horse	15,681.06		
Chinamen and others	6,000.00		
	85,330.06		85,330.06
<i>Jefferson County.</i>			
Deposited, United States assay office	60,797.69		
C. & D. Mining Company	10,335.00	10,320.00	
Helena Mining and Reduction Company (produced 7,652,250 pounds lead)	220,565.44	675,927.75	
Sundry producers and ores	105,230.24	708,714.67	
	396,928.37	1,394,962.42	1,791,890.79
<i>Gallatin County.</i>			
Deposited, United States assay office	4,642.82		
Sundry producers	5,587.00		
	10,229.82		10,229.82

PRODUCTION OF GOLD AND SILVER IN MONTANA, 1887—Continued.

County and producer.	Gold.	Silver.	Total.
<i>Lewis and Clarke County.</i>			
Deposited, United States assay office.....	\$157,973.21		
Empire Mining Company, limited.....	171,357.88	\$4,176.55	
Boston and Montana Gold Mining Company.....	360,000.00	90,000.00	
Helena Sampling Works.....	10,000.00	90,000.00	
Montana Company, limited.....	1,204,296.21	834,511.32	
Peerless Jennie mine.....	6,921.00	62,286.00	
Sundry producers and ore shipped.....	376,285.92	331,792.92	
	<u>2,286,834.22</u>	<u>1,412,766.79</u>	<u>\$3,699,601.01</u>
<i>Madison County.</i>			
Deposited, United States assay office.....	147,537.89		
Iron Rod mine.....	18,148.26	785.61	
Sundry producers and ore shipped.....	1,352,462.11		
	<u>1,518,148.26</u>	<u>785.61</u>	<u>1,518,933.87</u>
<i>Meagher County.</i>			
Deposited, United States assay office.....	46,523.26		
Sundry producers and ore.....	35,000.00	25,858.00	
	<u>81,523.26</u>	<u>25,858.00</u>	<u>107,381.26</u>
<i>Missoula County.</i>			
Deposited, United States assay office.....	16,837.01		
Missoula National Bank.....	39,397.00		
Chinamen and others.....	8,000.00		
Sundry producers and ore.....		77,574.00	
	<u>64,234.01</u>	<u>77,574.00</u>	<u>141,808.01</u>
<i>Park County.</i>			
Deposited, United States assay office.....	2,513.48		
Chinamen and others.....	1,500.00		
	<u>4,013.48</u>		<u>4,013.48</u>
<i>Silver Bow County.</i>			
Deposited, United States assay office.....	23,773.90		
Anaconda Gold and Silver Mining Company (pro- duced 57,000,000 pounds copper).....		1,483,000.00	
Alice Gold and Silver Mining Company.....	43,923.75	845,602.74	
Boston and Montana Consolidated Copper and Sil- ver Mining Company (produced 1,351,000 pounds copper).....		75,000.00	
Butte Reduction Company.....	30,000.00	270,000.00	
Clark's Colusa.....		204,000.00	
Clark's Fraction.....	62,010.00	221,880.00	
Clark's Original.....	20,670.00	129,000.00	
Clark & Larrabee.....	97,000.00		
Clipper mill.....		3,225.00	
Colorado Smelting and Mining Company.....	55,871.01	826,097.94	
Moulton Mining Company.....	25,000.00	780,789.27	

PRODUCTION OF GOLD AND SILVER IN MONTANA, 1987—Continued.

County and producer.	Gold.	Silver.	Total.
<i>Silver Bow County—Continued.</i>			
Neptune mine.....	\$72,345.00	\$174,150.00	.....
Sundry producers (as below).....	565,287.84	3,984,521.93	.....
Blue Bird Mining Company, Limited; Lexington mine; Margaret Ann mill; Parrot Silver and Copper Company; Pueblo Sampling Works; Silver Bow mill; oro shipped.			
Total.....	995,881.50	8,997,266.88	\$9,993,148.38

RECAPITULATION.

County.	Gold.	Silver.	Total.
Beaverhead.....	\$89,115.47	\$867,387.51	\$956,502.98
Choteau.....	22,771.77	.....	22,771.77
Deer Lodge.....	423,526.06	5,040,947.74	5,464,473.80
Fergus.....	85,330.06	.....	85,330.06
Jefferson.....	396,928.37	1,394,962.42	1,791,890.79
Gallatin.....	10,229.82	.....	10,229.82
Lewis and Clarke.....	2,286,834.22	1,412,766.79	3,699,601.01
Madison.....	1,518,148.26	785.61	1,518,933.87
Meagher.....	81,523.26	25,858.00	107,381.26
Missoula.....	64,234.01	77,574.00	141,808.01
Park.....	4,013.48	.....	4,013.48
Silver Bow.....	995,881.50	8,997,266.88	9,993,148.38
Total.....	5,978,536.28	17,817,548.95	23,796,085.23

CHAPTER IX.

NEVADA.

By WILLIAM GARRARD,

Superintendent of the United States Mint, Carson, Nevada.

Wells, Fargo & Co. report the production in Nevada for 1887 as follows:

Gold dust and bullion by express	\$2, 590, 962
Silver bullion by express	5, 355, 647
Ores and base bullion by freight	2, 285, 844
Total	10, 232, 453

PRODUCT OF GOLD AND SILVER

[Reported by county auditors to the

County.	Name of mine.	Ore produced.	
		Tons.	Lbs.
Churchill	Silver Ridge	122	1,648
	Golden Cream	120	.....
	Total	242	1,648
Elko	Resurrection	19	1,648
	Morning Star	127	.....
	Nevada Queen	329	.....
	North Belle Isle	910	.....
	Standing Elko	680	.....
	W. H. Ennor	13	545
	Ida H.	30	971
	Jumbo Consolidated Mining and Smelting Company.	255	1,483
	George J. Smith	20	227
	Total	2,385	874
Esmeralda	Mount Diablo Milling and Mining Company	5,988	.....
	Pamlico	68	1,831
	Shawmet Milling and Mining Company	176	453
	Lapanta	335	1,000
	M. M. Comstock	8	1,020
	Georgene Milling and Mining Company	2,530	.....
	Garfield (Limited) Mining Company	2,673	.....
	Candelaria W. W. and Mining Company	212	.....
	Harding	23	.....
	Thomas Callison	1	535
	Star	10	.....
	Blue Jay	13	.....
	Sentinel	654	322
	Western	221	1,500
	Atherton	300	500
	Lincoln	191	.....
	Belle	35	.....
	Wheeler	103	.....
	Hindley	86	1,845
	Total	13,641	1,006
Eureka	Baker Spencer & Company	3,956	.....
	Eureka Consolidated Mining Company	34,492	1,592
	Eureka Star	29	1,970
	Garrison	6,320	84
	Geddes & Bertrand	532	1,157
	Hamburg	702	518
	Lone Pine	83	1,664
	Macon City	75	1,463
Ruby & Dunderburg Consolidated	2,431	260	

PRODUCT OF GOLD AND SILVER IN

County.	Name of mine.	Ore produced.	
		Tons	Lbs.
Eureka—Continued	Silver Lick.....	461	1, 233
	Silver Conner.....	635	984
	Woodchopper.....	78	738
	Williams.....	52	658
	Altoona.....	20	508
	Alexandria.....	319	569
	Adelphi.....	14	856
	Banner.....	48	577
	Bullwhacker.....	91	634
	Bayse.....	22	1, 150
	Bully Boy.....	4	658
	Cumberland.....	70	619
	Comet.....	2	115
	Dead Broke.....	16	1, 234
	Diamond.....	209	1, 944
	Dug Out.....	6	1, 220
	Eureka Tunnel.....	85	235
	Fourth of July.....	3	601
	Fraser & Molino.....	135	746
	General Lee.....	108	18
	Grant.....	20	1, 157
	Harris.....	1	1, 760
	Jackson.....	1, 098	1, 673
	King Lear.....	18	787
	Kentuck.....	3	434
	Leone.....	136	662
	Lincoln.....	32	1, 870
	Lizzie L.....	12	1, 422
	May.....	76	1, 247
	Mount Hope.....	14	1, 120
	Marquita.....	150	296
	Members.....	455	1, 742
	Oregonian.....	8	234
	Richmond Mining Company.....	13, 882	1, 738
	Reves & Berry.....	91	206
	Summit.....	46	1, 303
	Silver Nugget.....	3	47
	Seventy Six.....	25	476
	Volk.....	1	1, 986
	Wide West.....	6	251
	Whipporwill.....	213	241
	Contention.....	6	604
	Irish Ambassador.....	2	510
	Idaho.....	68	182
	Albion.....	65	1, 945
	Metamoras.....	104	1, 339
	Oriental Belmont.....	154	73

NEVADA FOR THE YEAR 1887—Continued.

Gross yield or value.	Actual cost of—		Cost of reduction.		Total costs in part stated.
	Mining.	Transportation.	Free milling.	Freiberg process.	
\$20,247.05	\$12,860.75	\$695.00	.....	\$4,441.21	\$17,996.96
17,590.49	5,788.51	1,904.10	.....	5,731.39	13,424.00
4,262.93	2,753.55	353.00	.....	764.09	3,870.64
2,928.80	2,518.00	158.00	.....	494.96	3,170.96
365.76	300.00	19.00	.....	122.46	441.46
11,055.40	7,463.47	1,119.00	.....	2,682.69	11,265.16
607.00	450.00	65.00	.....	124.34	639.34
1,279.84	920.00	143.50	.....	482.88	1,546.38
2,478.23	1,800.00	276.00	.....	858.05	2,934.05
557.43	400.00	28.00	.....	225.75	653.75
325.90	300.00	25.00	.....	43.29	368.29
2,247.34	1,567.04	163.00	.....	540.37	2,270.41
125.00	125.00	22.00	.....	.....	147.00
591.65	550.00	98.00	.....	494.91	1,192.91
8,848.19	1,800.00	501.25	.....	336.23	2,637.48
331.33	290.00	27.00	.....	59.16	376.16
2,463.06	2,000.00	128.00	.....	811.50	2,939.50
125.69	100.00	10.00	.....	33.00	143.00
3,116.90	1,696.87	203.00	.....	1,093.33	2,993.20
3,084.73	1,620.77	183.00	.....	1,043.73	3,052.50
588.80	400.00	71.00	.....	191.41	662.41
77.06	55.00	5.00	.....	22.56	82.56
39,974.89	23,678.84	1,099.00	.....	9,719.80	40,777.64
400.85	400.00	32.30	.....	161.28	593.28
283.03	340.00	15.00	.....	35.05	390.05
1,075.24	520.00	206.00	.....	588.47	1,314.47
563.54	350.00	157.00	.....	185.17	692.17
345.95	200.00	37.00	.....	125.00	362.00
1,866.16	1,220.00	141.55	.....	753.64	2,115.19
264.40	300.00	36.00	.....	140.60	476.60
4,701.71	3,019.66	247.00	.....	1,107.36	4,374.02
5,929.49	1,862.77	456.00	.....	3,209.12	5,527.89
591.57	500.00	25.00	.....	81.17	606.17
153,181.41	91,089.76	4,550.81	.....	99,407.08	195,047.65
2,225.25	1,200.00	402.00	.....	785.49	2,387.49
2,294.70	1,900.00	113.00	.....	482.73	2,495.73
105.99	75.00	15.00	.....	30.23	120.23
1,250.16	1,125.00	36.00	.....	168.51	1,329.51
159.47	150.00	6.00	.....	19.93	175.93
165.64	120.00	10.00	.....	65.52	195.52
5,017.33	2,800.00	528.00	.....	2,131.20	5,459.20
333.54	310.00	42.00	.....	34.63	386.63
122.31	100.00	13.00	.....	22.55	135.55
1,151.43	800.00	85.00	.....	418.71	1,303.71
917.29	195.00	132.00	.....	527.28	854.28
1,876.45	708.98	37.00	.....	1,087.76	1,833.74
1,654.68	488.96	154.00	.....	930.72	1,573.68

PRODUCT OF GOLD AND SILVER IN

County.	Name of mine.	Ore produced.	
		Tons.	Lbs.
Eureka—Continued	Rocky Point	63	1,325
	Avon	9	528
	Cleveland	6	406
	Lake Shore	11	919
	McDermott	5	752
	Pinto Mill tailings	60	1,771
	Needle	8	873
	Prospect Mountain tunnel	55	510
	Paul Pry	35	562
	Phenix	150	1,150
	Pittsburg	1	1,971
	Republic	5	1,909
	Rosalind	20	989
	Silver King	13	1,091
	El Dorado	11	330
	Sun Flower		1,850
	Star Mining Company	473	720
	Western Contact	29	1,827
	Barton	2	471
	Esther	7	1,328
Lord Byron	11	1,630	
Mortimer	5	1,831	
Roslyn Furnace	15	1,560	
	Total	68,718	1,613
Humboldt	Ross Milling and Mining Company	1,331	516
	J. F. Clark Milling and Mining Company	70	.....
	Paradise Valley Milling and Mining Company	3,523	1,789
	Total	4,925	305
Lander	Manhattan Mining Company	3,253	500
	Pittsburg Mining Company	3,839	.....
	Eagle	15	.....
	Maysville	68	.....
	Total	7,225	500
Lincoln	Onondago	65	.....
	Mendha	13	757
	Pioche Consolidated Mining Company	1,219	130
	J. Pujade, custom ores	51	413
	South Western Mining Company :		
	Savage Mine	163	.....
	Techatteeup	122	.....
	Rover	51	.....
	Silver Legion	4	468
Custom ores	178	992	

NEVADA FOR THE YEAR 1887—Continued.

Gross yield or value.	Actual cost of—		Cost of reduction.		Total costs in part stated.
	Mining.	Transportation.	Free milling.	Freiberg process.	
\$3,380.40	\$1,350.00	\$159.00	.....	\$361.05	\$1,870.05
156.96	100.00	28.00	.....	74.11	202.11
121.47	100.00	25.00	.....	31.01	156.01
146.24	100.00	18.00	.....	68.76	186.76
92.73	75.00	27.00	.....	32.25	134.25
1,404.24	550.00	234.00	.....	852.39	1,636.39
653.59	650.00	87.90	.....	37.83	775.73
1,328.66	1,000.00	136.00	.....	435.50	1,571.50
442.21	270.00	53.00	.....	188.74	511.74
4,596.00	3,112.50	167.00	.....	1,308.97	4,588.47
98.06	75.00	7.00	.....	22.15	104.15
143.73	100.00	17.00	.....	47.64	164.64
105.06	100.00	30.00	.....	61.48	191.48
211.89	100.00	15.00	.....	108.36	223.36
268.28	300.00	34.00	.....	111.65	445.65
125.66	125.00	9.00	.....	9.25	143.25
15,097.39	2,509.55	2,765.82	.....	10,874.90	16,150.27
440.04	200.00	89.00	.....	209.39	498.39
191.55	200.00	47.00	.....	15.64	262.64
189.37	110.00	30.00	.....	56.24	196.24
276.30	200.00	33.00	.....	117.60	350.60
296.76	250.00	23.00	.....	59.15	332.15
279.26	125.00	16.00	.....	158.25	299.25
1,254,709.29	457,231.11	37,622.39	.....	600,184.25	1,101,446.83
7,218.36	4,572.11	645.91	\$3,075.44	.....	8,293.46
1,460.10	490.00	472.99	.....	700.00	1,662.99
126,000.54	112,000.28	14,641.05	24,670.29	10,395.65	161,707.27
134,679.00	117,062.39	15,759.95	27,745.73	11,095.65	171,663.72
231,457.00	11,059.22	9,290.74	.....	63,732.79	281,168.53
45,990.84	29,855.45	4,929.62	.....	20,954.96	55,740.03
2,144.30	2,046.00	88.50	.....	169.04	2,303.54
7,300.00	6,600.00	612.00	.....	1,088.00	8,300.00
286,892.14	49,560.67	14,920.86	.....	85,944.79	347,512.10
5,295.75	.....	.....	2,874.59	.....	5,372.21
1,043.43	425.46	191.03	149.90	766.39
4,789.38	4,905.62
2,916.92	3,951.28	617.95	165.71	4,734.94
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.....
.....
.....
11,929.95	5,367.48	1,133.25	4,743.64	11,244.37

PRODUCT OF GOLD AND SILVER IN

County.	Name of mine.	Ore produced.	
		Tons.	Lbs.
Lincoln—Continued	Ed Hing	450	
	Bristol mill	60	
	The L. W. Lessees	994	1,240
	Total	3,372	
Lyon.....	Oest Gold and Silver Mining Company	529	
	Jaques Beale & Co	1,500	
	Haywood Gold and Silver Mining Company.....	1,527	
	Woodworth Mill Company	11,300	
	Independent Mining Company	310	
	J. M. Douglas & Co	5,760	
Total.....	20,926		
Nye.....	Murphy	3,906	
	Air Shaft	60	1,116
	Unknown.....	5	1,580
	Unknown	6	449
	Lone Mountain	8	431
	Sullivan	1	520
	Arlington	25	1,405
	"G F"	3	956
	Richmond, Berlin, and Storm King.....	644	905
	Gila.....	1,643	1,242
	Furnace Dump	10	1,249
	Unknown		1,946
	Dimnick	4	1,846
	Air Shaft	10	56
	Belmont	7	1,275
	Red Cross	12	
	Illinois	25	337
	Arlington.....	4	1,970
	Cornish.....	10	1,746
	Barcelona.....	763	1,777
	Ma Alta	409	945
	"Q G"	563	71
	Sonora		1,910
	Liberty.....		1,893
	St. John	1	1,698
	Lizard	2	1,203
	Good Hope	4	491
	Perceo	3	1,466
	Horn Silver.....	20	221
Empire	6		
Highbridge	7	24	
Garfield.....	1	85	
Total.....	8,177	813	
Ormsby	Santiago mill.....	200	

NEVADA FOR THE YEAR 1887—Continued.

Gross yield or value.	Actual cost of—		Cost of reduction.		Total costs in part stated.
	Mining.	Transportation.	Free milling.	Freiberg process.	
\$2,850.00					\$2,850.00
669.95	\$240.00	\$105.00	\$360.00		705.00
2,373.46			2,373.46		2,373.46
31,868.84	9,984.22	2,047.23	10,667.30		32,951.99
9,007.61	3,904.84	529.00	3,174.00		7,607.84
5,000.00		1,400.00	3,800.00		5,200.00
15,047.63	3,004.50	1,527.00	9,402.00		13,933.50
24,186.13			23,575.41		23,575.41
9,125.00			5,694.00		5,694.00
14,393.43		1,440.00	11,520.00		12,960.00
76,759.80	6,909.34	4,896.00	57,165.41		68,970.75
92,302.75	113,560.73	3,442.85	41,112.00		158,115.58
7,858.39	6,384.63	1,159.00	571.41		8,115.04
459.45	285.92	121.20	70.59		477.71
236.44	101.11	118.22	67.18		286.51
422.15	171.28	156.10	115.08		442.46
185.86	155.00	25.20	17.64		197.84
1,795.75	775.55	675.44	308.18		1,759.17
322.25	300.00	71.00	27.82		398.82
37,583.72	11,825.00	1,009.65	9,460.00		37,398.23
29,628.89	7,847.20	1,070.75	16,227.11		32,998.34
1,151.70	700.00	350.00	131.30		1,181.30
340.85	270.00	49.65	24.00		343.65
394.16	325.00	197.80	49.45		572.25
825.97	637.23	175.00	120.00		932.23
1,159.12	959.00	60.50	188.94		1,208.44
790.00	1,200.00	30.00	360.00		1,590.00
2,762.43	2,000.00	487.50	352.35		2,839.85
307.38	377.75	134.59	69.74		582.08
1,934.41	1,635.00	233.96	208.85		2,077.81
57,489.63	5,809.78	2,318.42	13,840.24		49,952.10
19,322.98	10,942.89	3,929.93	4,407.51		19,280.33
9,956.82	3,818.40	644.97	5,378.00		9,841.37
180.00	150.00	25.00	12.00		187.00
422.12	395.00	2.50	30.00		427.50
123.11	125.00	5.75	45.50		176.25
271.29	235.00	6.25	52.03		293.28
287.89	219.25	13.25	89.82		322.32
237.13	175.00	12.00	74.66		261.66
1,183.35	938.67	377.63	278.59		1,594.89
399.30	180.00	135.30	84.00		399.30
374.81	467.40	7.76	170.93		646.09
345.21	357.25	2.14	35.63		395.02
271,055.31	173,324.04	17,049.31	93,970.55		335,294.42
1,400.00	400.00	100.00	500.00		1,000.00

PRODUCT OF GOLD AND SILVER IN

County.	Name of mine.	Ore produced.	
		Tons.	Lbs.
Storey	Consolidated California and Virginia mines	133,163	
	Savage	8,024	1,020
	Hale & Norcross	1,840	1,020
	Crown Point	16,544	1,887
	Belcher Mining Company	12,515	615
	Kentuck	3,064	.....
	Yellow Jacket	44,885	.....
	Overman	1,945	.....
	Chollar	1,700	.....
	Total	323,682	542
White Pine	Argus	3567	.....
	Bay State	762	469
	Coraell	26	1,980
	Exchange	857	1,000
	Keystone	326	225
	Matson	3	590
	Weaver	8	1,368
	Rescue	73	1,990
	Exchange	1,269	500
	Konigsburg	30	1,006
	Monitor	1,404	900
	Queen	5	1,745
	Sunrise	1,673	.....
	Scrap	11	1,434
	Sundrie	59	448
	Tickup	159	.....
	Young Treasure	9	1,513
	Aultman	840	.....
	Chloride		918
	Purell	35	1,487
	Rosco	9	1,475
	Unknown	12	1,236
	Dewitt	8	1,518
	Fay	3	945
	Fair Play	8	1,870
	Lucky Deposit	12	819
	Ontario	9	948
	Stafford	77	710
	Unit	8	1,852
Total	11,276	946	

NEVADA FOR THE YEAR 1887—Continued.

Gross yield or value.	Actual cost of—		Cost of reduction.		Total costs in part stated.
	Mining.	Transportation.	Free milling.	Freiberg process.	
\$2,854,090.35	\$969,263.67	.....	\$932,141.00	.....	\$1,901,404.67
161,233.63	93,330.36	.....	55,329.52	.....	148,659.88
48,724.11	20,364.83	.....	10,411.79	.....	30,776.62
178,852.68	.....	.....	.....	.....	170,995.94
104,598.08	.....	.....	.....	.....	98,552.65
44,487.95	24,949.40	.....	19,964.80	.....	44,914.20
384,307.59	258,105.51	.....	336,660.17	.....	594,765.68
16,680.61	6,158.56	.....	11,670.00	.....	17,828.56
27,144.87	29,857.37	.....	11,900.00	.....	41,757.37
3,820,119.87	1,402,029.70	.....	1,378,077.28	.....	3,050,655.57
89,288.21	65,513.56	\$7,134.04	42,089.60	.....	114,737.20
35,735.14	27,410.90	1,812.93	10,622.10	.....	39,845.93
1,201.55	792.98	287.98	274.90	.....	1,355.86
10,530.73	2,918.00	906.87	6,933.33	.....	10,758.20
14,963.54	6,490.00	2,580.01	4,239.23	.....	13,309.24
157.28	85.00	43.00	32.95	.....	160.95
257.00	100.00	160.00	32.00	.....	292.00
7,215.06	5,491.02	409.29	591.76	.....	6,492.07
22,882.50	12,197.00	2,037.00	12,920.20	.....	27,154.20
2,139.38	1,582.32	352.40	305.03	.....	2,239.75
23,473.62	15,548.95	2,808.90	11,235.60	.....	29,593.45
402.17	600.00	37.36	58.72	.....	696.08
49,213.13	27,150.20	3,526.00	21,156.00	.....	51,832.20
462.95	234.00	111.78	117.17	.....	462.95
2,405.83	1,324.00	595.47	570.48	.....	2,489.95
4,342.00	8,858.37	235.50	128.25	.....	9,222.12
636.93	340.00	202.50	97.50	.....	640.00
2,800.00	1,300.00	600.00	1,400.00	.....	3,300.00
11.50	20.00	10.00	5.00	.....	35.00
978.55	400.00	350.00	304.37	.....	1,054.37
248.00	150.00	140.00	75.00	.....	365.00
598.40	620.00	126.18	126.18	.....	872.36
289.49	160.00	75.00	56.95	.....	291.95
261.69	200.00	50.00	34.72	.....	284.72
329.04	150.00	100.00	89.35	.....	339.35
883.18	475.00	248.18	75.00	.....	798.18
487.47	250.00	150.00	94.74	.....	494.74
3,101.35	1,600.00	924.00	618.84	.....	3,142.84
176.87	100.00	120.00	.....	.....	220.00
275,472.56	181,561.30	26,134.39	114,284.97	.....	322,480.66

PRODUCT OF GOLD AND SILVER IN NEVADA FOR 1887.

Counties	Gold.	Silver.	Total.
Churchill	\$125. 00	\$19, 875. 00	\$20, 000. 00
Douglas	6, 000. 00	500. 00	6, 500. 00
Elko.....	8, 000. 00	366, 910. 00	374, 910. 00
Esmeralda.....	100, 000. 00	562, 500. 00	662, 500. 00
Eureka	500, 000. 00	943, 386. 61	1, 443, 386. 61
Humboldt	34, 000. 00	125, 848. 75	159, 848. 75
Lander		358, 615. 17	358, 615. 17
Lincoln	3, 983. 60	34, 856. 55	38, 840. 15
Lyon	53, 000. 00	125, 649. 50	178, 649. 50
Nye	3, 500. 00	334, 448. 13	337, 948. 13
Ormsby.....		1, 750. 00	1, 750. 00
Storey	1, 719, 053. 94	2, 626, 332. 41	4, 345, 386. 35
White Pine.....	110, 189. 02	206, 604. 42	316, 793. 44
Total	2, 537, 851. 56	5, 707, 276. 54	8, 245, 128. 10

STATISTICS OF THE COMSTOCK LODGE, STOREY COUNTY, NEVADA.

BY ALFRED DOTEN, VIRGINIA CITY, NEVADA.

The accompanying tabulated statement or exhibit marked A, is a faithful compilation of the mining statistics of the Comstock Lode, which are furnished by the various mining superintendents in the form of quarterly sworn statements to the county assessor in regulation of the tax levied upon the net bullion product or yield. It is manifestly incomplete in not including the first seven years of the productive, historic period, as well as in not representing the full amount of the regular yield since. Some discrepancies will also be observed between the amounts produced and the cost of production, several instances showing actual loss, yet at the same time showing a net yield.

This is explained by the fact that while a majority of the individual producers during the same period sustained loss, others made net gain upon which taxes were levied. Another explanation is that although the statement of quantity and gross yield may be measurably correct, yet it is obviously to the advantage of the producer to make as strong a showing of expenses of production as possible, as an offset against the taxable net yield. Thus it is that an immense amount of capital would seem to be employed at a comparatively small profit, and even at a loss.

It will be also noticed that no classification of the precious metals is given. Therefore, their respective proportions in the bullion product can only be judged or approximated by the understood percentage, ascertained and established in the general run of Comstock ore—60 per cent. silver and 40 per cent. gold. But the tailings can be estimated by

the same standard only to a certain extent, as in milling the ore a larger proportion of the silver than of the gold passes away in the tailings. The slimes of these tailings assay in silver and gold proportionately about the same as the original ore, but the heavier sands and sulphuret contain about one part gold to three parts silver. The general run of promiscuous tailings and slimes, worked together, gives an average reduction result of $66\frac{2}{3}$ per cent. silver to $33\frac{1}{3}$ per cent. gold. Upon the basis of these relative percentages the gross yield of all the tabulated ore and tailings may be very fairly estimated.

The earliest workings of the ores were naturally experimental and unequal, and the saving and working of the sand and slimes, under the expressive name of "tailings," still more so. Under the elementary and primary Territorial and State organizations, the official record of ore and bullion production did not commence until 1867, and the tailings record until 1871—four years later. The official statistics given for those and subsequent years were incidental to the new tax upon the proceeds of mines. There is no doubt that in some of the cruder experimental processes at first adopted a larger proportion of the precious metals contained in the ore escaped in the tailings than has since. Some, however, in the form of sandy sulphurets, was caught in sluices and reservoirs, but much of the richer and lighter chlorides, etc., in the form of slimes, was irretrievably washed away.

Large deposits and reserves of old tailings are still being profitably worked, but quite a falling off in that productive industry is caused principally by the more careful and effective operation of the mills, most of which now are claimed to work the ore up to more than 70 per cent. of the assay value, thus allowing but a comparatively small percentage to escape. The tailings generally belong to the mills, and are eventually worked by them or are sold to parties specially engaged in the reduction of tailings. A vast amount of private work has been and still is being done in that particular industry, which, like more or less valuable odds and ends of ore workings, does not come under the eye or upon the records of the assessor, and in fact is withheld from the knowledge of the general public.

Some of the earlier mill-men of the Comstock claim to have obtained fully as good a percentage from the amount of ore reduced as now obtained. They did not run through as much ore per stamp, but they claim to have worked it more carefully and finer. Subsequently, when much larger quantities were rushed through the batteries and pans, only 60 or 65 per cent., or even less, of the assay value was the bullion return. It is a fact that even at the present advanced stage of milling there are those claiming to work up to 80 per cent. of the assay value who fail to save more than 60 per cent. The most rapid and extensive processes are not always the most effective and economical.

The tabular statement marked B, gives a more complete and correct showing of the gold and silver yield of the Comstock than that of the assessor. It is no easy task at this late period to accurately ascertain and define the amounts of bullion realized in the earlier years of the great lode, as no official records have been preserved. But this statement is from information and data furnished by practical and observant witnesses, and from the most competent authorities. The books and records of the various mining companies along the lode have not been kept with much uniformity of system. In most cases little attention has been paid to recording relative proportion of gold and silver in the bullion yield. This exhibit gives it as correctly as possible from approximation, assayers' percentages, and classifications furnished by some of the leading representative companies.

The Comstock lode was discovered in February, 1859, but it was not until the following August or September that silver was found to be one of its chief mineral contents. The first stamp mill for crushing its ore was brought over the Sierra Nevada from San Francisco that season, and erected at the mouth of Gold Cañon, near the Carson River. It had four stamps of 750 pounds each, was run by horse power, and started into practical operation October 14, crushing ore from the Logan and Holmes ground, in the Gold Hill croppings of the Comstock. The ore was worked for gold, although worth but \$8 per ounce, the presence of silver not being suspected. There were two or three arrastras also working ore from the surface of the Ophir ground, yielding about the same quality of gold, and even when the silver was discovered no one was prepared to work it to any adequate extent until the next season. Mr. J. C. Corey, who was managing the Logan and Holmes mill, estimates the entire yield of the Comstock for the discovery year 1859, at \$30,000 in gold. The bullion yield for 1860 has been estimated as high as \$2,500,000, but Mr. Almarin B. Paul, who started the first steam mill that summer in Gold Cañon, sets the figures at \$750,000 as the minimum amount. He is corroborated by Dr. E. B. Harris, who also started a mill there about the same time, by Mr. Corey, and other competent judges. These gentlemen agree also as to the correctness of the figures given for the first five years and the preponderance of gold—70 per cent.—in the bullion product. It will be observed that gold also predominates in the bullion of the last three years, notably in that from the Yellow Jacket, and the Consolidated California and Virginia mines.

The bullion production given in this tabular statement is from the generally defined main range of the Comstock, as indicated by the list of assessments and dividends, also given, although mines other than those mentioned are included.

The Comstock is practically one vast mine. Yet, notwithstanding all its bonanzas, it contains some very costly barren spots, as, for instance, the misnamed Bullion, located in the very heart of the lode. This mine

has never returned an ounce of bullion for the \$4,000,000 in assessments expended in its development, and the Sierra Nevada's \$102,000 in dividends has cost over \$6,000,000 in assessments. These, however, are extreme instances, for the general excess of dividends over assessments is shown to be about \$59,300,000.

The generally understood and acknowledged fact that the assessor's record, even from its commencement in 1867, does not give a full and accurate showing of the Comstock bullion production is easily seen by comparing the two statements. Table B goes several years farther back, and closes with the richest and most satisfactory showing. The gross total yield foots up \$316,680,435.97. Add to this the \$11,170,203.62, given as the gross total yield of the tailings, and a grand total of \$327,850,639.59 of Comstock bullion is shown.

Now, in conclusion, add \$30,000,000 estimated gross yield from sundry lucrative leases of choice ground to private individuals, silent partners, etc., in the richest times, which yield only appears in the quarterly statements to the assessor as "ore sold" at a nominal net result to the companies; together with enough from general concealment of yield and surreptitious leakings and sly pickings in all directions from first to last to bring the grand total yield up to \$400,000,000, and this sum would not be an overestimate. Church figured it at that nine years ago, and Becker made it over \$300,000,000. Yet we have the bullion in many thousand tons of accumulated tailings remaining unworked, and the powerful machinery, plants, and other properties of the various mining companies, costing many millions in Comstock bullion, also still remaining as assets and valuable factors in future production. Even now, the Comstock is recuperating rapidly. With time and more intelligent exploration come better knowledge and appreciation of the true value of this famous lode.

A.—STATISTICS OF THE COMSTOCK LODGE AS GIVEN IN THE REGULAR QUARTERLY

Years.	ORE.				
	Tons.	Pounds.	Gross yield or total value.	Extraction, transportation, reduction, etc.—total cost.	Net yield or value on which taxes are levied.
1867.....	462,176	1,680	\$13,853,347.93	\$8,516,256.25	.....
1868.....	300,560	5	8,441,716.52	4,933,081.62	.....
1869.....	279,584	1,900	6,683,478.24	4,756,180.11	.....
1870.....	238,968	486	6,859,699.15	4,330,161.90	.....
1871.....	409,717	1,758	10,249,528.65	7,862,675.66	\$3,830,599.41
1872.....	384,668	1,540	12,236,399.65	8,898,920.24	5,406,020.92
1873.....	448,300	970	21,671,978.53	10,442,611.23	13,517,130.91
1874.....	526,743	1,712	22,476,785.15	12,077,624.05	11,409,175.99
1875.....	546,424	279	25,825,521.54	13,260,852.95	14,111,506.80
1876.....	598,818	1,169	31,618,660.20	15,950,223.90	23,685,157.62
1877.....	562,519	1,300	36,301,536.70	14,428,671.04	23,018,011.01
1878.....	272,908	958	19,661,394.11	7,500,008.44	12,649,202.41
1879.....	178,275	777	7,003,485.82	4,954,714.85	2,934,148.32
1880.....	172,399	1,785	4,953,514.83	4,028,151.32	1,353,241.25
1881.....	76,049	99	889,324.16	1,389,984.97	182,108.64
1882.....	90,180	1,010	1,568,213.44	1,744,010.48	365,998.72
1883.....	125,913	920	1,806,248.83	1,683,296.35	306,860.77
1884.....	188,368	1,666	2,584,579.95	2,656,893.40	480,988.61
1885.....	226,147	842	2,898,616.31	2,993,113.21	159,939.88
1886.....	238,779	895	2,085,349.42	2,367,254.71	441,067.94
1887.....	223,681	1,542	3,801,819.87	2,503,947.35	989,753.94
Total.....	6,551,185	1,293	243,471,299.00	137,278,734.13	114,840,913.14

SWORN STATEMENTS OF THE VARIOUS MINING COMPANIES TO THE COUNTY ASSESSOR.

ORE—continued.		TAILINGS.					
Actual difference shown between amount produced and cost of production.		Number of tons.	Gross yield or total value.	Extraction, transportation, reduction, etc.—total cost.	Net yield or value on which taxes are levied.	Profit.	Loss.
Profit.	Loss.						
\$5,336,991.58							
3,508,634.90							
1,927,298.13							
2,529,537.25							
2,386,852.99	.....	163,331	\$689,602.40	\$537,013.68	\$101,932.47	\$152,588.72	.....
3,337,479.41	.....	248,957	749,163.69	709,934.90	40,388.36	39,228.79	.....
11,229,367.30	.....	162,357	778,981.69	718,192.63	61,839.71	60,789.06	.....
10,399,161.10	.....	84,178	555,147.00	488,226.16	83,468.35	66,920.84	.....
12,564,668.59	.....	78,628	462,219.54	370,961.33	93,839.79	91,258.21	.....
15,668,436.30	.....	99,611	654,769.84	535,977.68	118,377.14	118,792.16	.....
21,872,865.66	.....	129,639	1,169,265.28	928,266.72	274,862.08	240,998.56	.....
12,161,385.67	.....	208,601	1,526,832.03	1,081,521.77	424,414.67	445,330.26	.....
2,048,770.97	.....	215,626	1,481,909.75	997,435.44	529,276.86	484,474.31	.....
925,363.51	.....	181,563	1,028,485.96	746,286.21	297,965.57	282,199.75	.....
	\$500,660.81	141,699	664,443.02	550,812.11	117,155.87	113,630.91	.....
	175,797.04	98,019	383,251.97	292,787.21	105,561.13	90,464.76	.....
123,052.48	.....	68,892	188,725.85	186,416.40	49,645.49	2,309.45	.....
	72,313.45	92,207	329,533.13	289,248.51	43,662.08	40,304.62	.....
	94,496.90	69,521	230,893.36	204,477.44	25,369.66	26,415.92	.....
	281,905.29	62,658	230,022.55	191,295.13	38,727.45	38,727.42	.....
1,297,872.52	.....	19,058	46,916.56	43,955.41	2,961.15	2,961.15	.....
106,192,564.87	1,125,173.49	2,124,545	11,170,203.62	8,872,808.73	2,509,447.83	2,297,394.89	.....

RECAPITULATION.

The relative proportions of the precious metals found in the ore are totally unclassified in the foregoing tabulated statement. Estimated by the general average Comstock standard (60 per cent. silver and 40 per cent. gold):—silver, \$146,082,779.40, gold, \$97,388,579.60 \$243,471,299.00
 The general average assay of promiscuous tailings shows the percentages—silver, 66 $\frac{2}{3}$, and gold, 33 $\frac{1}{3}$. Hence in the tailings—silver, \$7,446,802.41, gold, \$3,723,401.21..... 11,170,203.62
 Gross total yield since and including 1867 254,641,502.62

B.—GOLD AND SILVER PRODUCTION OF THE COMSTOCK LODGE FROM COMMENCEMENT OF OPERATIONS.

Years.	Gold.	Silver.	Total.
1859 <i>a</i>	\$30,000.00	.....	\$30,000.00
1860 <i>a</i>	525,000.00	\$225,000.00	750,000.00
1861 <i>a</i>	2,450,000.00	1,050,000.00	3,500,000.00
1862 <i>a</i>	4,690,000.00	2,010,000.00	6,700,000.00
1863 <i>b</i>	7,440,000.00	4,960,000.00	12,400,000.00
1864 <i>b</i>	9,600,000.00	6,400,000.00	16,000,000.00
1865 <i>c</i>	7,700,231.90	5,133,467.93	12,833,719.83
1866 <i>c</i>	8,944,736.51	5,963,157.67	14,907,894.18
1867 <i>b</i>	8,243,170.80	5,495,437.20	13,738,608.00
1868 <i>b</i>	5,087,861.40	3,391,907.60	8,479,769.00
1869 <i>b</i>	4,443,346.80	2,962,231.20	7,405,578.00
1870 <i>d</i>	5,222,595.24	3,481,730.16	8,704,325.40
1871 <i>e</i>	6,149,717.19	4,099,811.46	10,249,528.65
1872 <i>e</i>	7,341,839.79	4,894,559.86	12,236,399.65
1873 <i>e</i>	13,003,187.12	8,668,791.41	21,671,978.53
1874 <i>e</i>	13,486,071.09	8,990,714.06	22,476,785.15
1875 <i>e</i>	15,495,312.93	10,330,208.61	25,825,521.54
1876 <i>e</i>	18,971,196.12	12,647,464.08	31,618,660.20
1877 <i>e</i>	21,780,922.02	14,520,614.68	36,301,536.70
1878 <i>e</i>	11,796,838.46	7,864,555.65	19,661,394.11
1879 <i>e</i>	4,202,091.49	2,801,394.33	7,003,485.82
1880 <i>f</i>	3,077,409.00	2,051,606.00	5,129,015.00
1881 <i>f</i>	645,372.00	430,248.00	1,075,620.00
1882 <i>f</i>	1,046,078.40	697,385.60	1,743,464.00
1883 <i>f</i>	1,203,809.30	802,539.53	2,006,348.83
1884 <i>f</i>	1,561,313.60	1,277,438.40	2,838,752.00
1885 <i>f</i>	1,729,531.25	1,415,071.04	3,144,602.29
1886 <i>f</i>	2,054,920.15	1,681,298.31	3,736,218.46
1887 <i>f</i>	2,481,176.85	2,030,053.78	4,511,230.63
Totals.....	190,403,729.41	126,276,706.56	316,680,435.97

a From Corey, Paul, and Harris, three of the first quartz-mill men on Gold Cañon.

b From J. D. Hague's Report on Mining Industry of the Fortieth Parallel, 1870, competently corroborated.

c From the records of Wells, Fargo & Co.'s Express.

d From official mining data, corroborated and added to by trustworthy information.

e From sworn quarterly statements of mining companies to the assessor for bullion tax purposes.

f From the official records of mining companies, furnished by secretaries.

B.—TOTAL ASSESSMENTS AND DIVIDENDS TO JANUARY 1, 1888.

Names of mines.	Assessments.	Dividends.
Utah	\$800,000	.....
Union Consolidated.....	2,270,000	.....
Sierra Nevada	6,050,000	\$102,500
Mexican	2,615,760	.....
Ophir	4,115,700	1,595,800
Consolidated California and Virginia	2,652,060	75,502,800
Best & Belcher	1,953,790	.....
Gould & Curry.....	4,197,000	3,826,800
Savage.....	6,542,000	4,460,000
Hale & Norcross.....	5,086,800	1,598,000
Chollar and Potosi.....	2,609,600	3,080,000
Bullion.....	3,957,000	.....
Exchequer.....	750,000	.....
Alpha.....	510,000	.....
Consolidated Imperial	1,775,000	500,000
Challenge.....	30,000	.....
Confidence.....	43,000	78,000
Yellow Jacket	5,448,000	2,184,000
Kentuck.....	342,000	2,005,970
Crown Point.....	2,673,370	11,588,000
Belcher	2,614,000	15,397,200
Overman.....	3,737,180	.....
Caledonia.....	3,155,000	.....
Justice.....	3,491,500	.....
Consolidated Bowers, and adjacent small Gold Hill mines.....	.....	4,800,000
Total	67,418,760	126,719,070
Excess of dividends over assessments.....	.....	59,300,310

CHAPTER X.

NEW MEXICO.

BY FRANCIS N. HOLBROOK, EL PASO, TEXAS.

The production of the precious metals from the mines of New Mexico during the year 1887 was as follows:

PRODUCTION OF NEW MEXICO, 1887.		
Description.	Fine ounces.	Coin value.
Gold.....	30, 816. 41	\$636, 970. 43
Silver.....	1, 910, 433. 79	2, 469, 999. 85
Total		3, 106, 970. 28
This was an increase of \$405,223.53 over the preceding year, distributed as follows :		
Description.	Ounces.	Coin value.
Gold.....	15, 750. 83	\$325, 564. 68
Silver.....	61, 693. 70	79, 663. 28

There have been no new discoveries of magnitude this year, nor any new centres of mining established.

El Paso, Texas, affords another outlet for ores, and advantage of its large smelting works has been taken by many.

From Lincoln County, through which runs the line of the proposed railroad from El Paso, reports are exceedingly encouraging and indicate the promise of large quantities of both silver and gold. The county has produced a large proportion of the total gold product of the Territory, very little silver having been returned. A little ore, mainly high-grade galena, has been shipped from the silver mines, 120 miles to the railroad, but the greater number of mines await the advent of cheaper transportation facilities, and may be classed as prospects. Of the gold mines, the Parsons Homestake, West Homestake, Chester, and others have been constant producers.

Socorro with her smelter continues to contribute largely to the output. Kingston, of all the camps in the Territory, shows the greatest activity. The reports from this point present an encouraging view. The greatest producers have been the Andy Johnson, Bullion, Brush Heap, Black Colt, Comstock, Caledonia, Lady Franklin, Log Cabin, and Templar.

At Carlisle, the Carlisle mine has added largely to the product.

Grant County, in which are situated most of the prominent mining camps, has returned the largest amounts of gold and silver.

CHAPTER XI.

OREGON.

By ISRAEL LAWTON,

Superintendent of United States Mint at San Francisco, Cal.

The product of the precious metals in the State of Oregon for the calendar year 1887 was, approximately, gold, \$918,511.01; silver, \$17,250.26. Total \$935,761.27.

BULLION PRODUCT OF THE MINES OF OREGON, 1887.

REPORTED.

County.	Gold.	Silver.	Total.
Baker	\$108,558.10	\$153.15	\$108,711.25
Benton	2,631.66		2,631.66
Coos	13,018.00		13,018.00
Curry	27,100.00		27,100.00
Douglas	31,900.00		31,900.00
Grant	113,895.90	6,797.11	120,693.01
Jackson	238,555.85	300.00	238,855.85
Josephine	145,351.50		145,351.50
Marion	15,000.00		15,000.00
Washington	40,000.00		40,000.00
Total	736,011.01	7,250.26	743,261.27

UNREPORTED.

Baker	\$65,000.00	\$5,000.00	\$70,000.00
Benton	1,000.00		1,000.00
Crook	1,500.00		1,500.00
Curry	10,000.00		10,000.00
Douglas	5,000.00		5,000.00
Grant	50,000.00	5,000.00	55,000.00
Lane	5,000.00		5,000.00
Umatilla	30,000.00		30,000.00
Union	15,000.00		15,000.00
Total	182,500.00	10,000.00	192,500.00

BULLION PRODUCT OF MINES OF OREGON FOR THE TWELVE MONTHS ENDING
DECEMBER 31, 1887.

County.	Gold.		Silver.		Total.		Grand total.
	Reported.	Unreported.	Reported.	Unreported.	Gold.	Silver.	
Baker.....	\$108,558.10	\$65,000	\$153.15	\$5,000	\$173,558.10	\$5,153.15	\$178,711.25
Benton.....	2,631.66	1,000	.....	.....	3,631.66	.....	3,631.66
Coos.....	13,018.00	.....	.....	.....	13,018.00	.....	13,018.00
Crook.....	.....	1,500	.....	.....	1,500.00	.....	1,500.00
Curry.....	27,100.00	10,000	.....	.....	37,100.00	.....	37,100.00
Douglas.....	31,900.00	5,000	.....	.....	36,900.00	.....	36,900.00
Grant.....	113,895.90	50,000	6,797.11	5,000	163,895.90	11,797.11	175,693.01
Jackson.....	238,555.85	.....	300.00	.....	238,555.85	300.00	238,855.85
Josephine.....	145,351.50	.....	.....	.....	145,351.50	.....	145,351.50
Lane.....	.....	5,000	.....	.....	5,000.00	.....	5,000.00
Marion.....	15,000.00	.....	.....	.....	15,000.00	.....	15,000.00
Umatilla.....	.....	30,000	.....	.....	30,000.00	.....	30,000.00
Union.....	.....	15,000	.....	.....	15,000.00	.....	15,000.00
Washington.....	40,000.00	.....	.....	.....	40,000.00	.....	40,000.00
Total.....	736,011.01	182,500	7,250.26	10,000	918,511.01	17,250.26	935,761.27

VALUE OF SHIPMENTS BY WELLS, FARGO & CO., FROM THE COUNTIES OF
OREGON, IN 1887.

County.	Gold.
Baker.....	\$5,424
Clackamas.....	994
Coos.....	844
Douglas.....	9,405
Grant.....	1,790
Jackson.....	115,580
Linn.....	940
Marion.....	3,404
Multnomah.....	13,700
Union.....	1,122
Total.....	153,203

CHAPTER XII.

TEXAS.

By FRANCIS N. HOLBROOK, EL PASO, TEXAS.

The returns from the mines of Texas for the year 1887 show a marked improvement over those of the preceding year. Several new camps have been started which have shipped ore to reduction works. The Chinati Mountain district still continues to lead in the amount of silver produced.

The Cibolo and Presidio, under one management, are the largest enterprises in this quarter. During the year the Presidio produced nothing, owing to law suits. The other producing district in the State is in and about the Carrizo Mountains, 130 miles southeast of El Paso, and well situated with regard to the Texas and Pacific and Southern Pacific railroads, the distances being from 2 to 15 miles.

The main property in this district has been systematically worked during the past two years, with such favorable results as to attract many prospectors.

A large number of claims have been taken up and prospecting is being vigorously carried on. The returns from this district have been meagre and represent only a small portion of the production. The cause is readily accounted for, the State law requiring that 5 per cent. of the gross receipts of each and every mine located on the public land of the State shall be paid to the State. Several changes in this law have been proposed, but no remedy has been applied. So seriously has this law affected miners and worked to the detriment of discoverers of mines, that it has been incorporated in this report by way of calling attention to its onerous provisions. It is to be found in General Laws of the State of Texas, Eighteenth Legislature, Chapter XCVII, page 100, and is entitled—

AN ACT to provide for the disposition of the minerals in the Public School, University, Asylum and public lands of the State of Texas.

Be it enacted by the legislature of the State of Texas: That all minerals in the Public School, University, Asylum and public lands of the State of Texas, be and the same are reserved from the operation of the laws for the sale of such lands and shall be used and disposed of for the benefit of the respective funds for which said lands are now set apart as hereinafter prescribed.

SEC. 2. The State Land Board shall have the control and management of the disposition and use of said minerals and shall provide such rules and regulations therefor as to them may seem best within the provisions of this act.

SEC. 3. When a prospector or miner shall discover upon any of said lands any mine of coal, iron, tin, copper, lead, silver or gold he shall immediately stake the same in its apparent extent not to exceed in size three hundred feet one way, by fifteen hundred feet the other way, the corners to be marked by distinct stone land marks and shall within forty days thereafter file a description of said mine, the county in which it is situated, the number of survey, the company or individual to whom the same was issued, and such other description as is practicable, in the clerk's office of the county where the land lies, or if an unorganized county then in the county to which the same is attached for surveying purposes, which description shall be verified by an affidavit of the fact that he is the discoverer of said mine, and that he intends to fully prospect the same and comply with the law pertaining to the same in good faith, and shall be registered in the record of deeds. He shall then have the privilege of selling the rights he may have acquired in said mine—provided that he or his assigns shall, within ninety days after the filing of such description, have said mine surveyed, and shall file a copy of said survey, together with specimens of the ore taken therefrom, with the State Land Board at Austin.

SEC. 4. After the filing of such survey and specimens, the discoverer or his assigns shall work said mine for his own benefit and for the benefit of the fund to which said mine belongs, said fund to receive five per centum of the gross receipts from said mine to be paid and received in such manner and under such regulations as the Land Board may prescribe by general rules applying alike in all cases—provided that the mines shall be worked subject to such rules and regulations as the Land Board may prescribe, and which may be from time to time, changed, and they may by regulation prescribe such conditions of forfeiture of the rights hereby conferred as they may think proper, and on their violation declare such forfeiture—provided further that anyone taking up a mining claim of the dimensions herein provided for shall do at least two-hundred dollars' worth of work per annum on the same, and furnish annual proof of the same to the Land Board. Anyone failing to comply with this provision shall forfeit his interest and it shall be subject to entry by any other person and it shall require no judicial forfeiture.

SEC. 5. The filing and registration of the description hereinbefore provided to be filed with the county clerk shall be constructive notice of claim. But all persons who have heretofore discovered and worked mines on said lines shall have a prior right for ninety days after the passage of this act in which to comply with this law as discoverer.

SEC. 6. This being a matter of great general interest and importance, and there being no law regulating the same, an imperative public necessity and emergency exists for its immediate passage, therefore it is enacted that the constitutional rule be suspended and that this act take effect from and after its passage.

Approved April 14, 1883.

This law with another which prescribes that all minerals are transferred with land in sale thereof, and the uncertainty in determining which is public and which private land, has deterred many from prospecting, especially in a State so well provided with railroad facilities as this. The railroad companies, the largest owners of mineral lands, are at work to devise some scheme which will be acceptable to all discoverers on their lands, and which will invite rather than turn away.

Surveys are being made locating their lands absolutely so that there can in future be no doubt as to the ownership.

The ores of the Carrizo district are copper bearing, and from the returns made, average about 54 ounces of silver per ton and from 6 to 20 per cent. of copper.

The principal mine of this district is owned by Messrs. Schiever and Andrews, of San Antonio, and shows considerable development. A shaft 195 deep has been sunk upon the vein with drifts or levels running out at every 50 feet. Besides this development several other pits or shafts of about 20 feet in depth have been sunk on the vein at intervals along its outcrop. Among the mines now being actively worked and shipping ore may be mentioned the following: Hazel, Sancho Panza, Llewellyn, and Gracie.

Below is given a table showing the production for the past year with that of the two preceding years, no gold having been produced:

PRODUCTION OF TEXAS.		
Years.	Silver (ounces).	Coin value.
1885.A	169,342.00	\$218,942.27
1886.....	191,873.18	248,072.83
1887.....	235,998.94	305,123.04

CHAPTER XIII.

UTAH.

BY A. HANAUER, SALT LAKE CITY.

The production of the precious metals during the past year in Utah Territory has gone steadily forward. The Territory has held its own during the year and, in fact, shows a slight increase in value over the preceding year. No new districts have been opened up, but several now inaccessible are awaiting the advent of promised railroad facilities to bring them in closer connection with outside markets. Towards the close of the year, owing to the advance of the metal market, renewed activity was manifested in many old and heretofore abandoned mines, while numbers of low-grade properties entered the producing class. On the whole, mining is in a most healthy condition; the ores find a ready market at the smelters in the Salt Lake or Jordan Valley, while some, generally dry ores, are shipped to Denver, Pueblo, and Kansas City.

SUMMIT COUNTY.

The greater portion of the product of this county was furnished by three mines—the Ontario, Daly, and Crescent. The first two, under practically the same management, are, with the Eureka Hill mine in Juab County, the principal silver-producing mines of the Territory, and take rank among the foremost silver producers in the United States.

The output of the Ontario for the year 1887 was 1,710 doré bars, weighing 157,763 pounds avoirdupois, and containing 1,055,468 ounces fine silver, which realized \$1,007,073. This was produced from 23,000 tons of milling ore. In addition, 9,162 tons of ore sold to smelters contained 4,029,200 pounds of lead, 913,200 ounces of fine silver, and 927 ounces of fine gold, and realized \$738,226, the aggregate amount realized from the sale of the bars and ore being \$1,745,299. The mine kept up during the year its record of regular monthly dividends of \$75,000, being 50 cents per share on 150,000 shares, or \$900,000 for the year, making a grand total of \$8,825,000 paid its stockholders since the incorporation of the company.

The output of the Daly properties, which form a continuation of the Ontario vein, is, like that of the Ontario, partly treated in the company's mill at Park City, the rest being sold under contract to smelters. The former, the product of 17,300 tons of milling ore, consisted of 510 mill bars, weighing 54,414 pounds avoirdupois, containing 713,337 ounces of fine silver and 451 ounces of fine gold, and realized \$690,000. The ore sold amounted to 3,263 tons and contained 1,565,600 pounds of lead, 292,422 ounces of fine silver, and 331 ounces of fine gold, realizing \$240,570. The aggregate receipts for the year were \$930,570, from which dividends amounting to \$375,000 were paid.

The Crescent has neither mill nor milling ore, and its output, consisting of crude ore and concentrates (the latter the product of the company's concentrator at Park City), is sold to the smelters. The output for the year was 5,269 tons and brought \$158,550, a detailed statement of which appears in the annexed table, showing the output of the county for 1887. The Crescent Company paid a dividend of \$30,000 during the year.

Neither the Sampson nor the Apex has yet taken rank with the dividend-paying mines. Both have done considerable development work during the past year, notably the Sampson, which drove a tunnel 2,450 feet in length. Each marketed about 400 tons of ore.

A most important piece of development work now in process of construction is the Anchor tunnel, for draining as well as transportation purposes, situated in the Uintah mining district, run to connect with the shaft that is already sunk to the depth of 700 feet, upon the claims belonging to the company of that name. The ground owned and occupied by the company is 6,000 feet long and 3,000 feet wide. It is situated upon the same ore-bearing zone as the Ontario and Daly mines, the east end of the Anchor Company's ground joining the west end of the Daly's, and the Daly joining the west end of the Ontario Company's ground. The tunnel will be, when finished, 6,000 feet long. It has been driven 3,000 feet during the past year, and the completion of the work is expected about January, 1889.

All of these mines are in Uintah district.

The Snake Creek district is represented by the Southern Tier group, which produced a fine carbonate ore, assaying 50 per cent. of lead, and running into the hundreds of ounces of silver. About \$10,000 worth of this ore was marketed, and paid for the development work prosecuted during the year.

TABULATED STATEMENT OF OUTPUT OF SUMMIT COUNTY FOR 1887.

Mines.	Lead.	Silver.	Gold.
	<i>Pounds.</i>	<i>Ounces.</i>	<i>Ounces.</i>
Ontario	4,029,200	1,968,668	927
Daly	1,565,600	1,005,760	782
Crescent	4,215,200	118,025	150
Sampson	250,000	25,000	} 100
Apex	310,000	25,000	
Miscellaneous	40,000	15,000	
Total	10,410,000	3,157,453	1,959

SALT LAKE COUNTY.

The three mining camps of Salt Lake County, Big and Little Cottonwood, and Bingham or West Mountain district, produced a total of 30,600 tons, by far the greater portion of which came from the latter.

The output of the Cottonwoods, once rivals of Bingham in the tonnage produced, was about 2,000 tons, and came principally from the Maxfield, in the Big Cottonwood, and the City Rocks, Vallejo, New Emma, Antelope and Prince of Wales, Richmond and Teresa, and Victoria and Imperial, in the Little Cottonwood district. Other mines contributing to this total, and doing more or less development work, were the Albion, Evergreen, Frederick and Crown Prince, Golconda, Highland, McKay and Revolution, Oxford and Geneva, Silver Gauntlet and Superior, in Little Cottonwood, and the Davenport, Eclipse, Kesler, Silver Mountain, and Tidal Wave, in Big Cottonwood.

The output of the West Mountain district was 28,600 tons, a considerable portion of which was concentrates, produced by the concentrating mills belonging to the Brooklyn, Jordan, Spanish, and Lead mine companies, and therefore represents a far greater tonnage of ore actually mined. The greater portion of the ore mined in recent years is, in its crude state, too poor to be marketed, and must undergo "dressing" or concentrating before attaining the quality of a merchantable commodity. In addition to that treated in the mills above named much ore is hand-jigged. The ores can be classed in about equal proportions as galena, sulphurets, and carbonates.

The principal producers are the Lead Mine (4,500 tons), Brooklyn (6,000 tons), Yosemite (2,200 tons), Spanish (2,000 tons), Jordan, South Galena, Old Telegraph, Nast, and Tiewaukee. The greatest depth has been attained by the Brooklyn, 1,400 feet, which is closely followed by the Lead Mine, whose new incline reached a depth of 700 feet. The Lead Mine Company's plant is the most extensive in the district, and consists of the usual hoisting works, and other improvements at the mine, a concentrating mill of 100 tons capacity per diem, and, connecting

the latter with the mine, a tramway $5\frac{1}{2}$ miles in length, constructed at a cost of \$30,000.

A host of lesser properties help to swell the total output. Bingham furnishes more of the smaller class of producers than any other camp in the Territory, many of the mines being worked by lessees and sub-lessees, who pay a royalty out of the net proceeds of the ore. A list of these comprises the following: Aladdin, Alameda, Ashton, Burning Moscow, Dolly Varden, Dixon, Evergreen, Giant Chief, Grey Eagle, Greely, Grizzly, Happy-Go-Lucky, Highland, Homestake, I X-L, Last Chance, New Last Chance, Live Pine, Logan, Lucky Boy, Markham, Miner's Dream, Neptune, Nora, Northern Light, Northern Chief Mining Company's Queen, Old Stand-by, Orphan Boy, Peabody, Plummer Tunnel, Poplar, Queen, Redwing, Rogers, Rough-and-Ready, Roman Empire, Silver Hill, Silver Shield, Sacred, Saturn, Steamboat, Ten-Forty, Watson, Wasatch, Westside, Winnamuck, and Yosemite No. 2.

Salt Lake County is also the seat of the smelting industry of the Territory, the three smelters operated during the year showing the following output:

Smelters.	Lead.	Silver.	Gold.
	<i>Pounds.</i>	<i>Ounces.</i>	<i>Ounces.</i>
Hanauer Smelting Works.....	12,064,000	842,437	2,050
Germania Lead Works.....	9,420,435	560,832	2,800
Mingo Furnace Company.....	5,215,310	278,266	1,000

BEAVER COUNTY.

The output of Beaver County was 5,440 tons of ore, furnished by over a score of mines in the Frisco, Star, Shauntie, Lincoln, and Bradshaw districts. But one mine need be mentioned, the Horn Silver, in the Frisco district, which alone contributed three-fifths of the output of the county, or 6,763,155 pounds of ore, containing 2,793,599 pounds of lead and 99,388.30 ounces of silver.

JUAB COUNTY.

But one district, Tintic, in this county merits particular mention. Its output, including 10,350 tons of iron fluxing ores (but barren so far as the precious metals are concerned), was 33,300 tons. Of the score or more of mines contributing to this, the main producers were the Eureka Hill, which mined and shipped 10,233 tons, averaging 12 per cent. lead and 50 ounces silver; the Bullion Beck, 5,300 tons, assaying 10 per cent. lead and 40 ounces silver, and the Mammoth, which yielded 3,500 tons of copper, silver, and gold ore. This company paid a dividend of \$30,000 during the year. The Eureka Hill and Bullion Beck are dividend-paying, but to what extent is not known beyond the close corpora-

tions operating them. The Northern Spy produced about 1,000 tons, nearly all of which was milling ore and was treated in the company's amalgamating mill.

WASHINGTON COUNTY.

The output of this county, which is the output of the Silver Reef district, in the shape of fine bars, footed up 221,728 ounces of silver, mainly the product of the Christy and La Virgin mills. The Stormont mill was idle during the greater portion of the year. To the contents of the fine bars must be added 3,000 ounces of silver shipped as sulphides.

TOOELE COUNTY.

The three mining districts of this county, Stockton, Ophir, and Dry Cañon, produced about 8,000 tons of ore, nearly one-half of which was furnished by one mine, the Honerine. This is in addition to what was converted into bullion by the Pascoe melter, the output of which see in annexed table. The Honerine output was 3,166 tons, of which 2,700 tons were concentrates, averaging 55 per cent. of lead and 25 ounces of silver, the whole selling for \$135,000, from which \$37,500 was paid as dividends.

Other producing mines were the Brooklyn, Buckhorn, Consolidated Company's (700 tons), California, Calumet, Fritz Hill, Good Title, Hidden Treasure (600 tons), Ira and Jennie, Kearsarge, Katherine, Legal Tender, Lion, Maud S., Miami, Milkmaid, Monarch, Mono, Monument, Muscatine, No-You-Don't, Pogonip, Queen of the Hills, Rattler, Sacramento, San Joaquin, Silver King, West Silver King, St. Patrick, Utah Gem, Utah Queen, Wandering Jew, and Winter Quarters.

I am indebted to Mr. H. T. Duke, of Salt Lake City, for information contained in this report.

COST OF PRODUCTION.

The cost of production varies considerably in the different districts of this Territory. Thus in Summit County the Ontario and Daly companies expend in the extraction and reduction of their ores \$20 to \$25 per ton, while their milling ore, averaging but 50 ounces per ton, is largely above 50 per cent. of the assay value. The same may be said of the Silver Reef ores (Washington County), where the cost of mining and treatment is about \$15 per ton, and the ore carries but 20 ounces of silver.

No ores are reduced in Juab County, and the cost of extraction alone is here given as from \$11 to \$15 per ton. An estimate made for me by Mr. R. J. Hilton, secretary, establishes the fact that the Eureka Hill Company realizes net 47.3 per cent. of the value of the ore as produced, the rest going for extraction, transportation, and reduction expenses.

The bulk of the output of Salt Lake County consists of concentrates. It is safe to say that 1 ton of concentrates represents, upon an average, 5 tons of ore mined, and must bear the cost of mining, "dress-

ing," and handling these 5 tons, which with the added cost of reduction and transportation exceeds, as a rule, 80 per cent. of the market price obtained.

GOLD AND SILVER PRODUCED BY SMELTERS IN UTAH AND SHIPPED TO EASTERN REFINERIES DURING THE CALENDAR YEAR 1887.

Smelters.	Silver.	Gold.
	<i>Ounces.</i>	<i>Ounces.</i>
Hanauer Smelting Works.....	843,437	2,050
Germania Lead Works	560,832	2,800
Mingo Furnace Company.....	278,266	1,000
Pascoe Smelter	4,400	25
Total	1,686,935	5,875
Gold and silver in doré bars made at Ontario, Daly, Silver Reef, and Tintic mills and placer mines	2,001,648	617
Gold and silver in ores and matte shipped to reduction works outside of the Territory.....	2,361,967	4,595
Grand total.....	6,050,550	11,087

GOLD AND SILVER PRODUCED IN THE TERRITORY OF UTAH DURING THE CALENDAR YEAR 1887, TABULATED BY COUNTIES.

Counties.	Silver.	Gold.
	<i>Ounces.</i>	<i>Ounces.</i>
Summit.....	3,157,453	1,959
Salt Lake.....	687,000	5,008
Beaver	235,188	300
Jnab.....	1,412,463	3,200
Washington	224,728	.....
Tooele.....	327,718	620
Miscellaneous	6,000	.....
Total	6,050,550	11,087

COMPARATIVE STATEMENT OF THE PRODUCTION OF UTAH FOR THE CALENDAR YEARS 1886 AND 1887.

Years.	Silver.	Gold.
	<i>Ounces.</i>	<i>Ounces.</i>
1886.....	5,539,940	10,453
1887	6,050,550	11,087
Increase	510,610	634

CHAPTER XIV.

WASHINGTON TERRITORY.

By ISRAEL LAWTON,

Superintendent of the United States Mint at San Francisco, Cal.

The bullion product of Washington Territory for 1887 is estimated to have been: Gold, \$160,503; silver, \$122,200. Total, \$282,703.

REPORTED AND UNREPORTED BULLION PRODUCT OF MINES OF WASHINGTON TERRITORY, 1887.

REPORTED.

County.	Gold.	Silver.	Total.
Kittitass	\$45, 503	.....	\$45, 503
Stevens	20, 000	\$107, 200	127, 200
Total	65, 503	107, 200	172, 703

UNREPORTED.

Jefferson	15, 000	.....	15, 000
Kittitass	5, 000	.....	5, 000
Spokane	20, 000	.....	20, 000
Stevens	5, 000	15, 000	20, 000
Walla Walla	10, 000	.....	10, 000
Whitman	20, 000	.....	20, 000
Yakima	20, 000	.....	20, 000
Total	95, 000	15, 000	110, 000

BULLION PRODUCT OF MINES OF WASHINGTON TERRITORY FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1887.

County.	Gold.		Silver.		Total.		Grand total.
	Reported.	Unre-ported.	Reported.	Unre-ported.	Gold.	Silver.	
Jefferson .....	.....	\$15, 000	.....	.....	\$15, 000	.....	\$15, 000
Kittitass	\$45, 503	5, 000	.....	.....	50, 503	.....	50, 503
Spokane .....	.....	20, 000	.....	.....	20, 000	.....	20, 000
Stevens	20, 000	5, 000	\$107, 200	\$15, 000	25, 000	\$122, 200	147, 200
Walla Walla .....	.....	10, 000	.....	.....	10, 000	.....	10, 000
Whitman .....	.....	20, 000	.....	.....	20, 000	.....	20, 000
Yakima .....	.....	20, 000	.....	.....	20, 000	.....	20, 000
Total	65, 503	95, 000	107, 200	15, 000	160, 503	122, 200	282, 703

CHAPTER XV.

MINES OF THE APPALACHIAN RANGE.

By ROBERT P. WARING.

Assayer in charge of United States Assay Office at Charlotte, N. C.

NORTH CAROLINA.

Precious metal mining in North Carolina was more active in 1887 than in 1886, and the returns were also larger.

The output of the year approximated* \$321,750 against \$177,200 in 1886, \$4,250 represented the value of the silver contained at its actual market value, approximately \$5,500 at coining rate.

The amount of ore shipped from the State was not large, and is included in the statement by counties or districts.

The increased product is due principally to the extended work in Montgomery County, although other counties, notably Cabarrus, shared in the activity. The counties of Mecklenburgh, Rowan, and some others showed a less vigorous prosecution of mining operations.

* This estimate seems excessive for the reason that it includes an estimate for the output of the Genessee mine, from which no returns could be obtained, as high as \$150,000. No evidence has been received by this Bureau after special inquiry of any such large output of this mine or any other mine in North Carolina. On the contrary, it is believed that the whole product of the State has passed through the assay office at Charlotte, and that the aggregate production of the State did not exceed \$230,000, which sum is adopted in the estimates of this Bureau.

PRODUCTION OF NORTH CAROLINA.

Counties.	1886.	1887.
Anson	\$250	.....
Burke, McDowell, and Rutherford	14, 700	\$17, 000
Cabarrus	18, 000	26, 000
Caldwell, Catawba, Cherokee, and Mountain	2, 250	1, 000
Franklin, Nash, and Warren	3, 000	1, 000
Gaston	1, 500	6, 000
Guilford, Davidson, Randolph, and Montgomery	78, 500	226, 000
Henderson		2, 500
Mecklenburgh	32, 000	16, 500
Moore.....	5, 000	5, 000
Polk	1, 000	250
Rowan.....	17, 000	11, 000
Stanly	2, 000	4, 000
Union.....	1, 000	4, 000
Miscellaneous.....	1, 000	1, 500
Total	177, 200	321, 750

A large proportion of this bullion is stated to have been shipped to London.

The correspondents of this office in Franklin, Nash, and Warren counties concur in stating that there was no change of importance other than a diminution in the petty mining, and that no large operations were begun.

The Cagle and the Burns were the only properties worked in Moore County.

The great activity alluded to in Montgomery County was chiefly in the vicinity of Eldorado.

The Russell mine was, as stated in the report for 1886, worked under disadvantages which were not overcome till the year 1887 was far advanced. In the mean time the opening of the reserves of the mine and the testing of various points of this extensive property were vigorously pushed.

The production was regarded as satisfactory for the amount of milling performed.

The 40-stamp-mill at the Appalachian mine was completed in the summer of 1887, but not sufficiently early to allow of much work.

The Genessee, formerly known as the Steele, is claimed to have been the largest producer in the State. This mine ran its mill to its full capacity nearly the whole year.

The San Christian mine was taken in hand by an English company in the summer of 1887, and a large hydraulic plant contracted for. The superintendent says:

Active operations will be commenced in October next, and preparations are being made to pump water from the Pedee river to the mine for the purpose of hydraulick-

ing through nearly 3 miles of 20-inch steel pipe, against a pressure of 416 feet. It is proposed to erect two duplex compound Worthington engines of the capacity of 8,500,000 gallons per twenty-four hours, and also five 100-horse-power boilers at the river.

The gold is found in gravel; the extent of the property is 1,350 acres; the amount of water to be employed will be sufficient to remove from 1,000 to 2,000 cubic yards of gravel per twenty-four hours.

The Reynolds mine, a few miles northeast from Troy, was worked, as in 1886, with small returns.

The placer work of Montgomery County was confined to desultory efforts by individuals, and the result insignificant.

The Hoover Hill mine, in Randolph County, was re-opened in the summer. Some ore from the Hawkins shaft was worked, but for the most part the Briols chute was operated, the upper parts of which had been neglected in former years. The results were regarded as satisfactory.

A little work was done also about Asheborough, chiefly of a prospecting nature.

The miscellaneous work of the county was less even than in 1886.

In Guilford County the only mining enterprise conducted was the Fisher & Millis Hills mine. The operations were more extensive than in the previous year, and the returns larger.

Petty mining is thought to have yielded less than \$500.

Very little was done to any purpose about High Point, near which in former years large enterprises were conducted.

Mining in Davidson County, save for the Silver Valley mine, has well nigh ceased.

This locality, which carries a fairly good argentiferous blende and galenite, was re-opened to supply the newly erected smelting works near Thomasville. A tramway was constructed, and preparations for large operations were made but not completed by the end of the year.

A small amount of ore was shipped from the State for experimental purposes chiefly, but not enough to swell appreciably the bullion product.

In Rowan County the Yadkin Chlorination Works, the Gold Hill mine, and the Isehour mine were the only important enterprises. Neither of these mines made large returns, and the Chlorination Works were not vigorously nor continuously carried on.

The bullion product of the Gold Hill mine is said to have been mostly sent to London. This mine during the latter part of the year was worked in the Williams drift, 275-foot level, and at the 700-foot level, in the edge of the "Texas Shoot," as supposed. At both of these points good bodies of sulphurets were found. The stamps were run only a part of the time.

The Isehour was run on a cheap scale by a party of local miners, and with good results for the small expenditure.

The ore supplies for the Yadkin Works were drawn from this and from other counties of the State, and from Georgia.

In Stanly County petty operations were carried on in the same desultory way as in former years, and with about the same results.

The Parker mine, together with three outlying mining tracts, was purchased by a London company in the summer, and at the close of the year was being rapidly put into shape for extensive operation. A large pumping station was established on the Yadkin River, 2 miles distant, and a pipe line constructed. The large body of water thus at command will be used to wash both the north and south branches, in both of which there are large areas of rich surface deposits easy to treat.

Red Hill, on which the veins chiefly outcrop, will be piped down.

The rich placer ground is the first objective point, and afterwards the coarse, auriferous quartz mixed in the gravel, together with the veins, will be worked by mill treatment.

This quartz abounds in Red Hill, and is derived from broken-down veins and seams. The quartz obtained in the hydraulicking work will be run to the adjacent mill-house for stamping.

The two veins thus far prospected carry large bodies of free-milling ores of good grade.

The Lauder and the Crowell, both described in the reports for previous years, were worked for a season, but not extensively.

The Cabarrus County mines were worked a little more vigorously than in 1886, and with a correspondingly greater result, but no new mines were opened. This was one of the few counties that materially increased returns.

The Reed mine was operated fitfully; the work at the Joel Reed was also desultory. The Phoenix mine, with its chlorinating works, was pushed to the full capacity of the plant. No statement of the yield was furnished, but it was not less than in former years. This famous mine has now reached the depth of 425 feet; the vein in the bottom is 2 feet wide, and the grade of the ore is fully up to the average. The important underground works now operated are the 350-foot level (300 feet to the northeast and 102 feet to the southwest) and the 425-foot level, 50 feet in each direction.

In Union County the Howie was reopened, and a rich body of ore uncovered, but no steps have been taken to work it.

The Black mine, near Indian Trail, was also prospected. The ore of this mine frequently rises to a shipping grade, but as yet no machinery has been placed for treating it.

In Mecklenburgh County the following mines were operated: The Baltimore and North Carolina (Ray), the Henderson, the Point, the St. Catherine, the Davidson, the Todd, the Rudisil, the Dunn, and the Chapman.

The Dunn and the Chapman were prospected with satisfactory results, considerable bodies of ore being found in both; the work at the Baltimore and North Carolina was also of a prospecting nature; the

shaft was sunk a little deeper, and the levels were extended; some milling and concentrating were also undertaken, and a small amount of ore was shipped.

Like work was done at the Todd with a result which was deemed satisfactory to the managers.

Vein mining in this county fell off somewhat in 1887, but the petty work was on a larger scale.

Operations in Gaston County were confined to the Catawba and the Rhodes mines.

In the former, a body of ore was discovered in a new part of the 150-foot level, and most of the underground work was directed to this deposit. The new machinery was not completed at the close of the year, but the 10-stamp battery was run a considerable part of the season.

At the Boilston mine, Henderson County, the work was largely prospecting; milling was conducted only a part of the year, and not extensively.

The mining work in the South Mountain area in Burke, McDowell, and Rutherford counties, was somewhat larger than in 1886. Vein mining was nearly the same, but gravel mining by the smaller operators was a little more extensively carried on.

The Hancock Mine, in Brindletown, was worked about six months with a small force; the Glenn Alpine, the Queen, and the Mills were practically idle.

The properties of the Vein Mountain and of the Marion Bullion companies were operated as in 1886, and, as previously stated, with similar results.

The Lawson Smart, in Rutherford County, and two points prospected near Rutherfordton, were the only new places worked.

SOUTH CAROLINA.

Mining for the precious metals was more prosperous, and the output larger, than in the preceding year.

Counties.	1886.	1887.
Lancaster and Chesterfield	\$34,000	\$47,000
Spartanburgh, Union, and York.....	3,000	4,000
Miscellaneous	1,000	1,500
Total	38,000	52,500

Of the production for 1887 the silver was valued at \$300 (\$400 coin-ing rate).

At the Brewer mine, Chesterfield, a part of the year was spent in milling; a change in the plant led to a suspension of all reducing work.

A large body of free-milling ore is now being opened up.

The Dixie mine, 7 miles northeast from Lancaster, in Lancaster County, was furnished with a 10-stamp battery late in 1887. The production was not large. The ore is of low grade, but the ore body large.

The work of the Haile mine, in this county, was prosecuted in the energetic manner characteristic of former years, and with good returns. Chlorination works to recover the gold in the sulphurets were about half finished in January, 1888.

In Spartanburgh County a little exploration was done near Glendale, and the placer work was a little more active than in former years.

GEORGIA.

Gold mining in Georgia was in a backward condition in 1887, as is shown in the following summary :

Counties.	1886.	1887.
Rabun and Habersham.....	\$1,500	\$1,500
Lincoln.....	1,500	500
McDuffie and Warren.....	17,500	7,500
White.....	15,500	15,000
Lumpkin.....	60,000	47,500
Dawson.....	5,000	2,500
Cherokee.....	35,500	23,000
Towns, Union, Gilmer, Forsyth, and Carroll.....	4,000	3,000
Hancock to Merriwether.....	3,000	1,000
Miscellaneous.....	10,000	14,000
Total.....	153,500	115,500

One hundred and nine thousand dollars of the product of 1887 can be traced without difficulty, having been deposited at the United States mints and assay offices or shipped to England. A small amount of fine nuggets were reserved for sale.

Three hundred and fifty dollars (\$450 coining rate) of the product was silver.

Correspondents in Rabun and Habersham counties report that there was no appreciable change in those counties in 1887, and like inquiries respecting Towns, Union, Gilmer, Forsyth, and Carroll, show no important difference in this tier of counties. Considerable placer work is done in all of them, and some petty vein work, but the product is rarely traceable with precision.

My investigations respecting the product of the southern gold belt, from Hancock to Merriwether, leads me to estimate the amount from this area at about \$1,000, which is much less than in 1886.

In White County the production was about the same as in 1886; the only regular mining operations were at the Santee and at the Hamby Mountain mines.

The Hamby Mountain mine, near Nacoochee, formerly known as the Bradley, is now owned by an English company. The mill was moved up the branch near the mine, and remodeled in such a manner as to allow an addition of twenty stamps, if the nature of the operations should justify it.

The re-arrangement of the plant was not completed until late in the year, and the production was consequently small.

The Calhoun Land and Mining Company have bought the Lunsden property, 2 miles from Nacoochee, and a large tract adjoining, and are making extensive preparations for mining.

The only work in the southwest part of the county was by W. H. Courtney, near the old Loud mine; having an independent water supply, he was able to work his own property, and to supply water to others for petty work.

There was no marked change in the mining operations in Lumpkin County in 1887, though the total production was somewhat less.

The "gougers" were quite as active as in 1886, and apparently as prosperous.

The Barlow and the Ralston, opposite ends of the same vein, were worked as vigorously as in other years, and with about the same results.

Little work was accomplished at the Gordon.

The breaking down of the dam at the Calhoun mine permitted only a few months' work. The Findley was operated on a small scale, and the ore milled at the Lockhart mill. The Singleton mine proper was worked but little, and some high-grade ore, averaging \$22 per ton, mined and milled at the Lockhart mill, of which ten stamps were worked on custom ores, and the other ten on ores taken from the old Lockhart mine, now belonging to the Singleton Company.

The Ivy mill was run a part of the year, but the breaking of the trestles on the line of the ditch interrupted the water supply and caused a suspension of operations.

The Bast and the Fish Trap were operated a short time.

The Adams and Leal Mining Company have erected on a property 5 miles east of Dahlonega, on Long Branch, a 10-stamp mill which is nearly ready to be operated.

The Hand Gold Mining Company have put up a 20-stamp mill on lot No. 1052, and also a 10-stamp mill on lot No. 747, but only the mill on lot No. 1052 was run in 1887.

In the neighborhood of Auraria there was no vein mining, but petty work was prosecuted on a more extensive scale than usual.

This important industry in Lumpkin County is prosecuted in a satisfactory manner, with as little fluctuation as could be expected in such work.

The product of Dawson County did not exceed \$3,500.

Some petty work was carried on in Forsyth County, about the same as in former years.

The Franklin and McDonald mine in Cherokee County, was vigorously operated during the year, with satisfactory results.

In McDuffie County, the J. B. Smith mine was worked on tribute until the middle of summer, when the extraordinary rains of July destroyed the mill-dam on Little River, and swept away the mill. The damage was repaired only at the close of the year; in the mean time nearly one-half of the year was lost.

The work at the Columbia was slight.

About the same work was done at the Four Oaks mine as in the preceding year, and the same statement will apply to the Tatham and to the Porter.

Work at the Warren mine, in Warren County, was suspended early in 1887.

The yield in these counties was less than in 1886.

ALABAMA.

Diligent inquiries in many directions elicited no important information respecting the mines of Alabama. There was considerable inquiry on the part of capitalists for good gold-mining territory, caused by speculation incidental to the results of the new iron and coal industry at Birmingham, but none of these investigations have yet come to a productive point, even where investments were made.

The Clay mine, in Clay County, is still involved in litigation, and the Cooper Creek mines in Tallapoosa County were idle.

The returns from the Arbacoochee district lessen from year to year.

The total returns of the State could not, in my judgment, have exceeded \$2,500 in 1887, against \$5,000 in 1886.

PART III.

GENERAL STATISTICS.

I.—DEPOSITS AND PURCHASES OF GOLD AND SILVER, BY WEIGHT, DUR-

Description.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
GOLD.				
	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs</i>	<i>Standard ozs.</i>
United States bullion (domestic production)	6,442.636	1,048,672.483	12,751.133	.....
United States coin.....	6,696.081	996.472	.....	2,652.695
Foreign bullion.....	2,257.534	40,828.567	.....	839.817
Foreign coin.....	353.218	213,623.298	.....	521.509
Jewelers' bars, old plate, etc.....	40,487.261	1,629.454	.....	2,293.894
Total	56,236.730	1,305,750.274	12,751.133	6,307.915
Re-deposits:				
Fine bars.....	206.527	.....	.....	.....
Unparted bars.....	214,188.331	.....	15.546	.....
Total gold received and operated upon.....	270,631.588	1,305,750.274	12,766.679	6,307.915
SILVER.				
United States bullion (domestic production)	15,182,358.49	1,491,354.20	153,717.36	9,902,424.73
United States coin.....	364,318.08	78,281.73	.....	2,152.19
United States coin, trade dollars	2,988,197.62	665,170.47	.....	6.95
Foreign bullion.....	776.26	686,128.77	.....	3,787.37
Foreign coin.....	2,516.40	1.25	.....	47,972.57
Jewelers' bars, old plate, etc.....	172,141.68	506.01	.....	25,132.02
Total	18,710,308.53	2,831,442.43	153,717.36	9,981,475.83
Re-deposits:				
Fine bars.....	71,019.22	58,185.94	.....	.....
Unparted bars	505,779.99	.....	456.91	.....
Total silver received and operated upon.....	19,087,107.74	2,889,628.37	154,174.27	9,981,475.83
Gold and silver deposits and purchases.....	18,766,545.200	4,137,192.704	166,468.493	9,987,783.745
Re-deposits:				
Gold.....	214,394.858	.....	15.546	.....
Silver.....	376,799.21	58,185.94	456.91	.....
Total gold and silver received and operated upon.....	19,357,739.328	4,195,378.644	166,940.349	9,987,783.745

ING THE CALENDAR YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>
457,727.679	97,703.875	38,536.823	61,514.827	17,065.617	3,453.555	1,743,868.628
17,947.079	58.855	.....	.....	.....	486.300	28,837.482
1,219,888.139	41.036	.....	.....	.....	134.900	1,263,989.993
622,709.750	.....	.....	.....	.....	.....	837,207.775
95,865.594	232.064	.....	34.538	74.020	1,898.484	142,515.309
2,414,138.241	98,035.830	38,536.823	61,549.365	17,139.637	5,973.239	4,016,419.187
296,725.358	.....	.....	.....	.....	.....	296,931.885
5,047.075	390.625	9,252.915	8,228.045	.....	415.927	237,538.464
2,715,910.674	98,426.455	47,789.738	69,777.410	17,139.637	6,389.166	4,550,889.536
4,001,690.47	20,456.97	15,351.21	33,048.36	2,720.11	1,857.90	30,714,979.80
1,859.89	.....	.....	.....	.....	.....	446,611.89
3,040,618.74	.....	.....	.....	.....	.....	6,693,993.78
606,001.60	8.44	.....	.....	.....	118.09	1,296,820.53
164,874.72	.....	.....	.....	.....	.....	215,364.94
290,989.38	177.42	.....	26.35	21.97	2,192.50	491,187.33
8,106,034.80	20,642.83	15,351.21	33,074.71	2,742.08	4,168.49	39,858,958.27
34,683.00	.....	.....	.....	.....	.....	163,888.16
10,373.19	125.48	4,213.18	1,800.61	.....	163.93	322,913.29
8,151,090.99	20,768.31	19,564.39	34,875.32	2,742.08	4,332.42	40,345,759.72
10,520,173.041	118,678.660	53,888.033	94,624.075	19,881.717	10,141.729	43,875,377.457
301,772.433	390.625	9,252.915	8,228.045	.....	415.927	534,470.349
45,056.19	125.48	4,213.18	1,800.61	.....	163.93	486,801.45
10,867,001.664	119,194.765	67,354.128	104,652.730	19,881.717	10,721.586	44,896,649.256

II.—DEPOSITS AND PURCHASES OF GOLD AND SILVER, BY

Description.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
GOLD.				
United States bullion (domestic production)	\$119,863.00	\$19,510,185.73	\$237,230.37	.....
United States coin.....	124,578.25	18,539.01	.....	\$49,352.46
Foreign bullion	42,000.63	759,601.25	.....	15,624.50
Foreign coin.....	6,571.49	3,974,386.94	.....	9,702.49
Jewelers' bars, old plate, etc	753,251.37	30,315.42	.....	42,677.11
Total	1,046,264.74	24,293,028.35	237,230.37	117,356.56
Re-deposits:				
Fine bars.....	3,842.36	.....	.....	.....
Unparted bars.....	3,984,899.18	.....	289.23	.....
Total gold received and operated upon.....	5,035,006.28	24,293,028.35	237,519.60	117,356.56
SILVER.				
United States bullion (domestic production)	17,666,744.39	1,630,666.67	178,871.10	11,522,821.50
United States coin.....	423,933.76	91,091.46	.....	2,504.37
United States coin, trade dollars.....	3,477,175.41	774,016.54	.....	8.09
Foreign bullion.....	903.28	798,404.38	.....	4,407.11
Foreign coin.....	2,928.17	1.45	.....	55,822.62
Jewelers' bars, old plate, etc	200,310.31	588.81	.....	29,244.54
Total	21,771,995.32	3,294,769.31	178,871.10	11,614,808.23
Re-deposits:				
Fine bars	82,640.55	67,707.28	.....	.....
Unparted bars.....	355,816.72	.....	531.68	.....
Total silver received and operated upon.....	22,210,452.59	3,362,476.59	179,402.78	11,614,808.23
Gold and silver deposits and purchases	22,818,260.06	27,587,797.66	416,101.47	11,732,164.79
Re-deposits:				
Gold	3,988,741.54	.....	289.23	.....
Silver.....	438,457.27	67,707.28	531.68	.....
Total gold and silver received and operated upon.....	27,245,458.87	27,655,504.94	416,922.38	11,732,164.79

VALUE, DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
\$8,515,863.79	\$1,817,746.50	\$716,964.14	\$1,144,461.90	\$317,499.85	\$64,252.18	\$32,444,067.46
333,899.14	1,094.98	.....	.....	.....	9,047.44	536,511.28
22,695,593.27	763.46	.....	.....	.....	2,509.77	23,516,092.88
11,585,297.69	.....	.....	.....	.....	.....	15,575,958.61
1,783,545.93	4,317.47	.....	642.57	1,377.12	35,320.63	2,651,447.62
44,914,199.82	1,823,922.41	716,964.14	1,145,104.47	318,876.97	111,130.02	74,724,077.85
5,520,471.77	.....	.....	.....	.....	.....	5,524,314.13
93,899.07	7,267.44	172,147.25	153,079.91	.....	7,738.18	4,419,320.26
50,528,570.66	1,831,189.85	889,111.39	1,298,184.38	318,876.97	118,868.20	84,667,712.24
4,656,512.52	23,804.46	17,863.21	38,456.27	3,165.22	2,161.91	35,741,067.25
2,164.23	.....	.....	.....	.....	.....	519,693.82
3,538,174.53	.....	.....	.....	.....	.....	7,789,374.57
765,165.49	9.82	.....	.....	.....	137.41	1,509,027.49
191,854.22	.....	.....	.....	.....	.....	250,606.46
338,605.82	206.45	.....	30.66	25.56	2,551.27	571,563.42
9,432,476.81	24,020.73	17,863.21	38,486.93	3,190.78	4,850.59	46,381,333.01
40,358.40	.....	.....	.....	.....	.....	190,706.23
12,070.62	146.01	4,902.61	2,095.25	.....	190.75	375,753.64
9,484,905.83	24,166.74	22,765.82	40,582.18	3,190.78	5,041.34	46,947,792.88
54,346,676.63	1,847,943.14	734,827.35	1,183,591.40	322,067.75	115,930.61	121,105,410.86
5,614,370.84	7,267.44	172,147.25	153,079.91	.....	7,738.18	9,943,634.39
52,429.02	146.01	4,902.61	2,095.25	.....	190.75	566,459.87
60,013,476.49	1,855,356.59	911,877.21	1,338,766.56	322,067.75	123,909.54	131,615,505.12

III.—DEPOSITS OF UNREFINED GOLD OF DOMESTIC PRODUCTION WITH THE STATES
DISTRIBUTED, DURING THE CALENDAR

Locality.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>
Alabama.....	4.998			
Alaska.....		4,500.766		
Arizona.....	130.584	7,186.950		
California.....	50.028	222,508.656	566.108	
Colorado.....	511.995	91.234		
Dakota.....	86.022	13.253		
Georgia.....	141.536			
Idaho.....	236.109	12,428.036	49.220	
Maryland.....	10.688			
Michigan.....	1,355.171			
Montana.....		1,497.747		
Nebraska.....				
Nevada.....	142.387	16,554.886	12,135.805	
New Mexico.....	133.193	199.287		
North Carolina.....	2,392.578			
Oregon.....	237.278	20,534.701		
South Carolina.....	227.306			
Tennessee.....	12.393			
Utah.....		5,015.966		
Virginia.....	317.656			
Washington.....		2,192.026		
Wyoming.....	139.522			
Other sources.....	267.214	1,193.393		
Total Unrefined.....	6,396.658	293,916.871	12,751.133	
Refined.....	45.978	754,755.612		
Grand total.....	6,442.636	1,048,672.483	12,751.133	

AND TERRITORIES PRODUCING THE SAME, AND OF REFINED DOMESTIC BULLION NOT YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>
17.060					32.814	54.872
						4,500.766
2,289.279	3,526.122				35.665	13,168.600
10,942.413	45.665				25.079	234,137.949
30,055.719	89,965.765				1,228.307	121,853.020
129,026.143						129,125.418
106.221				5,532.360		5,780.117
1,319.738	430.768	34,294.276	6,998.087			55,756.204
						10.688
1.473						1,356.644
78,777.034			53,859.363			134,134.144
76.708						76.708
69.135						28,902.213
11,225.193	3,539.336				2,123.875	17,220.884
283.676				8,976.105		11,652.359
	6.053	4,242.547				25,020.579
18.200				2,557.152		2,802.658
						12.393
903.229						5,919.195
360.332						677.988
			651.853			2,843.879
	190.166					329.688
36,775.087			5.524		7.815	38,249.033
302,246.640	97,703.875	38,536.823	61,514.827	17,065.617	3,453.555	833,585.999
155,481.039						910,282.629
457,727.679	97,703.875	38,536.823	61,514.827	17,065.617	3,453.555	1,743,868.628

IV.—DEPOSITS OF UNREFINED SILVER OF DOMESTIC PRODUCTION WITH THE BULLION NOT DISTRIBUTED, DURING THE

Locality.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>
Alabama .....	.23			
Alaska		775.88		
Arizona	53.32	61,204.62		
California.....	14.70	35,255.34	299.63	
Colorado.....	9,204.28	22.06		
Dakota	6.78	1.08		
Georgia.....	9.50			
Idaho.....	250.43	3,935.34	3.62	
Maryland.....	.04			
Michigan	7,208.80			
Montana.....		126.38		
Nebraska				
Nevada	62.27	250,768.47	153,414.11	
New Mexico.....	8.52	74.14		
North Carolina	216.98			
Oregon	20.56	3,333.32		
South Carolina.....	19.02			
Tennessee .....	.28			
Utah.....		19,090.00		
Virginia	32.78			
Washington		352.81		
Wyoming.....	26.92			
Other sources.....	358.75	60.38		
Total Unrefined.....	17,494.16	375,000.42	153,717.36	
Refined	15,164,864.33	1,026,353.78		9,902,424.73
Grand total.....	15,182,358.49	1,401,354.20	153,717.36	9,902,424.73

STATES AND TERRITORIES PRODUCING THE SAME, AND OF REFINED DOMESTIC
CALENDAR YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Stand. ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>
.28					9.30	9.81
						775.88
56,767.28	823.50				7.14	118,855.86
838.81	5.39				6.66	36,420.53
68,144.34	18,959.16				435.66	96,765.50
34,159.32						34,167.18
2.78				331.53		343.81
143,306.53	89.70	14,556.30	1,283.20			163,425.12
						.04
22,414.62						29,623.42
452,097.74			31,608.64			483,892.76
14.32						14.32
6,266.39						410,511.24
341,516.56	551.10				925.76	343,076.08
70.87				2,080.90		2,368.75
	.80	794.91				4,149.59
				307.68		326.70
						.28
55,117.38						74,207.98
44.33						77.11
			95.97			448.78
	27.32					54.24
368,476.67			.55		137.86	369,034.21
1,549,238.22	20,456.97	15,351.21	33,048.36	2,720.11	1,522.38	2,168,549.19
2,452,452.25					335.52	28,546,430.61
4,001,690.47	20,456.97	15,351.21	33,048.36	2,720.11	1,857.90	30,714,979.80

V.—DEPOSITS OF UNREFINED GOLD OF DOMESTIC PRODUCTION WITH THE STATES
DISTRIBUTED, DURING THE CALENDAR

Locality.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
Alabama	\$92.99			
Alaska		\$83,735.18		
Arizona	2,429.47	133,710.70		
California	930.75	4,139,695.93	\$10,532.24	
Colorado.....	9,525.49	1,697.38		
Dakota	1,600.41	246.57		
Georgia.....	2,633.23			
Idaho.....	4,392.72	231,218.71	915.72	
Maryland.....	198.84			
Michigan	25,212.48			
Montana.....		27,865.06		
Nebraska.....				
Nevada.....	2,649.06	307,997.88	225,782.41	
New Mexico.....	2,478.01	3,707.66		
North Carolina	44,513.09			
Oregon	4,414.47	382,040.94		
South Carolina	4,228.95			
Tennessee	230.57			
Utah		93,320.30		
Virginia	5,909.88			
Washington		40,781.88		
Wyoming.....	2,595.76			
Other sources.....	4,971.42	22,202.66		
Total Unrefined	119,007.59	5,468,220.85	237,230.37	
Refined.....	855.41	14,041,964.88		
Grand total.....	119,863.00	19,510,185.73	237,230.37	

AND TERRITORIES PRODUCING THE SAME, AND OF REFINED DOMESTIC BULLION NOT YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
\$317. 40					\$610. 51	\$1, 020. 90
						83, 735. 18
42, 591. 24	\$65, 602. 27				663. 53	244, 997. 21
203, 579. 78	849. 58				466. 58	4, 356, 054. 86
559, 176. 17	1, 673, 781. 67				22, 852. 22	2, 267, 032. 93
2, 400, 486. 38						2, 402, 333. 36
1, 976. 20				\$102, 927. 63		107, 537. 06
24, 553. 27	8, 014. 29	\$638, 033. 04	\$130, 196. 97			1, 037, 324. 72
						198. 84
27. 40						25, 239. 88
1, 465, 619. 24			1, 002, 034. 66			2, 495, 518. 96
1, 427. 13						1, 427. 13
1, 236. 23						537, 715. 53
208, 840. 80	65, 848. 11				39, 513. 95	320, 388. 53
5, 277. 69				166, 997. 30		216, 783. 08
	112. 61	78, 931. 10				465, 499. 12
338. 60				47, 574. 92		52, 142. 47
						230. 57
16, 804. 26						110, 124. 56
6, 703. 85						12, 613. 73
			12, 127. 50			52, 909. 38
	3, 537. 97					6, 133. 73
684, 187. 66			102. 77		145. 39	711, 609. 90
5, 623, 193. 30	1, 817, 746. 50	716, 964. 14	1, 144, 461. 90	317, 499. 85	64, 252. 18	15, 508, 576. 68
2, 892, 670. 49						16, 935, 490. 78
8, 515, 863. 79	1, 817, 746. 50	716, 964. 14	1, 144, 461. 90	317, 499. 85	64, 252. 18	32, 444, 067. 46

**VI.—DEPOSITS OF UNREFINED SILVER OF DOMESTIC PRODUCTION WITH THE STATES
DISTRIBUTED, DURING THE CALENDAR**

Locality.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
Alabama.....	\$0.27			
Alaska.....		\$902.84		
Arizona.....	62.04	71,219.92		
California.....	17.10	41,024.39	\$348.66	
Colorado.....	10,710.43	25.67		
Dakota.....	7.89	1.26		
Georgia.....	11.05			
Idaho.....	291.41	4,579.30	4.21	
Maryland.....	.05			
Michigan.....	8,388.42			
Montana.....		147.06		
Nebraska.....				
Nevada.....	72.46	291,803.31	178,518.23	
New Mexico.....	9.91	86.27		
North Carolina.....	252.49			
Oregon.....	23.92	3,878.77		
South Carolina.....	22.13			
Tennessee.....	.33			
Utah.....		22,214.52		
Virginia.....	38.15			
Washington.....		410.54		
Wyoming.....	31.32			
Other sources.....	417.45	70.26		
Total Unrefined.....	20,356.82	436,364.11	178,871.10	
Refined.....	17,646,387.57	1,194,302.56		\$11,522,821.50
Grand total.....	17,666,744.39	1,630,666.67	178,871.10	11,522,821.50

AND TERRITORIES PRODUCING THE SAME, AND OF REFINED DOMESTIC BULLION NOT YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
\$0.33					\$10.82	\$11.42
						902.84
66,056.47	\$958.25				8.31	138,304.99
976.07	6.27				7.75	42,380.24
79,295.23	22,061.56				506.95	112,599.84
39,749.02						39,758.17
3.23				\$385.78		400.06
166,756.69	104.38	\$16,938.23	\$1,493.18			190,167.40
						.05
26,082.47						34,470.89
526,077.37			36,850.78			563,075.21
16.66						16.66
7,291.79						477,685.79
397,401.09	641.28				1,077.24	399,215.79
82.47				2,421.41		2,756.37
	.93	924.98				4,828.60
				358.03		380.16
						.33
64,136.59						86,351.11
51.58						89.73
			111.67			522.21
	31.79					63.11
428,772.85			.64		160.42	429,421.62
1,802,749.91	23,804.46	17,863.21	38,456.27	3,165.22	1,771.49	2,523,402.59
2,853,762.61					390.42	33,217,664.66
4,656,512.52	23,804.46	17,863.21	38,456.27	3,165.22	2,161.91	35,741,067.25

VII.—COINAGE EXECUTED AT THE MINTS OF THE UNITED

Denomination.	PHILADELPHIA.		SAN FRANCISCO.	
	Pieces.	Value.	Pieces.	Value.
GOLD.				
Double eagles.....	121	\$2,420.00	283,000	\$5,660,000.00
Eagles.....	53,680	536,800.00	817,000	8,170,000.00
Half-eagles.....	87	435.00	1,912,000	9,560,000.00
Three dollars.....	6,160	18,480.00	.....	.....
Quarter-eagles.....	6,282	15,705.00	.....	.....
Dollars.....	8,543	8,543.00	.....	.....
Total gold.....	74,873	582,383.00	3,012,000	23,390,600.00
SILVER.				
Dollars.....	20,290,710	20,290,710.00	1,771,000	1,771,000.00
Subsidiary—				
Half-dollars.....	5,710	2,855.00	.....	.....
Quarter-dollars.....	10,710	2,677.50	.....	.....
Dimes.....	11,283,939	1,128,393.90	4,454,450	445,445.00
Total subsidiary.....	11,300,359	1,133,926.40	4,454,450	445,445.00
Total silver.....	31,591,069	21,424,636.40	6,225,450	2,216,445.00
MINOR.				
Five cents.....	15,263,652	763,182.60	.....	.....
Three cents.....	7,961	238.83	.....	.....
One cent.....	45,226,483	452,264.83	.....	.....
Total minor.....	60,498,096	1,215,686.26	.....	.....
Total coinage.....	92,164,038	23,222,705.66	9,237,450	25,606,445.00

STATES DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1887.

CARSON.		NEW ORLEANS.		TOTAL.	
Pieces.	Value.	Pieces.	Value.	Pieces.	Value.
				283, 121	\$5, 662, 420. 00
				870, 680	8, 706, 800. 00
				1, 912, 087	9, 560, 435. 00
				6, 160	18, 480. 00
				6, 282	15, 705. 00
				8, 543	8, 543. 00
				3, 086, 873	23, 972, 383. 00
		11, 550, 000	\$11, 550, 000. 00	33, 611, 710	33, 611, 710. 00
				5, 710	2, 855. 00
				10, 710	2, 677. 50
				15, 738, 389	1, 573, 838. 90
				15, 754, 809	1, 579, 371. 40
		11, 550, 000	11, 550, 000. 00	49, 366, 519	35, 191, 081. 40
				15, 263, 652	763, 182. 60
				7, 961	238. 83
				45, 226, 483	452, 264. 83
				60, 498, 096	1, 215, 686. 26
		11, 550, 000	11, 550, 000. 00	112, 951, 488	60, 379, 150. 66

* Coinage suspended March 8, 1885.

VIII.—BARS MANUFACTURED OF GOLD AND SILVER, BY WEIGHT,

Description.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
GOLD.				
Fine bars	<i>Standard ozs.</i> 30, 587. 294	<i>Standard ozs.</i>	<i>Standard ozs.</i> 9. 180	<i>Standard ozs.</i> 20. 094
Mint bars				
Standard bars				
Sterling bars				
Unparted bars.....	26. 169	77. 332	166. 419	
Total gold	30, 613. 463	77. 332	175. 599	20. 094
SILVER.				
Fine bars	29, 682. 58	320, 026. 42	127, 000. 98	
Mint bars				
Standard bars				
Sterling bars				
Unparted bars.....	4. 05	11. 69	7, 433. 00	
Total silver.....	29, 686. 63	320, 038. 11	134, 433. 98	

IX.—BARS MANUFACTURED OF GOLD AND SILVER, BY VALUE,

Description.	COINAGE MINTS.			
	Philadelphia.	San Francisco.	Carson.	New Orleans.
GOLD.				
Fine bars	\$569, 065. 93		\$170. 79	\$373. 84
Mint bars				
Standard bars				
Sterling bars.....				
Unparted bars.....	486. 86	\$1, 438. 73	3, 096. 16	
Total gold	569, 552. 79	1, 438. 73	3, 266. 95	373. 84
SILVER.				
Fine bars	34, 539. 72	372, 394. 37	147, 782. 95	
Mint bars				
Standard bars.....				
Sterling bars.....				
Unparted bars.....	4. 71	13. 60	8, 649. 31	
Total silver.....	34, 544. 43	372, 407. 97	156, 432. 26	
Total gold and silver	604, 097. 22	373, 846. 70	159, 699. 21	373. 84

DURING CALENDAR YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>	<i>Standard ozs.</i>
1,605,188.031						1,635,804.599
754,187.556						754,187.556
404,369.888						404,369.888
121,236.562						121,236.562
.469	98,426.455	47,789.738	69,777.410	17,139.637	6,389.166	239,792.795
2,884,982.506	98,426.455	47,789.738	69,777.410	17,139.637	6,389.166	3,155,391.400
4,914,986.64						5,391,696.62
70,652.52						70,652.52
41,788.69						41,788.69
106,914.40	20,768.31	19,564.39	34,875.32	2,742.08	4,332.42	196,645.66
5,134,342.25	20,768.31	19,564.39	34,875.32	2,742.08	4,332.42	5,700,783.49

DURING CALENDAR YEAR ENDED DECEMBER 31, 1887.

ASSAY OFFICES.						Total.
New York.	Denver.	Boisé.	Helena.	Charlotte.	Saint Louis.	
\$29,863,963.36						\$30,433,573.92
14,031,396.39						14,031,396.39
7,523,160.71						7,523,160.71
2,255,563.94						2,255,563.94
8.72	\$1,831,189.86	\$889,111.40	\$1,298,184.37	\$318,876.97	\$118,868.20	4,461,261.27
53,674,093.12	1,831,189.86	889,111.40	1,298,184.37	318,876.97	118,868.20	58,704,956.23
5,719,257.16						6,273,974.20
82,213.84						82,213.84
48,626.84						48,626.84
124,409.48	24,166.75	22,765.83	40,582.18	3,190.78	5,041.34	228,823.98
5,974,507.32	24,166.75	22,765.83	40,582.18	3,190.78	5,041.34	6,633,638.86
59,648,600.44	1,855,356.61	911,877.23	1,338,766.55	322,067.75	123,909.54	65,338,595.09

X.—ESTIMATE OF VALUES OF FOREIGN COINS, JANUARY 1, 1888.

NOTE.—The "standard" of a given country is indicated as follows, namely: *Double*, where its standard silver coins are unlimited legal tender, the same as its gold coins; *single gold* or *single silver*, as its standard coins of one or the other metal are unlimited legal tender. The par of exchange of the monetary unit of a country with a single gold, or a double, standard is fixed at the value of the gold unit as compared with the United States gold unit. In the case of a country with a single silver standard, the par of exchange is computed at the mean price of silver in the London market for a period commencing October 1 and ending December 24, 1887, as per daily cable dispatches to the Bureau of the Mint.

Country.	Standard.	Monetary unit.	Par of exchange or equivalent value in terms of U. S. gold dollar.	Coins.
Argentine Republic .	Double	Peso	\$0.965	Gold: argentine (\$4.824) and $\frac{1}{2}$ argentine. Silver: peso and divisions.
Austria	Single silver	Florin . . . . .	.345	Gold: 4 florins (\$1.929), 8 florins (\$3.858), ducat (\$2.287) and 4 ducats (\$9.158). Silver: 1 and 2 florins.
Belgium	Double	Franc . . . . .	.193	Gold: 10 and 20 francs. Silver: 5 francs.
Bolivia	Single silver	Boliviano . . . .	.699	Silver: boliviano and divisions.
Brazil	Single gold .	Milreis of 1,000 reis.	.546	Gold: 5, 10, and 20 milreis. Silver: $\frac{1}{2}$, 1, and 2 milreis.
British Possessions, N. A.	Single gold .	Dollar	1.00	
Chili	Double	Peso . . . . .	.912	Gold: escudo (\$1.824), doubloon (\$4.561), and condor (\$9.123). Silver: peso and divisions.
Cuba	Double	Peso . . . . .	.926	Gold: doubloon (\$5.017). Silver: peso.
Denmark	Single gold .	Crown . . . . .	.268	Gold: 10 and 20 crowns.
Ecuador	Single silver	Sucre . . . . .	.699	Gold: condor (\$9.647) and double-condor. Silver: sucre and divisions.
Egypt	Single gold .	Pound (100 piasters).	4.943	Gold: pound (100 piasters), 50 piasters, 20 piasters, 10 piasters, and 5 piasters. Silver: 1, 2, 5, 10, and 20 piasters.
France	Double	Franc . . . . .	.193	Gold: 5, 10, 20, 50, and 100 francs. Silver: 5 francs.
German Empire	Single gold .	Mark . . . . .	.238	Gold: 5, 10, and 20 marks.
Great Britain	Single gold	Pound sterling	4.866 $\frac{1}{2}$	Gold: sovereign (pound sterling) and $\frac{1}{2}$ sovereign.
Greece	Double	Drachma . . . . .	.193	Gold: 5, 10, 20, 50, and 100 drachmas. Silver: 5 drachmas.
Guatemala	Single silver	Peso . . . . .	.699	Silver: peso and divisions.
Hayti	Double	Gourde . . . . .	.965	Silver: gourde.
Honduras	Single silver	Peso . . . . .	.699	Silver: divisions of peso.

X.—ESTIMATE OF VALUES OF FOREIGN COINS, ETC.—Continued.

Country.	Standard.	Monetary unit.	Par of exchange or equivalent value in terms of U. S. gold dollar.	Coins.
India	Single silver	Rupee of 16 annas.	.332	Gold: mohur (\$7.105). Silver: rupee and divisions.
Italy.....	Double	Lira .....	.193	Gold: 5, 10, 20, 50, and 100 liras. Silver: 5 liras.
Japan.....	Double*	Yen .. { Gold . Silver	.997 .753	Gold: 1, 2, 5, 10, and 20 yen. Silver: yen.
Liberia	Single gold .	Dollar	1.00	
Mexico	Single silver	Dollar .....	.759	Gold: dollar (\$0.983), 2½, 5, 10, and 20 dollars. Silver: dollar (or peso) and divisions.
Netherlands	Double	Florin .....	.402	Gold: 10 florins. Silver: ½, 1, and 2½ florins.
Nicaragua	Single silver	Peso .....	.699	Silver: peso and divisions.
Norway.....	Single gold .	Crown .....	.268	Gold: 10 and 20 crowns.
Peru.....	Single silver	Sol.....	.699	Silver: sol and divisions.
Portugal.....	Single gold .	Milreis of 1,000 reis.	1.08	Gold: 1, 2, 5, and 10 milreis.
Russia	Single silver	Rouble of 100 copecks.	.559	Gold: imperial (\$7.718), and ½ imperial† (\$3.860). Silver: ¼, ½, and 1 rouble.
Spain	Double	Peseta of 100 centimes.	.193	Gold: 25 pesetas. Silver: 5 pesetas.
Sweden	Single gold .	Crown .....	.268	Gold: 10 and 20 crowns.
Switzerland.....	Double	Franc.....	.193	Gold: 5, 10, 20, 50, and 100 francs. Silver: 5 francs.
Tripoli	Single silver	Mahbub of 20 piasters.	.63	
Turkey	Single gold .	Piaster .....	.014	Gold: 25, 50, 100, 250, and 500 piasters.
United States of Colombia.	Single silver	Peso.....	.699	Gold: condor (\$9.647) and double-condor. Silver: peso.
Venezuela	Single silver	Bolivar .....	.14	Gold: 5, 10, 20, 50, and 100 bolivars. Silver: 5 bolivars.

* Gold the nominal standard. Silver practically the standard.

† Coined since January 1, 1886. Old half-imperial = \$3.986.

XI.—STANDARD WEIGHT OF GOLD AND SILVER BULLION OPERATED UPON IN THE REFINERIES OF THE UNITED STATES MINTS AT PHILADELPHIA, SAN FRANCISCO, NEW ORLEANS, AND CARSON, AND THE ASSAY OFFICE AT NEW YORK DURING THE CALENDAR YEAR 1887.

Month.	BULLION CONTAINING GOLD.		BULLION FREE FROM GOLD.	BULLION CONTAINING GOLD.		BULLION FREE FROM GOLD.
	Gold, standard ounces.	Silver, standard ounces.	Silver, standard ounces.	Gold, standard ounces.	Silver, standard ounces.	Silver, standard ounces.
	MINT AT PHILADELPHIA.			MINT AT SAN FRANCISCO.		
January, 1887...	14,164.426	13,039.27	24,691.24	24,339.562	99,464.03	17,629.42
February, 1887...	13,832.370	14,243.35	32,395.99	18,962.211	92,213.64	13,112.93
March, 1887.....	20,706.947	11,645.14	44,237.37	26,825.200	7,290.68	9,704.79
April, 1887.....	15,984.929	7,677.15	35,834.63	27,792.382	51,303.71	7,011.91
May, 1887.....	20,162.379	37,944.98	16,119.39	30,055.451	25,108.30	.....
June, 1887.....	19,988.495	12,981.57	40,855.90	22,719.186	5,317.41	74,503.39
July, 1887.....	.....	.....	.....	28,645.334	98,983.93	12,304.91
August, 1887.....	.....	.....	.....	33,626.000	170,895.72	10,298.69
September, 1887.....	.....	.....	.....	28,553.408	149,239.07	3,325.52
October, 1887...	23,883.985	20,041.43	60,816.76	27,553.312	97,574.27	2,807.29
November, 1887...	22,749.788	41,390.11	7,662.72	23,981.040	89,898.75	19,421.35
December, 1887...	32,173.370	20,409.41	65,200.88	17,970.949	94,737.28	6,402.25
Total	188,646.699	179,372.41	327,814.88 179,372.41	311,024.035	982,026.79	176,522.45 982,026.79
Total silver.....	.....	.....	507,187.29	.....	.....	1,158,549.24
	MINT AT NEW ORLEANS.			MINT AT CARSON.		
January, 1887.....	.....	.....	.....	.....	.....	.....
February, 1887.....	.....	.....	.....	.....	.....	.....
March, 1887.....	.....	.....	.....	1,885.419	19,619.11	.....
April, 1887.....	1,802.192	4,484.23	.....	.....	.....	.....
May, 1887.....	728.845	1,862.79	.....	.....	.....	.....
June, 1887.....	162.931	312.06	.....	.....	.....	.....
July, 1887.....	.....	.....	.....	.....	.....	.....
August, 1887.....	625.779	1,559.73	.....	3,724.211	19,940.63	6,215.94
September, 1887.....	.....	.....	.....	.....	.....	.....
October, 1887.....	.....	.....	.....	32.130	7,150.53	537.73
November, 1887.....	.....	.....	.....	2,701.145	32,899.68	5,276.46
December, 1887.....	1,220.889	2,586.18	.....	3,384.961	65,411.76	2,068.40
Total	4,540.637	10,804.99	..... 10,804.99	11,727.866	145,021.71	14,098.53 145,021.71
Total silver.....	.....	.....	10,804.99	.....	.....	159,120.24
	ASSAY OFFICE AT NEW YORK.					
January, 1887...	51,737.000	199,620.00	227,321.00	.....	.....	.....
February, 1887...	38,051.000	162,099.00	9,331.00	.....	.....	.....
March, 1887.....	37,555.000	83,269.00	25,652.30	.....	.....	.....
April, 1887.....	50,302.000	166,563.00	25,189.00	.....	.....	.....
May, 1887.....	144,387.000	247,768.00	106,584.00	.....	.....	.....
June, 1887.....	.....	.....	.....	.....	.....	.....
July, 1887.....	110,525.000	271,038.00	62,490.00	.....	.....	.....
August, 1887.....	78,984.000	170,473.00	14,380.00	.....	.....	.....
September, 1887.....	79,982.000	113,054.00	70,193.00	.....	.....	.....
October, 1887...	94,413.000	141,593.00	73,749.00	.....	.....	.....
November, 1887...	52,827.000	112,538.00	151,028.00	.....	.....	.....
December, 1887...	50,663.000	158,791.00	21,486.00	.....	.....	.....
Total	789,496.000	1,826,806.00	787,108.00 1,826,806.00	.....	.....	.....
Total silver.....	.....	.....	2,613,914.00	.....	.....	.....

XI.—STANDARD WEIGHT OF GOLD AND SILVER BULLION, ETC.—Continued.

RECAPITULATION.

Calendar year 1887.	BULLION CONTAINING GOLD.		BULLION FREE FROM GOLD.
	Gold, standard ounces.	Silver, standard ounces.	Silver, standard ounces.
Mint at Philadelphia.....	188,646.699	179,372.41	327,814.88
Mint at San Francisco.....	311,024.035	982,026.79	176,524.45
Mint at New Orleans.....	4,540.637	19,804.99	.....
Mint at Carson.....	11,727.866	145,021.71	14,098.53
Assay office at New York.....	789,496.000	1,826,806.00	787,108.00
Total.....	1,305,435.237	3,144,031.90	1,305,543.86 3,144,031.90
Total silver.....	.....	.....	4,449,575.76

XII.—UNREFINED GOLD AND SILVER OF DOMESTIC PRODUCTION, WITH THE STATES AND TERRITORIES PRODUCING THE SAME, AND REFINED DOMESTIC BULLION NOT DISTRIBUTED, DEPOSITED AT THE MINTS AND ASSAY OFFICES, FROM THEIR ORGANIZATION TO THE CLOSE OF THE CALENDAR YEAR ENDED DECEMBER 31, 1887.

Locality.	Gold.	Silver.	Total.
Alabama.....	\$230,154.03	\$82.72	\$230,236.75
Alaska.....	417,460.19	3,817.70	421,277.89
Arizona.....	4,346,368.26	13,674,760.83	18,021,129.09
California.....	747,140,338.04	4,002,359.10	751,142,697.14
Colorado.....	53,620,774.58	24,426,402.48	78,047,177.06
Dakota.....	29,618,068.03	804,389.46	30,422,457.49
Georgia.....	8,596,285.42	4,164.14	8,600,449.56
Idaho.....	29,763,574.58	1,675,921.82	31,439,496.40
Maine.....	5,638.20	22.02	5,660.22
Maryland.....	2,297.02	2.63	2,299.65
Michigan.....	64,973.60	3,676,326.16	3,741,299.76
Missouri.....	13.90	359.11	373.01
Montana.....	61,664,434.20	14,542,043.47	76,206,477.67
Nebraska.....	1,921.79	273,225.62	275,147.41
Nevada.....	24,330,520.42	93,770,396.77	118,100,917.19
New Mexico.....	2,925,544.92	5,814,238.18	8,739,783.10
North Carolina.....	11,340,817.06	52,413.66	11,393,230.72
Oregon.....	19,512,520.05	68,352.86	19,580,872.91
South Carolina.....	1,670,906.68	1,740.58	1,672,647.26
Tennessee.....	88,075.78	9.71	88,085.49
Texas.....	2,049.54	338.52	2,388.06
Utah.....	946,964.74	19,066,863.13	20,013,827.87
Vermont.....	78,489.66	84.36	78,574.02
Virginia.....	1,730,091.09	286.43	1,730,377.52
Washington Territory.....	481,968.60	2,574.76	484,543.36
Wyoming.....	765,264.15	12,102.26	777,366.41
Other sources.....	37,985,065.28	42,201,504.86	80,186,570.14
Total unrefined.....	1,037,330,579.81	224,074,783.34	1,261,405,363.15
Refined bullion.....	315,188,808.49	217,976,616.18	533,165,424.67
Grand total.....	1,352,519,388.30	442,051,399.52	1,794,570,787.82

XIII.—ASSETS AND LIABILITIES OF UNITED STATES

ASSETS.

Institutions.	GOLD BULLION.		SILVER BULLION.	
	Standard weight.	Value.	Standard weight.	Value (cost).
COINAGE MINTS.				
Philadelphia	1,406,784.569	\$26,172,735.96	4,373,291.31	\$4,491,843.29
San Francisco	294,954.957	5,487,534.05	916,493.20	907,160.32
New Orleans	34,431.358	640,583.38	1,638,389.03	1,422,087.86
Carson	14,256.351	265,234.47	45,997.17	41,837.99
ASSAY OFFICES.				
New York	4,858,786.302	90,396,023.94	3,509,651.20	3,961,716.47
Denver	4,881.046	90,810.14	791.35	688.47
Helena	2,954.286	54,960.06	611.50	527.93
Boisé	1,072.329	19,950.31	373.72	325.14
Charlotte	564.458	10,501.54	84.02	73.10
Saint Louis	365.646	6,802.72	133.01	114.99
Total	6,619,051.302	123,145,136.57	10,485,815.51	10,826,375.56

LIABILITIES.

Institutions.	Bullion fund.	Undeposited earnings.
COINAGE MINTS.		
Philadelphia	\$75,466,026.09	
San Francisco	33,442,634.92	
New Orleans	8,700,957.06	
Carson	476,000.00	\$25.35
ASSAY OFFICES.		
New York	102,746,470.66	2,455.79
Denver	190,231.49	1,526.84
Helena	153,086.58	1,111.89
Boisé	113,354.19	363.64
Charlotte	19,356.67	436.23
Saint Louis	22,348.09	112.54
Total	221,330,465.75	6,032.28

MINTS AND ASSAY OFFICES JANUARY 1, 1888.

ASSETS.

Value of bullion shipped for coinage.	Gold coin.	Silver coin.	Minor coin.	Minor coin- age metal.	Deficiencies.	Total.
.....	\$1,721,511.00	\$43,564,462.52	\$462,213.46	\$14,925.77	.....	\$76,427,692.00
.....	1,770,835.00	25,302,338.81	.....	.....	\$413,557.96	33,881,426.14
.....	8,100.00	6,884,198.07	.....	.....	.....	8,954,969.31
.....	159,739.56	9,213.33	.....	.....	.....	476,025.35
.....	8,323,108.09	100,467.23	.....	.....	.....	102,781,315.73
\$66,011.09	34,248.00	.63	.....	.....	.....	191,758.33
29,955.84	68,754.00	.64	.....	.....	.....	154,198.47
20,513.17	72,929.00	.21	.....	.....	.....	113,717.83
.....	9,218.00	.26	.....	.....	.....	19,792.90
.....	15,542.00	.92	.....	.....	.....	22,460.63
116,480.10	12,183,984.65	75,860,682.62	462,213.46	14,925.77	413,557.96	223,023,356.69

LIABILITIES.

Seignorage on silver.	Unpaid deposit- ors.	Minor coin profits.	Minor coin metal fund.	Unpaid cent depositors.	Total.
\$461,390.14	\$23,136.54	\$407,380.63	\$69,688.60	\$70.00	\$76,427,692.00
77,087.21	361,704.01	.....	.....	.....	33,881,426.14
253,791.58	220.67	.....	.....	.....	8,954,969.31
.....	.....	.....	.....	.....	476,025.35
.....	32,389.28	.....	.....	.....	102,781,315.73
.....	.....	.....	.....	.....	191,758.33
.....	.....	.....	.....	.....	154,198.47
.....	.....	.....	.....	.....	113,717.83
.....	.....	.....	.....	.....	19,792.90
.....	.....	.....	.....	.....	22,460.63
792,268.93	417,450.50	407,380.63	69,688.60	70.00	223,023,356.69

**XIV.—MANIFESTED IMPORTS AND EXPORTS OF GOLD AND SILVER DURING
THE YEAR ENDED DECEMBER 31, 1887.**

[Reported by Chief of Bureau of Statistics. Corrected as to "U. S. bars" by information communicated direct to the Bureau of the Mint.]

IMPORTS.

Ports.	BULLION.						Total gold and silver bullion.
	Gold.			Silver.			
	U. S. mint or assay office bars.	Other bullion.	Total.	U. S. mint or assay office bars.	Other bullion.	Total.	
NEW YORK.							
January	\$1,028,604	\$1,269,173	\$2,297,777		\$36,322	\$36,322	\$2,334,099
February		33,284	33,284		36,075	36,075	69,359
March		35,397	35,397		36,486	36,486	71,883
April		40,073	40,073		35,180	35,180	75,253
May		27,516	27,516		45,000	45,000	72,516
June		32,231	32,231		52,645	52,645	84,876
July		1,083,012	1,083,012		69,085	69,085	1,152,097
August		2,315,660	2,315,660		67,880	67,880	2,383,540
September		6,895,500	6,895,500		63,450	63,450	6,958,950
October		4,968,772	4,968,772		59,093	59,093	5,027,865
November		438,017	438,017		64,969	64,969	502,986
December		36,723	36,723		52,200	52,200	88,923
Total	1,028,604	17,175,358	18,203,962		618,385	618,385	18,822,347
SAN FRANCISCO.							
January		33,464	33,464		242,420	242,420	275,884
February		19,235	19,235		223,594	223,594	242,829
March		14,117	14,117		232,993	232,993	247,110
April		34,572	34,572		149,556	149,556	184,128
May		44,889	44,889		247,679	247,679	292,568
June		49,104	49,104		204,052	204,052	253,156
July		47,846	47,846		134,176	134,176	182,022
August		77,503	77,503		237,880	237,880	315,383
September		47,222	47,222		168,960	168,960	216,182
October		231,755	231,755		187,041	187,041	418,796
November		327,359	327,359		167,098	167,098	494,457
December		44,226	44,226		260,463	260,463	304,689
Total		971,292	971,292		2,455,912	2,455,912	3,427,204
ALL OTHER PORTS.							
January		38,873	38,873		217,148	217,148	256,021
February		16,919	16,919		209,159	209,159	226,078
March		35,232	35,232		186,353	186,353	221,585
April		16,092	16,092		229,742	229,742	245,834
May		39,710	39,710		200,979	200,979	240,689
June		15,971	15,971		144,964	144,964	160,935
July		41,565	41,565		167,550	167,550	209,115
August		65,465	65,465		183,111	183,111	248,576
September		14,508	14,508		141,775	141,775	156,283
October		17,493	17,493		237,967	237,967	255,460
November		21,597	21,597		177,006	177,006	198,603
December		25,962	25,962		202,950	202,950	228,912
Total		349,387	349,387		2,298,704	2,298,704	2,648,091
Total imports (bullion)	1,028,604	18,496,037	19,524,641		5,373,001	5,373,001	24,897,642

XIV.—MANIFESTED IMPORTS AND EXPORTS OF GOLD AND SILVER, ETC.—
Continued.

DOMESTIC EXPORTS.

Ports.	BULLION.						Total gold and silver bullion.
	Gold.			Silver.			
	U. S. mint or assay office bars.	Other bullion.	Total.	U. S. mint or assay office bars.	Other bullion.	Total.	
NEW YORK.							
January		\$17, 288	\$17, 288		\$440, 170	\$440, 170	\$457, 458
February	\$941, 025	8, 870	949, 895		779, 525	779, 525	1, 729, 420
March	10, 000	5, 225	15, 225	\$31, 000	446, 735	477, 735	492, 960
April		440	440		1, 166, 740	1, 166, 740	1, 167, 180
May		3, 532	3, 532		985, 750	985, 750	989, 282
June		1, 400	1, 400		577, 496	577, 496	578, 896
July		8, 000	8, 000		1, 060, 575	1, 060, 575	1, 068, 575
August		28, 555	28, 555		1, 026, 781	1, 026, 781	1, 055, 336
September		8, 400	8, 400		1, 189, 900	1, 189, 900	1, 198, 300
October		6, 370	6, 370		617, 800	617, 800	624, 170
November		12, 607	12, 607		1, 205, 970	1, 205, 970	1, 218, 577
December		13, 524	13, 524		2, 093, 864	2, 093, 864	2, 107, 388
Total	951, 025	114, 211	1, 065, 236	31, 000	11, 591, 306	11, 622, 306	12, 687, 542
SAN FRANCISCO.							
January		450	450	15, 700	835, 100	850, 800	851, 250
February		140	140		943, 090	943, 090	943, 230
March		110	110	93, 922	449, 453	543, 375	543, 485
April		1, 050	1, 050	5, 455	1, 041, 545	1, 047, 000	1, 048, 050
May		355	355	46, 000	613, 300	659, 300	659, 655
June		724	724	4, 900	799, 600	804, 500	805, 224
July		1, 500	1, 500	1, 320	618, 030	619, 350	620, 850
August		770	770	9, 500	246, 500	256, 000	256, 770
September		7, 205	7, 205	10, 500	335, 000	345, 500	352, 705
October		3, 070	3, 070	21, 100	623, 600	644, 700	647, 770
November		4, 221	4, 221		486, 500	486, 500	490, 721
December		1, 061	1, 061	52, 524	796, 626	849, 150	850, 211
Total		20, 656	20, 656	260, 921	7, 788, 344	8, 049, 265	8, 069, 921
ALL OTHER PORTS.							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Total							
Total domestic exports (bullion)	951, 025	134, 867	1, 085, 892	291, 921	19, 379, 650	19, 671, 571	20, 757, 463

XIV.—MANIFESTED IMPORTS AND EXPORTS
IMPORTS.

Ports.	COIN.		
	Gold.		
	American.	Foreign.	Total.
NEW YORK.			
January	\$109, 836	\$797, 872	\$907, 708
February	23, 242	14, 753	37, 995
March	84, 481	372, 380	456, 861
April	53, 483	157, 368	210, 851
May	263, 538	369, 727	633, 265
June	90, 090	201, 130	291, 220
July	511, 100	406, 001	917, 101
August	1, 203, 853	2, 227, 494	3, 431, 347
September	1, 285, 929	4, 626, 854	5, 912, 783
October	538, 478	5, 165, 571	5, 704, 049
November	399, 858	264, 385	664, 243
December	327, 065	733, 013	1, 060, 078
Total	4, 890, 953	15, 336, 548	20, 227, 501
SAN FRANCISCO.			
January	80, 534	10, 936	91, 470
February	3, 049	9, 336	12, 385
March	3, 029	13, 697	16, 726
April	14, 112	3, 900	18, 012
May	94, 308	6, 000	100, 308
June	55, 549	1, 117	56, 666
July	7, 413	.....	7, 413
August	11, 226	6, 898	18, 124
September	4, 790	932, 645	937, 435
October	78, 738	1, 764, 453	1, 843, 191
November	29, 068	405, 335	434, 403
December	3, 878	556, 595	560, 473
Total	385, 694	3, 710, 912	4, 096, 606
ALL OTHER PORTS.			
January	140, 316	26, 320	166, 636
February	12, 750	11, 043	23, 793
March	3, 092	16, 540	19, 632
April	338	9, 340	9, 678
May	7, 100	51, 151	58, 251
June	8, 798	51, 268	60, 061
July	12, 870	67, 945	80, 815
August	1, 005	69, 672	70, 677
September	220, 500	61, 326	281, 826
October	22, 000	102, 422	124, 422
November	5, 005	61, 969	66, 974
December	2, 200	75, 586	77, 786
Total	435, 969	604, 582	1, 040, 551
Total imports (coin)	5, 712, 616	19, 652, 042	25, 364, 658

OF GOLD AND SILVER, ETC.—Continued.

IMPORTS.

COIN.					
Silver.					Total gold and silver coin.
American.			Foreign.	Total.	
Trade dollars.	Other silver coin.	Total.			
	\$29,941	\$29,941	\$105,317	\$135,258	\$1,042,966
	18,034	18,034	66,962	84,996	122,991
\$202	35,574	35,776	95,034	130,810	587,671
131	11,358	11,489	188,860	200,349	411,200
153,627	40,315	193,942	35,467	229,409	862,674
579	8,488	9,067	25,947	35,014	326,234
	14,928	14,928	186,119	201,047	1,118,148
939	9,786	10,725	18,323	29,048	3,460,395
	10,126	10,126	12,833	22,959	5,935,742
	14,020	14,020	60,710	74,730	5,778,779
97	100,532	100,629	132,061	232,690	896,933
18	7,614	7,632	142,173	149,805	1,209,883
155,593	300,716	456,309	1,069,806	1,526,115	21,753,616
	152	152	23,204	23,356	114,826
	2,158	2,158	28,221	30,379	42,764
	638	638	32,250	32,888	49,614
375,800	463	377,263	39,769	417,032	435,044
139,300		139,300	37,940	177,240	277,548
95,844	1,314	97,158	15,509	112,667	169,333
63,139	133	63,272	47,834	111,100	118,519
	422	422	42,569	42,991	61,115
	806	806	21,422	22,228	959,663
	595	595	52,698	53,293	1,896,484
500	710	1,210	165,512	166,722	601,125
			37,734	37,734	598,207
675,583	7,391	682,974	544,662	1,227,636	5,324,242
	1,936	1,936	537,225	539,161	705,797
	3,181	3,181	745,126	748,307	772,100
	24,588	24,588	573,576	598,164	617,796
	2,772	2,772	382,523	385,295	394,973
	2,834	2,834	480,691	483,525	541,776
	3,130	3,130	430,124	433,254	493,315
	2,980	2,980	649,070	652,050	732,865
	6,512	6,512	1,150,315	1,156,827	1,227,504
	3,331	3,331	1,039,183	1,042,514	1,324,340
	7,959	7,959	829,963	837,922	962,344
	3,040	3,040	972,474	975,514	1,042,488
	928	928	792,401	793,329	871,115
	63,191	63,191	8,582,671	8,645,862	9,686,413
831,176	371,298	1,202,474	10,197,139	11,399,613	36,764,271

XIV.—MANIFESTED IMPORTS AND EXPORTS OF GOLD AND SILVER, ETC.—
Continued.

DOMESTIC EXPORTS—Continued.

Ports.	COIN.		Total gold and silver coin.
	Gold.	Silver.	
NEW YORK.			
January	\$201,729	.....	\$201,729
February	250,596	\$3,922	254,518
March	211,946	12,552	224,498
April	392,507	3,100	395,607
May	225,479	.....	225,479
June	360,908	1,290	362,198
July	310,053	3,655	313,708
August	148,395	3,209	151,604
September	103,010	6,142	109,152
October	235,032	2,013	237,045
November	316,640	4,400	321,040
December	299,598	1,300	300,898
Total	3,055,893	41,583	3,097,476
SAN FRANCISCO.			
January	31,766	.....	31,766
February	22,065	.....	22,065
March	256,389	.....	256,389
April	43,655	.....	43,655
May	28,919	.....	28,919
June	170,337	.....	170,337
July	144,893	.....	144,893
August	36,831	.....	36,831
September	31,644	.....	31,644
October	66,331	.....	66,331
November	56,550	.....	56,550
December	38,469	.....	38,469
Total	927,849	.....	927,849
ALL OTHER PORTS.			
January	2,000	250	2,250
February	9,677	.....	9,677
March .....	.....	.....	.....
April	110	*223	333
May .....	.....	.....	.....
June .....	.....	.....	.....
July	8,000	800	8,800
August	430	3,100	3,530
September .....	.....	.....	.....
October	1,700	300	2,000
November .....	.....	1,100	1,100
December .....	.....	40	40
Total	21,917	5,813	27,730
Total domestic exports (coin)	4,005,659	47,396	4,053,055

* Includes 10 trade dollars.

XIV.—MANIFESTED IMPORTS AND EXPORTS OF GOLD AND SILVER, ETC.—
Continued.

FOREIGN EXPORTS.

Ports.	BULLION.						Total gold and silver bullion.
	Gold.			Silver.			
	Bars.	Other bullion.	Total.	Bars.	Other bullion.	Total.	
NEW YORK.							
January							
February		\$3,884	\$3,884				\$3,884
March							
April							
May							
June							
July							
August					\$22,780	\$22,780	22,780
September							
October							
November							
December					9,200	9,200	9,200
Total		3,884	3,884		31,980	31,980	35,864
SAN FRANCISCO.							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Total							
ALL OTHER PORTS.							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Total							
Total foreign exports (bullion)		3,884	3,884		31,980	31,980	35,864

XIV.—MANIFESTED IMPORTS AND EXPORTS OF GOLD AND SILVER, ETC.—
Continued.

FOREIGN EXPORTS—Continued.

Ports.	COIN.		Total gold and silver coin.
	Gold.	Silver.	
NEW YORK.			
January	\$375,760	\$177,381	\$553,141
February	441,140	100,113	541,253
March	1,961,256	154,990	2,116,246
April	1,056,484	166,471	1,222,955
May	37,984	51,125	89,109
June	86,947	69,672	156,619
July	23,330	41,661	64,991
August	26,980	98,916	125,896
September	25,658	61,208	86,866
October		47,251	47,251
November	118	69,295	69,413
December	13,334	116,013	129,347
Total	4,048,991	1,154,096	5,203,087
SAN FRANCISCO.			
January		433,923	433,923
February		500,947	500,947
March		432,132	432,132
April		222,373	222,373
May		187,196	187,196
June		263,276	263,276
July		279,330	279,330
August		611,965	611,965
September		1,144,845	1,144,845
October		1,048,757	1,048,757
November		723,333	723,333
December		547,565	547,565
Total		6,395,642	6,395,642
ALL OTHER PORTS.			
January		13,000	13,000
February		23,550	23,550
March		32,948	32,948
April		41,009	41,009
May		41,580	41,580
June		31,400	31,400
July		2,700	2,700
August		35,021	35,021
September		31,205	31,205
October		27,650	27,650
November		36,590	36,590
December		27,650	27,650
Total		344,303	344,303
Total foreign exports (coin)	4,048,991	7,894,041	11,943,032

XIV.—MANIFESTED IMPORTS AND EXPORTS OF GOLD AND SILVER, ETC.—
Continued.

RECAPITULATION.

Description.	Gold.	Silver.	Total.
IMPORTS.			
Bullion	\$19,524,641	\$5,373,001	\$24,897,642
Foreign coin.....	19,652,042	10,197,139	29,849,181
Total	39,176,683	15,570,140	54,746,823
American coin.....	5,712,616	1,202,474	6,915,090
Total bullion and coin.....	44,889,299	16,772,614	61,661,913
EXPORTS.			
Domestic bullion	1,085,892	19,671,571	20,757,463
Foreign bullion	3,884	31,980	35,864
Foreign coin.....	4,048,991	7,894,041	11,943,032
Total	5,138,767	27,597,592	32,736,359
American coin.....	4,005,659	47,396	4,053,055
Total bullion and coin.....	9,144,426	27,644,988	36,789,414
EXCESS.			
Bullion and foreign coin:			
Imports.....	34,037,916		
Exports		12,027,452	
American coin.....			
Imports	1,706,957	1,155,078	2,862,035

XV.—VALUES OF GOLD AND SILVER ORES IMPORTED INTO AND EXPORTED FROM THE UNITED STATES DURING THE YEAR ENDED DECEMBER 31, 1887.

IMPORTS.

Months.	NEW YORK, N. Y.		SAN FRANCISCO, CAL.		PASO DEL NORTE, TEX. AND N. MEX.		ALL OTHER CUSTOMS DISTRICTS.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
January	\$2,303	\$41,469		\$2,046		\$401,900		\$42,798
February		37,191		553		299,141	\$50	32,185
March	145	5,877	\$198	43,906		222,130		25,199
April	10	47,662		6,236		217,705	6,600	21,015
May		7,177	4,000	11,052		262,252		30,310
June	50	34,940		95		173,339		14,610
July	5	18,470		11,655		309,714	108	11,692
August		20,759		1,029		200,979	20	67,386
September	174	43,601		9,392		187,660		64,137
October		50,738		11,570		338,220	2	32,543
November		22,393		39,689		391,478		54,111
December	218	13,465		29,627	\$145	270,849		46,162
Total	2,905	343,742	4,198	166,850	145	3,275,367	6,780	442,148

Total imports of gold ores, \$14,028; silver ores, \$4,228,107.

EXPORTS (DOMESTIC).

Months.	ORES, GOLD AND SILVER BEARING.	
	New York, N. Y.	San Francisco, Cal.
January	\$5,475	
February	7,080	
March	1,340	
April	3,104	\$2,000
May	2,311	
June	14,654	
July	3,137	
August	275	
September	3,020	
October	10,700	
November	15,791	
December	18,717	
Total	85,604	2,000

Total export of gold and silver bearing ores (domestic), \$87,604.

EXPORTS (FOREIGN).

Months.	NEW YORK, N. Y.		NEW ORLEANS, LA.	
	Gold.	Silver.	Gold.	Silver.
March		\$8,736		
June		14,679		
October				\$600
Total		23,415		600

Total export of silver ores (foreign), \$24,015.

XVI.—MANIFESTED IMPORTS AND EXPORTS OF GOLD AND SILVER AT SAN FRANCISCO DURING THE CALENDAR YEAR 1887.

IMPORTS.

Country of shipment.	Silver bullion.	Trade dollars.	Silver coin.	Gold bullion.	Gold coin.	Total.
French Possessions.....			\$31,325		\$5,891	\$37,216
British Columbia.....				\$564,956	22,548	587,504
British Poss. in Australasia.....				380,822	3,355,002	3,735,824
Hawaiian Islands.....			3,467		114,040	117,507
Japan.....		\$500	14,487		21,982	36,969
Mexico.....	\$2,454,864		496,204	21,769	81,144	3,053,981
China.....		675,083		300	489,387	1,164,770
Nicaragua.....			2,345	500	180	3,025
Guatemala.....			3,098		4,267	7,365
San Salvador.....	1,048		1,127	780	4,330	7,285
Total.....	2,455,912	675,583	552,053	969,127	4,098,771	8,751,446

EXPORTS.

Destination.	Silver bullion.	Foreign silver coin.	Silver coin.	Gold bullion.	Gold coin.	Total.
British East Indies.....	\$2,750,440	\$60,000				\$2,810,440
British Poss. in Australasia.....		3,089				3,089
Hawaiian Islands.....					\$530,000	530,000
Japan.....	2,543,325					2,543,325
Mexico.....		106,000				106,000
China.....	22,500					22,500
Hong-Kong.....	2,733,000	5,877,611	\$279,330	\$20,656	381,833	9,292,430
Guatemala.....		26,709			2,716	29,425
San Salvador.....					10,000	10,000
Costa Rica.....					1,300	1,300
United States of Colombia.....					2,000	2,000
All other islands and ports.....		2,000				2,000
Total.....	8,049,265	6,075,409	279,330	20,656	927,849	15,352,509

XVII.—IMPORTS OF GOLD AND SILVER COIN, BULLION AND ORE INTO THE UNITED STATES THROUGH THE PORTS OF ENTRY OF THE CUSTOMS DISTRICT OF PASO DEL NORTE DURING THE CALENDAR YEAR 1887.

GOLD.

Ports of entry.	Foreign coin.	Bars and bullion.	ORES.		Total.
			Tons.	Value.	
El Paso, Tex.....	\$579, 814	\$156, 483			\$736, 297
Deming, N. Mex.....					
Nogales, Ariz.....	960	133, 446	6	\$145	134, 551
Tombstone, Ariz.....					
Tucson, Ariz.....					
Total.....	580, 774	289, 929	6	145	870, 848

SILVER.

El Paso, Tex.....	7, 434, 044	1, 687, 515	45, 078	2, 891, 536	12, 013, 095
Deming, N. Mex.....			311	29, 512	29, 512
Nogales, Ariz.....	185, 440	449, 091	4, 565	323, 688	958, 219
Tombstone, Ariz.....			111	23, 475	23, 475
Tucson, Ariz.....			101	7, 156	7, 156
Total.....	7, 619, 484	2, 136, 606	50, 166	3, 275, 367	13, 031, 457

TOTAL GOLD AND SILVER.

El Paso, Tex.....					12, 749, 392
Deming, N. Mex.....					29, 512
Nogales, Ariz.....					1, 092, 770
Tombstone, Ariz.....					23, 475
Tucson, Ariz.....					7, 156
Total.....					13, 902, 305

XVIII.—SILVER ORE IMPORTED FROM MEXICO AT EAGLE PASS, TEXAS, DURING THE CALENDAR YEAR 1887.

Month.	Tons.	Value.
1887.		
January.....	260	\$7, 650
February.....	117	7, 263
March.....	237	6, 883
April.....	119	3, 319
May.....	98	2, 409
June.....	138	3, 766
July.....	186	4, 470
August.....	313	6, 416
September.....	327	5, 578
October.....	499	7, 184
November.....	654	11, 860
December.....	699	12, 097
Total.....	3, 647	78, 895

XIX.—IMPORTS INTO THE CUSTOMS DISTRICT OF NEW ORLEANS OF GOLD AND SILVER COIN AND BULLION DURING THE CALENDAR YEAR 1887.

Countries.	GOLD.				SILVER.				Total.
	Bars.	Other bullion.	Coin.		Bars.	Other bullion.	Coin.		
			Ameri-can.	Foreign.			Ameri-can.	Foreign.	
Mexico			\$400	\$40,285			\$1,200		\$41,885
All other countries.		\$37,636	1,855				402	\$291,441	331,334
Total.....		37,636	2,255	40,285			1,602	291,441	373,219

XX.—STANDARD OUNCES AND COST OF THE SILVER BULLION ACQUIRED FOR THE SILVER DOLLAR COINAGE AND THE NUMBER OF SILVER DOLLARS COINED EACH MONTH, FROM JANUARY 1, 1887, TO JANUARY 1, 1888.

Months.	Standard ounces.	Cost.	Coinage.
1887.			
January	2,926,004.88	\$2,684,552.54	\$2,920,000
February	2,115,563.26	1,951,923.68	2,950,000
March	2,351,293.50	2,125,722.11	3,020,380
April	2,194,097.05	1,899,783.71	3,000,000
May	1,618,630.22	1,386,739.63	2,900,000
June	2,258,019.25	1,947,531.39	2,516,090
July	1,864,121.25	1,609,969.90	600,000
August	2,880,337.11	2,503,384.59	2,970,000
September	2,498,151.79	2,184,290.72	3,100,040
October	2,821,747.82	2,447,292.18	3,450,000
November	2,114,777.32	1,818,078.69	3,400,000
December	1,909,788.93	1,661,987.86	2,785,200
Total.....	27,552,532.38	24,221,257.00	33,611,710
Purchased and coined from March 1, 1878, to January 1, 1887.....	218,535,005.87	217,378,847.85	249,681,810
Purchased and coined from March 1, 1878, to January 1, 1888	246,087,538.25	241,600,104.85	283,293,520
Monthly average, January 1, 1887, to January 1, 1888.....	2,296,044.37	2,018,438.08	2,800,975
Monthly average for 118 months.....	2,085,487.61	2,047,458.52	2,400,792

XXI.—SILVER BULLION PURCHASES FROM

Month.	PHILADELPHIA.		NEW ORLEANS.	
	Standard ounces.	Cost.	Standard ounces.	Cost.
1887.				
January.....	1,794,059.83	\$1,646,111.43	1,022,642.74	\$937,661.11
February.....	1,143,991.34	1,055,892.23	966,811.22	891,661.84
March.....	1,521,788.41	1,377,099.58	823,287.56	742,923.72
April.....	1,304,189.74	1,129,956.61	884,548.22	765,161.81
May.....	1,084,822.14	929,606.16	528,079.38	452,147.79
June.....	1,437,543.78	1,239,468.59	815,102.34	703,283.40
July.....	1,147,298.92	990,594.86	657,975.08	568,174.67
August.....	1,109,440.83	963,873.73	1,098,754.10	954,735.77
September.....	1,503,775.81	1,314,873.58	716,867.59	627,446.53
October.....	1,476,134.80	1,280,057.64	1,098,161.00	952,815.45
November.....	1,250,645.14	1,075,067.84	674,068.71	579,796.77
December.....	949,886.33	826,018.76	695,458.97	603,452.11
Total.....	15,723,577.07	13,828,621.01	9,981,756.91	8,779,260.97

JANUARY 1, 1887, TO JANUARY 1, 1888.

SAN FRANCISCO.		CARSON.		TOTAL.	
Standard ounces.	Cost.	Standard ounces.	Cost.	Standard ounces.	Cost.
92,807.32	\$85,787.69	16,494.99	\$14,992.31	2,926,004.88	\$2,684,552.54
3,714.38	3,417.23	1,046.32	952.38	2,115,563.26	1,951,923.68
6,011.57	5,511.47	205.96	187.34	2,351,293.50	2,125,722.11
5,096.51	4,433.96	262.58	231.33	2,194,097.05	1,899,783.71
5,540.61	4,820.33	188.09	165.35	1,618,630.22	1,386,739.63
4,714.81	4,146.45	658.32	632.95	2,258,019.25	1,947,531.39
58,602.32	50,984.48	244.93	215.89	1,864,121.25	1,609,969.90
671,966.77	584,619.39	175.41	155.70	2,880,337.11	2,503,384.59
277,424.87	241,895.50	83.52	75.11	2,498,151.79	2,184,290.72
247,163.10	214,166.55	288.92	252.54	2,821,747.82	2,447,292.18
189,881.80	163,049.59	181.67	164.49	2,114,777.32	1,818,078.69
264,064.29	232,170.39	379.34	346.60	1,909,788.93	1,661,987.86
1,827,348.35	1,595,003.03	20,210.05	18,371.99	27,552,532.38	24,221,257.00

**XXII.—BULLION MANUFACTURED INTO STANDARD SILVER DOLLARS AND
FROM JANUARY 1, 1887,
MINT AT PHILADELPHIA.**

Month.	Manufactured.	
	Standard ounces.	Cost.
1887—January	1,735,937.50	\$1,563,125.17
February	1,675,781.25	1,517,903.34
March	1,736,264.06	1,572,198.29
April	1,718,750.00	1,535,678.93
May	1,632,812.50	1,440,918.61
June	1,289,139.84	1,126,609.23
July .....	.....	.....
August	1,289,062.50	1,123,304.84
September	1,460,971.87	1,273,004.10
October	1,718,750.00	1,495,315.69
November	1,718,750.00	1,489,910.15
December	1,461,109.37	1,267,699.27
Total	17,437,328.89	15,403,667.02

MINT AT NEW ORLEANS.

1887—January	773,437.50	\$696,564.49
February	859,375.00	780,308.01
March	859,375.00	778,887.41
April	859,375.00	767,744.72
May	859,375.00	760,962.99
June	859,375.00	754,462.45
July	515,625.00	450,473.01
August	902,343.75	786,656.49
September	859,375.00	750,016.02
October	859,375.00	748,325.61
November	859,375.00	746,011.28
December	859,375.00	745,919.76
Total	9,925,781.25	8,766,332.27

MINT AT SAN FRANCISCO.

1887—January .....	.....	.....
February .....	.....	.....
March .....	.....	.....
April .....	.....	.....
May .....	.....	.....
June	13,750.00	\$12,498.37
July .....	.....	.....
August	360,937.50	318,418.40
September	343,750.00	302,239.30
October	386,718.75	338,637.48
November	343,750.00	299,392.41
December	73,046.88	63,884.23
Total	1,521,953.13	1,335,070.19

RECAPITULATION.

1887—January	2,509,375.00	\$2,259,689.66
February	2,533,156.25	2,298,211.35
March	2,595,639.06	2,351,085.70
April	2,578,125.00	2,303,423.65
May	2,492,187.50	2,201,881.00
June	2,162,264.84	1,893,570.65
July	515,625.00	450,473.01
August	2,552,343.75	2,226,379.73
September	2,664,096.87	2,325,259.42
October	2,964,843.75	2,582,278.78
November	2,921,875.00	2,535,313.84
December	2,393,331.25	2,077,503.26
Total	28,885,063.27	25,505,069.48

INCIDENTAL WASTAGE AND LOSS ON SALE OF SWEEPS AT THE COINAGE MINTS TO JANUARY 1, 1888.

MINT AT PHILADELPHIA.

Wastage and sold in sweeps.		Total consumption.		Number of standard silver dollars coined.	Seignorage.
Standard ounces.	Cost.	Standard ounces.	Cost.		
		1, 735, 937.50	\$1, 563, 125.17	2, 020, 000	\$456, 874.83
		1, 675, 781.25	1, 517, 903.34	1, 950, 000	432, 096.66
2, 986.08	\$2, 688.82	1, 739, 250.14	1, 574, 887.11	2, 020, 380	448, 181.71
2, 059.13	1, 864.56	1, 720, 809.13	1, 537, 543.49	2, 000, 000	464, 321.07
1, 777.25	1, 587.95	1, 634, 589.75	1, 442, 505.96	1, 900, 000	459, 081.99
2, 182.64	1, 926.13	1, 291, 322.48	1, 128, 535.36	1, 500, 090	373, 480.77
3, 133.69	2, 738.61	1, 292, 196.19	1, 124, 043.45	1, 500, 000	378, 695.16
		1, 460, 971.87	1, 273, 004.10	1, 700, 040	427, 035.90
		1, 718, 750.00	1, 495, 315.69	2, 000, 000	504, 684.31
2, 668.52	2, 325.19	1, 721, 418.52	1, 492, 235.34	2, 000, 000	510, 089.85
2, 084.57	1, 807.02	1, 463, 193.94	1, 269, 506.29	1, 700, 200	432, 500.73
16, 891.88	14, 938.28	17, 454, 220.77	15, 418, 605.30	20, 290, 710	4, 887, 042.98

MINT AT NEW ORLEANS.

		773, 437.50	\$696, 564.49	900, 000	\$203, 435.51
6, 350.31	\$5, 766.05	865, 725.31	786, 074.06	1, 000, 000	219, 691.99
		859, 375.00	778, 887.41	1, 000, 000	221, 112.59
		859, 375.00	767, 744.72	1, 000, 000	232, 255.28
		859, 375.00	760, 962.99	1, 000, 000	239, 037.01
25, 061.47	22, 001.97	884, 436.47	776, 464.42	1, 000, 000	245, 537.55
		515, 625.00	450, 473.04	600, 000	149, 526.96
5, 641.35	4, 918.09	907, 985.10	791, 574.58	1, 050, 000	263, 343.51
		859, 375.00	750, 016.02	1, 000, 000	249, 983.98
		859, 375.00	748, 325.61	1, 000, 000	251, 674.39
		859, 375.00	746, 011.28	1, 000, 000	253, 988.72
		859, 375.00	745, 919.76	1, 000, 000	254, 080.24
37, 053.13	32, 686.11	9, 962, 834.38	8, 799, 018.38	11, 550, 000	2, 783, 667.73

MINT AT SAN FRANCISCO.

252.41	\$229.43	14, 002.41	\$12, 727.80	16, 000	\$3, 501.63
1, 625.86	1, 477.85	362, 563.36	319, 896.25	420, 000	101, 581.60
		343, 750.00	302, 239.30	400, 000	97, 760.70
		386, 718.75	338, 637.48	450, 000	111, 362.52
		343, 750.00	299, 392.41	400, 000	100, 607.59
		73, 046.88	63, 884.23	85, 000	21, 115.77
1, 878.27	1, 707.28	1, 523, 831.40	1, 336, 777.47	1, 771, 000	435, 929.81

RECAPITULATION.

		2, 509, 375.00	\$2, 259, 689.66	2, 920, 000	\$660, 310.34
6, 350.31	\$5, 766.05	2, 541, 506.56	2, 303, 977.40	2, 950, 000	651, 788.65
2, 986.08	2, 688.82	2, 598, 625.14	2, 353, 774.52	3, 020, 380	669, 294.30
2, 059.13	1, 864.56	2, 580, 184.13	2, 305, 288.21	3, 000, 000	696, 576.35
1, 777.25	1, 587.95	2, 493, 964.75	2, 203, 468.95	2, 900, 000	698, 119.00
27, 496.52	24, 157.53	2, 189, 761.36	1, 917, 727.58	2, 516, 090	622, 519.95
		515, 625.00	450, 473.04	600, 000	149, 526.96
10, 400.90	9, 134.55	2, 562, 744.65	2, 235, 514.28	2, 970, 000	743, 620.27
		2, 664, 096.87	2, 325, 259.42	3, 100, 040	774, 780.58
		2, 964, 843.75	2, 582, 278.78	3, 450, 000	867, 721.22
2, 668.52	2, 325.19	2, 924, 543.52	2, 537, 639.03	3, 400, 000	864, 686.16
2, 084.57	1, 807.02	2, 395, 615.82	2, 079, 310.28	2, 785, 200	707, 696.74
55, 823.28	49, 331.67	28, 940, 886.55	25, 554, 401.15	33, 611, 710	8, 106, 640.52

XXIII:—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR

[Coinage of the mint at Philadelphia from

NOTE.—Not susceptible of exact statement by years of actual date of coin, the registry of annual coinage being of coin delivered by coiners of mints within the given year, and these deliveries not having been invariably completed within the year of the date of coin, as now required to be.

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1793 to 1795		\$27, 950	\$43, 535			
1796.....		60, 800	16, 995		\$165. 00	
1797.....		91, 770	32, 030		4, 390. 00	
1798		79, 740	124, 335		1, 535. 00	
1799.....		174, 830	37, 255		1, 200. 00	
1800.....		259, 650	58, 110			
1801.....		292, 540	130, 030			
1802.....		150, 900	265, 880		6, 530. 00	
1803.....		89, 790	167, 530		1, 057. 50	
1804.....		97, 950	152, 375		8, 317. 50	
1805.....			165, 915		4, 452. 50	
1806.....			320, 465		4, 040. 00	
1807.....			420, 465		17, 030. 00	
1808.....			277, 890		6, 775. 00	
1809.....			169, 375			
1810.....			501, 435			
1811.....			497, 905			
1812.....			290, 435			
1813.....			477, 140			
1814.....			77, 270			
1815.....			3, 175			
1816.....						
1817.....						
1818.....			242, 940			
1819.....			258, 615			
1820.....			1, 319, 030			
1821.....			173, 205		16, 120. 00	
1822.....			88, 980			
1823.....			72, 425			
1824.....			86, 700		6, 500. 00	
1825.....			145, 300		11, 085. 00	
1826.....			90, 345		1, 900. 00	
1827.....			124, 565		70, 000. 00	
1828.....			140, 145			
1829.....			287, 210		8, 507. 50	
1830.....			631, 755		11, 350. 00	
1831.....			702, 970		11, 300. 00	
1832.....			787, 435		11, 000. 00	
1833.....			968, 150		10, 400. 00	
1834.....			3, 660, 845		293, 425. 00	
1835.....			1, 857, 670		328, 505. 00	
1836.....			2, 765, 735		1, 369, 965. 00	
1837.....			1, 035, 605		112, 700. 00	
1838.....		72, 000	1, 432, 940		117, 575. 00	
1839.....		382, 480	590, 715		67, 552. 50	
1840.....		473, 380	686, 910		47, 147. 50	
1841.....		631, 310	79, 165			
1842.....		815, 070	137, 890		7, 057. 50	
1843.....		754, 620	3, 056, 025		251, 365. 00	

ORGANIZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES.

its organization, 1793, to December 31, 1887.]

SILVER COINAGE.

Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
	\$204,791.00	\$161,572.00				\$4,320.80	
	68,150.00		\$1,473.50		\$2,213.50	511.50	
	12,546.00	1,959.00	63.00		2,526.10	2,226.35	
	327,536.00				2,755.00		
	423,515.00						
	220,920.00				2,176.00	1,200.00	
	54,454.00	15,144.50			3,464.00	1,695.50	
	41,650.00	14,945.00			1,097.50	650.50	
	66,064.00	15,857.50			3,304.00	1,892.50	
	19,570.00	78,259.50	1,684.50		826.50		
	321.00	105,861.00	30,348.50		12,078.00	780.00	
		419,788.00	51,531.00				
		525,788.00	55,160.75		16,500.00		
		684,300.00					
		702,905.00			4,471.00		
		638,138.00			635.50		
		601,822.00			6,518.00		
		814,029.50					
		620,951.50					
		519,537.50			42,150.00		
			17,308.00				
		23,575.00	5,000.75				
		607,783.50					
		980,161.00	90,293.50				
		1,104,000.00	36,000.00				
		375,561.00	31,861.00		94,258.70		
		652,898.50	54,212.75		118,651.20		
		779,786.50	16,020.00		10,000.00		
		847,100.00	4,450.00		44,000.00		
		1,752,477.00					
		1,471,583.00	42,000.00		51,000.00		
		2,002,090.00					
		2,746,700.00	1,000.00		121,500.00		
		1,527,600.00	25,500.00		12,500.00		
		1,856,078.00			77,000.00	61,500.00	
		2,382,400.00			51,000.00	62,000.00	
		2,936,830.00	99,500.00		77,135.00	62,135.00	
		2,398,500.00	80,000.00		52,250.00	48,250.00	
		2,603,090.00	39,000.00		48,500.00	68,500.00	
		3,206,002.00	71,500.00		63,500.00	74,000.00	
		2,676,003.00	488,000.00		141,000.00	138,000.00	
	1,000.00	3,273,100.00	118,000.00		119,000.00	95,000.00	
		1,814,910.00	63,100.00		104,200.00	113,800.00	
		1,773,000.00	208,000.00		199,250.00	112,750.00	
	300.00	1,667,280.00	122,786.50		105,311.50	53,457.50	
	61,005.00	717,504.00	47,031.75		135,858.00	67,204.25	
	173,000.00	155,000.00	30,000.00		162,250.00	57,500.00	
	184,618.00	1,006,382.00	22,000.00		188,750.00	40,750.00	
	165,100.00	1,922,000.00	161,400.00		137,000.00	58,250.00	

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION

[Coinage of the mint at Philadelphia from 1792 to 1892.]

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1844.....		\$63,610	\$1,701,650		\$16,960.00	
1845.....		261,530	2,085,495		227,627.50	
1846.....		200,950	1,979,710		53,995.00	
1847.....		8,622,580	4,579,905		74,535.00	
1848.....		1,454,840	1,303,875		22,215.00	
1849.....		6,536,180	665,350		58,235.00	\$688,567
1850.....	\$23,405,220	2,914,510	322,455		632,307.50	481,953
1851.....	41,743,100	1,763,280	1,887,525		3,431,870.00	3,317,671
1852.....	41,060,520	2,631,060	2,869,505		2,899,202.50	2,045,351
1853.....	25,226,520	2,012,530	1,528,850		3,511,670.00	4,076,051
1854.....	15,157,980	542,500	803,375	\$415,854	1,490,645.00	1,639,445
1855.....	7,293,320	1,217,010	585,490	151,665	588,700.00	758,269
1856.....	6,597,560	604,900	989,950	78,030	960,600.00	578,356
1857.....	8,787,500	166,060	490,940	62,673	535,325.00	774,789
1858.....	4,234,280	25,210	75,680	6,399	118,442.50	117,995
1859.....	871,940	160,930	84,070	46,914	98,610.00	168,244
1860.....	11,553,400	117,830	99,125	21,465	56,687.50	36,668
1861.....	59,529,060	1,132,330	3,199,750	18,216	3,181,295.00	527,499
1862.....	1,842,660	109,950	22,325	17,355	280,882.50	1,326,865
1863.....	2,855,800	12,480	12,360	15,117	75.00	6,250
1864.....	4,085,700	35,800	21,100	8,040	7,185.00	5,950
1865.....	7,024,000	40,050	6,475	3,495	3,862.50	3,725
1866.....	13,975,500	37,800	33,600	12,090	7,775.00	7,180
1867.....	5,021,300	31,400	34,600	7,950	8,125.00	5,250
1868.....	1,972,000	106,550	28,625	14,625	9,062.50	10,525
1869.....	3,503,100	18,550	8,925	7,575	10,862.50	5,925
1870.....	3,103,700	25,350	20,175	10,605	11,387.50	6,335
1871.....	1,603,000	17,800	16,150	3,990	13,375.00	3,930
1872.....	5,037,600	16,500	8,450	6,090	7,575.00	3,530
1873.....	34,196,500	8,250	562,525	75	445,062.50	125,125
1874.....	7,336,000	531,600	17,540	125,460	9,850.00	198,820
1875.....	5,914,800	1,200	1,100	60	1,050.00	420
1876.....	11,678,100	7,320	7,385	135	10,552.50	3,245
1877.....	7,953,400	8,170	5,760	4,464	4,130.00	3,920
1878.....	10,872,900	738,000	658,760	246,972	715,650.00	3,020
1879.....	4,152,600	3,847,700	1,509,750	9,090	222,475.00	3,030
1880.....	1,029,120	16,448,760	15,832,180	3,108	7,490.00	1,636
1881.....	45,200	38,772,600	28,544,000	1,650	1,700.00	7,660
1882.....	12,600	23,244,800	12,572,800	4,620	10,100.00	5,040
1883.....	800	2,087,400	1,167,200	2,820	4,900.00	10,840
1884.....	1,420	769,050	955,240	3,318	4,982.50	6,206
1885.....	16,560	2,535,270	3,007,530	2,730	2,217.50	12,205
1886.....	22,120	2,361,600	1,942,160	3,426	10,220.00	6,016
1887.....	2,420	536,800	435	18,480	15,705.00	8,543
Total.....	378,719,300	127,233,370	117,902,605	1,334,556	22,594,122.50	16,992,049

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

its organization, 1793, to December 31, 1887.]

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
.....	\$20,000	\$883,000.00	\$883,000.00	.....	\$7,250.00	\$21,500.00	.....
.....	24,500	294,500.00	230,500.00	.....	175,500.00	78,200.00	.....
.....	110,600	1,105,000.00	127,500.00	.....	3,130.00	1,350.00	.....
.....	140,750	578,000.00	183,500.00	.....	24,500.00	63,700.00	.....
.....	15,000	290,000.00	36,500.00	.....	45,150.00	33,400.00	.....
.....	62,600	626,000.00	85,000.00	.....	83,900.00	65,450.00	.....
.....	7,500	113,500.00	47,700.00	.....	193,150.00	47,750.00	.....
.....	1,300	100,375.00	40,000.00	.....	102,650.00	39,050.00	\$163,422.00
.....	1,100	38,565.00	44,265.00	.....	153,550.00	50,025.00	559,905.00
.....	46,110	1,766,354.00	3,813,555.00	.....	1,247,301.00	667,251.00	342,000.00
.....	33,140	1,491,000.00	3,095,000.00	.....	447,600.00	287,000.00	20,130.00
.....	26,000	379,750.00	714,250.00	.....	207,500.00	87,500.00	4,170.00
.....	63,500	469,000.00	1,816,000.00	.....	578,000.00	244,000.00	43,740.00
.....	94,000	994,000.00	2,411,000.00	.....	558,000.00	364,000.00	31,260.00
.....	.....	2,113,000.00	1,842,000.00	.....	154,000.00	175,000.00	48,120.00
.....	256,500	374,000.00	336,000.00	.....	43,000.00	17,000.00	10,950.00
.....	218,930	151,850.00	201,350.00	.....	60,700.00	39,950.00	8,610.00
.....	78,500	1,444,200.00	1,213,650.00	.....	192,400.00	164,050.00	14,940.00
.....	12,090	126,175.00	233,137.50	.....	84,755.00	74,627.50	10,906.50
.....	27,660	251,830.00	48,015.00	.....	1,446.00	923.00	643.80
.....	31,170	189,785.00	23,517.50	.....	3,907.00	23.50	14.10
.....	47,000	255,950.00	14,825.00	.....	1,050.00	675.00	255.00
.....	49,625	372,812.50	4,381.25	.....	872.50	536.25	681.75
.....	60,325	212,162.50	5,156.25	.....	662.50	431.25	138.75
.....	182,700	189,100.00	7,500.00	.....	46,625.00	4,295.00	123.00
.....	424,300	397,950.00	4,150.00	.....	25,660.00	10,430.00	153.00
.....	433,000	300,450.00	21,850.00	.....	47,150.00	26,830.00	120.00
.....	1,115,760	582,680.00	42,808.00	.....	75,361.00	74,443.00	127.80
.....	1,106,450	440,775.00	45,737.50	.....	239,645.00	147,397.50	58.50
\$397,500	293,600	1,308,750.00	371,075.00	.....	394,710.00	35,630.00	18.00
987,800	.....	1,180,150.00	117,975.00	.....	294,070.00	.....	.....
218,900	.....	3,013,750.00	1,073,375.00	\$7,940	1,035,070.00	.....	.....
456,150	.....	4,209,575.00	4,454,287.50	3,180	1,146,115.00	.....	.....
3,039,710	.....	4,152,255.00	2,727,927.50	102	731,051.00	.....	.....
900	10,509,550	689,200.00	565,200.00	120	167,880.00	.....	.....
1,541	14,807,100	2,950.00	3,675.00	.....	1,510.00	.....	.....
1,987	12,601,355	4,877.50	3,738.75	.....	3,735.50	.....	.....
960	9,163,975	5,487.50	3,243.75	.....	2,497.50	.....	.....
1,097	11,101,100	2,750.00	4,075.00	.....	391,110.00	.....	.....
979	12,291,039	4,519.50	3,859.75	.....	767,571.20	.....	.....
.....	14,070,875	2,637.50	2,218.75	.....	336,638.00	.....	.....
.....	17,787,767	3,065.00	3,632.50	.....	253,342.70	.....	.....
.....	19,963,886	2,943.00	1,471.50	.....	637,757.00	.....	.....
.....	20,290,710	2,855.00	2,677.50	.....	1,128,393.90	.....	.....
5,107,524	149,595,607	82,307,691.50	28,924,506.00	11,342	14,279,896.30	3,948,791.90	1,260,487.20

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION
 [Coinage of the mint at Philadelphia from

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1793-1795.....			
1796.....			
1797.....			
1798.....			
1799.....			
1800.....			
1801.....			
1802.....			
1803.....			
1804.....			
1805.....			
1806.....			
1807.....			
1808.....			
1809.....			
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1828.....			
1829.....			
1830.....			
1831.....			
1832.....			
1833.....			
1834.....			
1835.....			
1836.....			
1837.....			
1838.....			
1839.....			
1840.....			
1841.....			
1842.....			
1843.....			

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.
its organization, 1793, to December 31, 1887.]

MINOR COINAGE.		TOTAL COINAGE.			
Cents.	Half-cents.	Gold.	Silver.	Minor.	Total.
\$10,660.33	\$712.67	\$71,485.00	\$370,683.80	\$11,373.00	\$453,541.80
9,747.00	577.40	77,960.00	72,348.50	10,324.40	160,632.90
8,975.10	535.24	128,190.00	19,320.45	9,510.34	157,020.79
9,797.00	.....	205,610.00	330,291.00	9,797.00	545,698.00
9,045.85	60.83	213,285.00	423,515.00	9,106.68	645,906.68
28,221.75	1,057.65	317,760.00	224,296.00	29,279.40	571,335.40
13,628.37	.....	422,570.00	74,758.00	13,628.37	510,956.37
34,351.00	71.83	423,310.00	58,343.00	34,422.83	516,075.83
24,713.53	489.50	258,377.50	87,118.00	25,203.03	370,698.53
7,568.38	5,276.56	258,642.50	100,340.50	12,844.94	371,827.94
9,411.16	4,072.32	170,367.50	149,388.50	13,483.48	333,239.48
3,480.00	1,780.00	324,505.00	471,319.00	5,260.00	801,084.00
7,272.21	2,380.00	437,495.00	597,448.75	9,652.21	1,044,595.96
11,090.00	2,000.00	284,665.00	684,300.00	13,090.00	982,055.00
2,228.67	5,772.86	169,375.00	707,376.00	8,001.53	884,752.53
14,585.00	1,075.00	501,435.00	638,773.50	15,660.00	1,155,868.50
2,180.25	315.70	497,905.00	608,340.00	2,495.95	1,108,740.95
10,755.00	.....	290,435.00	814,029.50	10,755.00	1,115,219.50
4,180.00	.....	477,140.00	620,951.50	4,180.00	1,102,271.50
3,578.30	.....	77,270.00	561,687.50	3,578.30	642,535.80
.....	.....	3,175.00	17,308.00	.....	20,483.00
28,209.82	.....	.....	28,575.75	28,209.82	56,785.57
39,484.00	.....	.....	607,783.50	39,484.00	647,267.50
31,670.00	.....	242,940.00	1,070,454.50	31,670.00	1,345,064.50
26,710.00	.....	258,615.00	1,140,000.00	26,710.00	1,425,325.00
44,075.50	.....	1,319,030.00	501,680.70	44,075.50	1,864,786.20
3,890.00	.....	189,325.00	825,762.45	3,890.00	1,018,977.45
20,723.39	.....	88,980.00	805,806.50	20,723.39	915,509.89
.....	.....	72,425.00	895,550.00	.....	967,975.00
12,620.00	.....	93,200.00	1,752,477.00	12,620.00	1,858,297.00
14,611.00	315.00	156,385.00	1,564,583.00	14,926.00	1,735,894.00
15,174.25	1,170.00	92,245.00	2,002,090.00	16,344.25	2,110,679.25
23,577.32	.....	194,565.00	2,869,200.00	23,577.32	3,087,342.32
22,606.24	3,030.00	140,145.00	1,575,600.00	25,636.24	1,741,381.24
14,145.00	2,435.00	295,717.50	1,994,578.00	16,580.00	2,306,875.50
17,115.00	.....	643,105.00	2,495,400.00	17,115.00	3,155,620.00
33,592.60	11.00	714,270.00	3,175,600.00	33,603.60	3,923,473.60
23,620.00	.....	798,435.00	2,579,000.00	23,620.00	3,401,055.00
27,390.00	770.00	978,550.00	2,759,000.00	28,160.00	3,765,710.00
18,551.00	600.00	3,954,270.00	3,415,002.00	19,151.00	7,388,423.00
38,784.00	705.00	2,186,175.00	3,443,003.00	39,489.00	5,668,667.00
21,110.00	1,990.00	4,135,700.00	3,606,100.00	23,100.00	7,764,900.00
55,583.00	.....	1,148,305.00	2,096,010.00	55,583.00	3,299,898.00
63,702.00	.....	1,622,515.00	2,293,000.00	63,702.00	3,979,217.00
31,286.61	.....	1,040,747.50	1,949,135.50	31,286.61	3,021,169.61
24,627.00	.....	1,207,437.50	1,028,603.00	24,627.00	2,260,667.50
15,973.67	.....	710,475.00	577,750.00	15,973.67	1,304,198.67
23,833.90	.....	960,017.50	1,442,500.00	23,833.90	2,426,351.40
24,283.20	.....	4,062,010.00	2,443,750.00	24,283.20	6,530,043.20

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION

[Coinage of the mint at Philadelphia from 1792 to 1834.]

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1844.....			
1845.....			
1846.....			
1847.....			
1848.....			
1849.....			
1850.....			
1851.....			
1852.....			
1853.....			
1854.....			
1855.....			
1856.....			
1857.....			
1858.....			
1859.....			
1860.....			
1861.....			
1862.....			
1863.....			
1864.....			\$396,950.00
1865.....		\$341,460.00	272,800.00
1866.....	\$737,125.00	144,030.00	63,540.00
1867.....	1,545,475.00	117,450.00	58,775.00
1868.....	1,440,850.00	97,560.00	56,075.00
1869.....	819,750.00	48,120.00	30,930.00
1870.....	240,300.00	40,050.00	17,225.00
1871.....	28,050.00	18,120.00	14,425.00
1872.....	301,800.00	25,860.00	1,300.00
1873.....	227,500.00	35,190.00	
1874.....	176,900.00	23,700.00	
1875.....	104,850.00	6,840.00	
1876.....	126,500.00	4,860.00	
1877.....			
1878.....	117.50	70.50	
1879.....	1,455.00	1,236.00	
1880.....	997.75	748.65	
1881.....	3,618.75	32,417.25	
1882.....	573,830.00	759.00	
1883.....	1,148,471.05	318.27	
1884.....	563,697.10	169.26	
1885.....	73,824.50	143.70	
1886.....	166,514.50	128.70	
1887.....	763,182.60	238.83	
Total.....	9,044,808.75	939,470.16	912,020.00

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

its organization, 1793, to December 31, 1887.]

MINOR COINAGE.		TOTAL COINAGE.			
Cents.	Half-cents.	Gold.	Silver.	Minor.	Total.
\$23,987.52	\$1,782,220.00	\$1,814,750.00	\$23,987.52	\$3,620,957.52
38,948.04	2,574,652.50	803,200.00	38,948.04	3,416,800.54
41,208.00	2,234,655.00	1,347,580.00	41,208.00	3,623,443.00
61,836.69	13,277,020.00	990,450.00	61,836.69	14,329,306.69
64,157.99	2,780,930.00	420,050.00	64,157.99	3,265,137.99
41,785.00	\$199.32	7,948,332.00	922,950.09	41,984.32	8,913,266.32
44,268.44	199.06	27,756,445.50	409,600.00	44,467.50	28,210,513.00
98,897.07	738.36	52,143,446.00	446,797.00	99,635.43	52,689,878.43
50,630.94	51,505,638.50	847,410.00	50,630.94	52,403,679.44
66,411.31	648.47	36,355,621.00	7,852,571.00	67,059.78	44,275,251.78
42,361.56	276.79	20,049,799.00	5,373,270.00	42,638.35	25,465,707.35
15,748.29	282.50	10,594,454.00	1,419,170.00	16,030.79	12,029,654.79
26,904.63	202.15	9,809,396.00	3,214,240.00	27,106.78	13,050,742.78
177,834.56	175.90	10,817,287.00	4,452,260.00	178,010.46	15,447,557.46
246,000.00	4,578,006.50	4,332,120.00	246,000.00	9,156,126.50
364,000.00	1,430,708.00	1,037,450.00	364,000.00	2,832,158.00
205,660.00	11,885,175.50	681,390.00	205,660.00	12,772,225.50
101,000.00	67,588,150.00	3,107,740.00	101,000.00	70,796,890.00
280,750.00	3,600,037.50	541,691.50	280,750.00	4,422,479.00
498,400.00	2,902,082.00	330,517.80	498,400.00	3,730,999.80
529,737.14	4,163,775.00	248,417.10	926,687.14	5,338,879.24
354,292.86	7,081,607.50	319,755.00	968,552.86	8,369,915.36
98,265.00	14,073,945.00	428,909.25	1,042,960.00	15,545,814.25
98,210.00	5,108,625.00	278,876.25	1,819,910.00	7,207,411.25
102,665.00	2,141,387.50	430,343.00	1,697,150.00	4,268,880.50
64,200.00	3,554,937.50	862,643.00	963,000.00	5,380,580.50
52,750.00	3,177,552.50	829,400.00	350,325.00	4,357,277.50
39,295.00	1,658,245.00	1,891,179.80	99,890.00	3,649,314.80
40,420.00	5,079,745.00	1,980,063.50	369,380.00	7,429,188.50
116,765.00	35,337,537.50	2,801,283.00	379,455.00	38,518,275.50
141,875.00	8,219,270.00	2,579,995.00	342,475.00	11,141,740.00
135,280.00	5,918,630.00	5,349,035.00	246,970.00	11,514,635.00
79,440.00	11,706,737.50	10,269,307.50	210,800.00	22,186,845.00
8,525.00	7,979,844.00	10,651,045.50	8,525.00	18,639,414.50
57,998.50	13,235,242.00	11,932,850.00	58,186.50	25,226,278.50
162,312.00	9,744,645.00	14,816,776.00	165,003.00	24,726,424.00
389,649.55	33,322,294.00	12,615,693.75	391,395.95	46,329,383.70
392,115.75	67,372,810.00	9,176,163.75	428,151.75	76,977,125.50
385,811.00	35,849,960.00	11,500,132.00	960,400.00	48,310,492.00
455,981.09	3,273,960.00	13,067,968.45	1,604,770.41	17,946,698.86
232,617.42	1,740,216.50	14,412,369.25	796,483.78	16,949,069.53
117,653.84	5,576,512.50	18,047,807.20	191,622.04	23,815,941.74
176,542.90	4,345,542.00	20,606,057.50	343,186.10	25,294,785.60
452,264.83	582,383.00	21,424,636.40	1,215,686.26	23,222,705.66
8,117,874.32	39,926.11	664,776,002.50	285,435,845.90	19,054,099.34	969,265,947.74

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION

[Coinage of the mint at New Orleans from its organization, 1838, to

Calendar years.	GOLD.						SILVER.
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	Dollars.
1838.....							
1839.....					\$44,452.50		
1840.....			\$152,000		65,500.00		
1841.....		\$25,000	41,750		18,450.00		
1842.....		274,000	82,000		49,500.00		
1843.....		1,751,620	505,375		920,005.00		
1844.....		1,187,000	1,823,000				
1845.....		475,000	205,000				
1846.....		817,800	290,000		165,000.00		\$59,000
1847.....		5,715,000	60,000		310,000.00		
1848.....		358,500					
1849.....		229,000				\$215,000	
1850.....	\$2,820,000	575,000			210,000.00	14,000	40,000
1851.....	6,300,000	2,630,000	205,000		370,000.00	290,000	
1852.....	3,800,000	180,000			350,000.00	140,000	
1853.....	1,420,000	510,000				290,000	
1854.....	65,000	525,000	230,000	\$72,000	382,500.00		
1855.....	160,000	180,000	55,500			55,000	
1856.....	45,000	145,000	50,000		52,750.00		
1857.....	600,000	55,000	65,000		85,000.00		
1858.....	705,000	200,000					
1859.....	182,000	23,000					360,000
1860.....	132,000	111,000					515,000
1861*.....	100,000						
1879.....	46,500	15,000					2,887,000
1880.....		92,000					5,305,000
1881.....		83,500					5,708,000
1882.....		108,200					6,090,000
1883.....		8,000					8,725,000
1884.....							9,730,000
1885.....							9,185,000
1886.....							10,710,000
1887.....							11,550,000
Total.....	16,375,500	16,283,620	3,764,625	72,000	3,023,157.50	1,004,000	70,864,000

* No coinage from 1862 to 1878, inclusive.

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

its suspension, 1861, and from its re-opening, 1879, to December 31, 1887.]

SILVER—continued.					Total gold.	Total silver.	Total value.
Half dollars.	Quarter dollars.	Dimes.	Half dimes.	Three cents.			
		\$40,243.40				\$40,243.40	\$40,243.40
\$81,488		124,327.20	\$54,827.50		\$44,452.50	260,642.70	305,095.20
427,550	\$106,300	117,500.00	46,750.00		217,500.00	698,100.00	915,600.00
200,500	113,000	200,750.00	40,750.00		85,200.00	555,000.00	640,200.00
478,500	192,250	202,000.00	17,500.00		405,500.00	890,250.00	1,295,750.00
1,134,000	242,000	15,000.00			3,177,000.00	1,391,000.00	4,568,000.00
1,002,500	185,000		11,000.00		3,010,000.00	1,198,500.00	4,208,500.00
1,047,000		23,000.00			680,000.00	1,070,000.00	1,750,000.00
1,152,000					1,272,800.00	1,211,000.00	2,483,800.00
1,292,000	92,000				6,085,000.00	1,384,000.00	7,469,000.00
1,590,000			30,000.00		358,500.00	1,620,000.00	1,978,500.00
1,155,000		30,000.00	7,000.00		454,000.00	1,192,000.00	1,646,000.00
1,228,000	103,000	51,000.00	34,500.00		3,619,000.00	1,456,500.00	5,075,500.00
201,000	22,000	40,000.00	43,000.00	\$21,600	9,795,000.00	327,600.00	10,122,600.00
72,000	24,000	43,000.00	13,000.00		4,470,000.00	152,000.00	4,622,000.00
664,000	333,000	110,000.00	118,000.00		2,220,000.00	1,225,000.00	3,445,000.00
2,620,000	371,000	177,000.00	78,000.00		1,274,500.00	3,246,000.00	4,520,500.00
1,844,000	44,000		30,000.00		450,500.00	1,918,000.00	2,368,500.00
1,329,000	242,000	118,000.00	55,000.00		292,750.00	1,744,000.00	2,036,750.00
409,000	295,000	154,000.00	69,000.00		805,000.00	927,000.00	1,732,000.00
3,647,000	130,000	29,000.00	83,000.00		905,000.00	3,889,000.00	4,794,000.00
1,417,000	65,000	48,000.00	28,000.00		205,000.00	1,918,000.00	2,123,000.00
645,000	97,000	4,000.00	53,000.00		243,000.00	1,314,000.00	1,557,000.00
165,000					100,000.00	165,000.00	265,000.00
					61,500.00	2,887,000.00	2,948,500.00
					92,000.00	5,305,000.00	5,397,000.00
					83,500.00	5,708,000.00	5,791,500.00
					108,200.00	6,090,000.00	6,198,200.00
					8,000.00	8,725,000.00	8,733,000.00
						9,730,000.00	9,730,000.00
						9,185,000.00	9,185,000.00
						10,710,000.00	10,710,000.00
						11,550,000.00	11,550,000.00
23,801,538	2,656,550	1,526,820.60	812,327.50	21,600	40,522,902.50	99,682,836.10	140,205,738.60

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

[Coinage of the mint at Dahlonega, Ga., from its organization, 1838, to its suspension, 1861.]

Calendar year.	GOLD.				Total value.
	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	
1838	\$102,915				\$102,915.00
1839	94,695		\$34,185.00		128,880.00
1840	114,480		8,830.00		123,310.00
1841	152,475		10,410.00		162,885.00
1842	298,040		11,607.50		309,647.50
1843	492,260		90,522.50		582,782.50
1844	444,910		43,330.00		488,240.00
1845	453,145		48,650.00		501,795.00
1846	401,470		48,257.50		449,727.50
1847	322,025		39,460.00		361,485.00
1848	237,325		34,427.50		271,752.50
1849	195,180		27,362.50	\$21,588	244,130.50
1850	219,750		30,370.00	8,382	258,502.00
1851	313,550		28,160.00	9,882	351,592.00
1852	457,260		10,195.00	6,360	473,815.00
1853	448,390		7,945.00	6,583	462,918.00
1854	282,065	\$3,360	4,400.00	2,935	292,760.00
1855	112,160		2,807.50	1,811	116,778.50
1856	98,930		2,185.00	1,460	102,575.00
1857	85,230		5,910.00	3,533	94,673.00
1858	76,810			3,477	80,287.00
1859	51,830		5,610.00	4,952	62,392.00
1860	73,175			1,566	74,741.00
1861	7,985				7,985.00
Total.....	5,536,055	3,360	494,625.00	72,529	6,106,569.00

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

[Coinage of the mint at Charlotte, N. C., from its organization, 1838, to its suspension, 1861.]

Calendar year.	GOLD.			Total value.
	Half eagles.	Quarter eagles.	Dollars.	
1838.....	\$64,565	\$19,770.00	.....	\$84,335.00
1839.....	117,335	45,432.50	.....	162,767.50
1840.....	95,140	32,095.00	.....	127,235.00
1841.....	107,555	25,742.50	.....	133,297.50
1842.....	137,400	16,842.50	.....	154,242.50
1843.....	221,765	65,240.00	.....	287,005.00
1844*.....	118,155	29,055.00	.....	147,210.00
1845.....	.....	.....	.....	.....
1846.....	64,975	12,020.00	.....	76,995.00
1847.....	420,755	58,065.00	.....	478,820.00
1848.....	322,360	41,970.00	.....	364,330.00
1849.....	324,115	25,550.00	\$11,634	361,299.00
1850.....	317,955	22,870.00	6,966	347,791.00
1851.....	245,880	37,307.50	41,267	324,454.50
1852.....	362,870	24,430.00	9,434	396,734.00
1853.....	327,855	.....	11,515	339,370.00
1854.....	196,455	18,237.50	4	214,696.50
1855.....	198,940	9,192.50	9,803	217,935.50
1856.....	142,285	19,782.50	.....	162,067.50
1857.....	156,800	.....	13,280	170,080.00
1858.....	194,280	22,640.00	.....	216,920.00
1859.....	159,235	.....	5,235	164,470.00
1860.....	74,065	18,672.50	.....	92,737.50
1861.....	34,395	.....	.....	34,395.00
Total.....	4,405,135	544,915.00	109,138	5,059,188.00

* Mint burned July 27, 1844.

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR

[Coinage of the mint at San Francisco

Calendar years.	GOLD.						SILVER.	
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	Dollars.	Trade dollars.
1854	\$2,829,360	\$1,238,260	\$1,340	.....	\$615	\$14,632	.....	.....
1855	17,593,500	90,000	305,000	\$19,830	.....	.....	.....	.....
1856	23,795,000	680,000	525,500	103,500	177,800	24,600	.....	.....
1857	19,410,000	260,000	435,000	42,000	170,000	10,000	.....	.....
1858	16,934,200	118,000	93,000	.....	3,000	10,000	.....	.....
1859	12,728,900	70,000	66,100	.....	38,000	15,000	\$20,000	.....
1860	10,899,000	50,000	106,000	21,000	89,000	13,000	.....	.....
1861	15,360,000	155,000	90,000	.....	60,000	.....	.....	.....
1862	17,083,460	125,000	47,500	.....	20,000	.....	.....	.....
1863	19,331,400	100,000	85,000	.....	27,000	.....	.....	.....
1864	15,873,200	25,000	19,440	.....	.....	.....	.....	.....
1865	20,850,000	167,000	138,060	.....	58,440	.....	.....	.....
1866	16,845,000	200,000	219,600	.....	97,400	.....	.....	.....
1867	18,415,000	90,000	115,000	.....	70,000	.....	.....	.....
1868	16,750,000	135,000	260,000	.....	85,000	.....	.....	.....
1869	13,735,000	64,300	155,000	.....	73,750	.....	.....	.....
1870	19,640,000	80,000	85,000	.....	40,000	3,000	.....	.....
1871	18,560,000	165,000	125,000	.....	55,000	.....	.....	.....
1872	15,600,000	173,000	182,000	.....	45,000	.....	9,000	.....
1873	20,812,000	120,000	155,000	.....	67,500	.....	700	\$703,000
1874	24,280,000	100,000	80,000	.....	.....	.....	.....	2,549,000
1875	24,600,000	.....	45,000	.....	29,000	.....	.....	4,487,000
1876	21,940,000	50,000	20,000	.....	12,500	.....	.....	5,237,000
1877	34,700,000	170,000	133,500	.....	88,500	.....	.....	9,519,000
1878	34,780,000	261,000	723,500	.....	445,000	.....	9,774,000	4,162,000
1879	24,476,000	2,240,000	2,131,000	.....	108,750	.....	9,110,000	.....
1880	16,720,000	5,062,500	6,744,500	.....	.....	.....	8,900,000	.....
1881	14,540,000	9,700,000	4,845,000	.....	.....	.....	12,760,000	.....
1882	22,500,000	1,320,000	4,845,000	.....	.....	.....	9,250,000	.....
1883	23,780,000	380,000	416,000	.....	.....	.....	6,250,000	.....
1884	18,320,000	1,242,500	885,000	.....	.....	.....	3,200,000	.....
1885	13,670,000	2,280,000	6,057,500	.....	.....	.....	1,497,000	.....
1886 .....	.....	8,260,000	16,340,000	.....	.....	.....	750,000	.....
1887	5,660,000	8,170,000	9,560,000	.....	.....	.....	1,771,000	.....
Total.....	623,011,020	43,341,560	56,064,540	186,300	1,861,255	90,232	63,291,700	26,647,000

ORGANIZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES.—Cont'd.
from its organization, 1854, to December 31, 1887.]

SILVER.					Total gold.	Total silver.	Total value.
Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.			
					\$4,034,207.00		\$4,034,207.00
\$64,975.00	\$99,100.00				18,008,300.00	\$164,075.00	18,172,375.00
105,500.00	71,500.00		\$7,000.00		25,306,400.00	184,000.00	25,490,400.00
79,000.00	20,500.00				20,327,000.00	99,500.00	20,426,500.00
238,000.00	30,250.00		6,000.00		17,158,200.00	274,250.00	17,432,450.00
283,000.00	20,000.00		6,000.00		12,918,000.00	329,000.00	13,247,000.00
236,000.00	14,000.00		14,000.00		11,178,000.00	264,000.00	11,442,000.00
469,750.00	24,000.00		17,250.00		15,665,000.00	511,000.00	16,176,000.00
676,000.00	16,750.00		18,075.50		17,275,960.00	710,825.00	17,986,785.00
458,000.00			15,750.00	\$5,000.00	19,543,400.00	478,750.00	20,022,150.00
329,000.00	5,000.00		23,000.00	4,500.00	15,917,640.00	361,500.00	16,279,140.00
337,500.00	10,250.00		17,500.00	6,000.00	21,213,500.00	371,250.00	21,584,750.00
527,000.00	7,000.00		13,500.00	6,000.00	17,362,000.00	553,500.00	17,915,500.00
598,000.00	12,000.00		14,000.00	6,000.00	18,720,000.00	630,000.00	19,350,000.00
580,000.00	24,000.00		26,000.00	14,000.00	17,230,000.00	644,000.00	17,874,000.00
328,000.00	19,000.00		45,060.00	11,500.00	14,028,050.00	403,500.00	14,431,550.00
502,000.00			5,000.00		19,848,000.00	507,000.00	20,355,000.00
1,089,000.00	7,725.00		32,000.00	8,050.00	18,905,000.00	1,136,775.00	20,041,775.00
290,000.00	20,750.00		19,000.00	41,850.00	16,000,000.00	380,600.00	16,380,600.00
116,500.00	39,000.00		45,500.00	16,200.00	21,154,500.00	920,900.00	22,075,400.00
197,000.00	98,000.00		24,000.00		24,460,000.00	2,868,000.00	27,328,000.00
1,600,000.00	170,000.00	\$231,000.00	907,000.00		24,674,000.00	7,395,000.00	32,069,000.00
2,264,000.00	2,149,000.00		1,042,000.00		32,022,500.00	10,682,000.00	42,704,500.00
2,678,000.00	2,249,000.00		234,000.00		35,092,000.00	14,680,000.00	49,772,000.00
6,000.00	35,000.00				36,209,500.00	13,977,000.00	50,186,500.00
					28,955,750.00	9,110,000.00	38,065,750.00
					28,527,000.00	8,900,000.00	37,427,000.00
					29,085,000.00	12,760,000.00	41,845,000.00
					28,665,000.00	9,250,000.00	37,915,000.00
					24,576,000.00	6,250,000.00	30,826,000.00
			56,496.90		20,447,500.00	3,256,496.90	23,703,996.90
			4,369.00		22,007,500.00	1,501,369.00	23,508,869.00
			20,652.40		24,600,000.00	770,652.40	25,370,652.40
			445,445.00		23,390,000.00	2,216,445.00	25,606,445.00
14,052,225.00	5,141,825.00	231,000.00	3,058,538.30	119,100.00	724,554,907.00	112,541,388.30	837,096,295.30

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION

[Coinage of the mint at Carson City]

Calendar years.	GOLD.			SILVER.	
	Double eagles.	Eagles.	Half eagles.	Dollars.	Trade dollars.
1870.....	\$75,780	\$59,080	\$38,375	\$12,462	.....
1871.....	293,740	71,850	103,850	1,376	.....
1872.....	593,000	55,000	84,900	3,150	.....
1873.....	448,200	45,430	37,080	2,300	\$124,500
1874.....	2,301,700	167,670	105,990	.....	1,373,200
1875.....	2,223,020	77,150	59,140	.....	1,573,700
1876.....	2,768,820	46,960	34,435	.....	509,000
1877.....	851,300	33,320	43,400	.....	534,000
1878.....	263,600	32,440	45,270	2,212,000	97,000
1879.....	214,160	17,620	86,405	756,000	.....
1880.....	.....	111,900	255,085	591,000	.....
1881.....	.....	240,150	69,430	296,000	.....
1882.....	782,800	67,640	414,085	1,133,000	.....
1883.....	1,199,240	120,000	64,790	1,204,000	.....
1884.....	1,622,780	99,250	82,010	1,136,000	.....
1885.....	189,000	.....	.....	228,000	.....
Total.....	13,827,140	1,245,460	1,524,245	7,575,288	4,211,400

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

from its organization, 1870, to December 31, 1887.]

SILVER.				Total gold.	Total silver.	Total value.
Half dollars.	Quarter dollars.	Twenty cents.	Dimes.			
\$27,308.50	\$2,085.00	.....	.....	\$173,235	\$41,855.50	\$215,090.50
69,975.00	2,722.50	.....	\$2,010.00	469,440	76,083.50	545,523.50
136,000.00	2,275.00	.....	2,400.00	732,900	143,825.00	876,725.00
168,530.00	4,115.50	.....	3,119.10	530,710	302,564.60	833,274.60
29,500.00	.....	.....	1,031.70	2,575,360	1,403,781.70	3,979,141.70
504,000.00	35,000.00	\$26,658	464,500.00	2,359,310	2,603,858.00	4,963,168.00
978,000.00	1,236,000.00	2,000	827,000.00	2,850,215	3,552,000.00	6,402,215.00
710,000.00	1,048,000.00	.....	770,000.00	928,020	3,062,000.00	3,990,020.00
31,000.00	249,000.00	.....	20,000.00	341,310	2,609,000.00	2,950,310.00
.....	.....	.....	.....	318,185	756,000.00	1,074,185.00
.....	.....	.....	.....	366,985	591,000.00	957,985.00
.....	.....	.....	.....	309,580	296,000.00	605,580.00
.....	.....	.....	.....	1,264,525	1,133,000.00	2,397,525.00
.....	.....	.....	.....	1,384,030	1,204,000.00	2,588,030.00
.....	.....	.....	.....	1,804,040	1,136,000.00	2,940,040.00
.....	.....	.....	.....	189,000	228,000.00	417,000.00
2,654,313.50	2,579,198.00	28,658	2,090,110.80	16,596,845	19,138,968.30	35,735,813.30

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION TO 1843.
RECAPITULATION.

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1793-1795.....		\$27,950	\$43,535			
1796.....		60,800	16,995		\$165.00	
1797.....		91,770	32,030		4,390.00	
1798.....		79,740	124,335		1,585.00	
1799.....		174,830	37,255		1,200.00	
1800.....		259,650	58,110			
1801.....		292,540	130,030			
1802.....		150,900	265,880		6,530.00	
1803.....		89,790	167,530		1,057.50	
1804.....		97,950	152,375		8,317.50	
1805.....			165,915		4,452.50	
1806.....			320,465		4,040.00	
1807.....			420,465		17,030.00	
1808.....			277,890		6,775.00	
1809.....			169,375			
1810.....			501,435			
1811.....			497,905			
1812.....			290,435			
1813.....			477,140			
1814.....			77,270			
1815.....			3,175			
1816.....						
1817.....						
1818.....			242,940			
1819.....			258,615			
1820.....			1,319,030			
1821.....			173,205		16,120.00	
1822.....			88,980			
1823.....			72,425			
1824.....			86,700		6,500.00	
1825.....			145,300		11,085.00	
1826.....			90,345		1,900.00	
1827.....			124,565		70,000.00	
1828.....			140,145			
1829.....			287,210		8,507.50	
1830.....			631,755		11,350.00	
1831.....			702,970		11,300.00	
1832.....			787,435		11,000.00	
1833.....			968,150		10,400.00	
1834.....			3,660,845		293,425.00	
1835.....			1,857,670		328,505.00	
1836.....			2,765,735		1,369,965.00	
1837.....			1,035,605		112,700.00	
1838.....		72,000	1,600,420		137,345.00	
1839.....		382,480	802,745		191,622.50	
1840.....		473,380	1,048,530		153,572.50	
1841.....		656,310	380,945		54,602.50	
1842.....		1,089,070	655,330		85,007.50	
1843.....		2,506,240	4,275,425		1,327,132.50	

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.
RECAPITULATION.

SILVER COINAGE.

Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
.....	\$204,791	\$161,572.00	.....	.....	.....	\$4,320.80	.....
.....	68,150	.....	\$1,473.50	.....	\$2,213.50	511.50	.....
.....	12,546	1,959.00	63.00	.....	2,526.10	2,226.35	.....
.....	327,536	.....	.....	.....	2,755.00	.....	.....
.....	423,515	.....	.....	.....	.....	.....	.....
.....	220,920	.....	.....	.....	2,176.00	1,200.00	.....
.....	54,454	15,144.50	.....	.....	3,464.00	1,695.50	.....
.....	41,650	14,945.00	.....	.....	1,097.50	650.50	.....
.....	66,064	15,857.50	.....	.....	3,304.00	1,892.50	.....
.....	19,570	78,259.50	1,684.50	.....	826.50	.....	.....
.....	321	105,861.00	30,348.50	.....	12,078.00	780.00	.....
.....	.....	419,788.00	51,531.00	.....	.....	.....	.....
.....	.....	525,788.00	55,160.75	.....	16,500.00	.....	.....
.....	.....	684,300.00	.....	.....	.....	.....	.....
.....	.....	702,905.00	.....	.....	4,471.00	.....	.....
.....	.....	638,138.00	.....	.....	635.50	.....	.....
.....	.....	601,822.00	.....	.....	6,518.00	.....	.....
.....	.....	814,029.50	.....	.....	.....	.....	.....
.....	.....	620,951.50	.....	.....	.....	.....	.....
.....	.....	519,537.50	.....	.....	42,150.00	.....	.....
.....	.....	.....	17,308.00	.....	.....	.....	.....
.....	.....	23,575.00	5,000.75	.....	.....	.....	.....
.....	.....	607,783.50	.....	.....	.....	.....	.....
.....	.....	980,161.00	90,293.50	.....	.....	.....	.....
.....	.....	1,104,000.00	36,000.00	.....	.....	.....	.....
.....	.....	375,561.00	31,861.00	.....	94,258.70	.....	.....
.....	.....	652,898.50	54,212.75	.....	118,651.20	.....	.....
.....	.....	779,786.50	16,020.00	.....	10,000.00	.....	.....
.....	.....	847,100.00	4,450.00	.....	44,000.00	.....	.....
.....	.....	1,752,477.00	.....	.....	.....	.....	.....
.....	.....	1,471,583.00	42,000.00	.....	51,000.00	.....	.....
.....	.....	2,002,090.00	.....	.....	.....	.....	.....
.....	.....	2,746,700.00	1,000.00	.....	121,500.00	.....	.....
.....	.....	1,537,600.00	25,500.00	.....	12,500.00	.....	.....
.....	.....	1,856,078.00	.....	.....	77,000.00	61,500.00	.....
.....	.....	2,382,400.00	.....	.....	51,000.00	62,000.00	.....
.....	.....	2,936,830.00	99,500.00	.....	77,135.00	62,135.00	.....
.....	.....	2,398,500.00	80,000.00	.....	52,250.00	48,250.00	.....
.....	.....	2,613,000.00	39,000.00	.....	48,500.00	68,500.00	.....
.....	.....	3,206,002.00	71,500.00	.....	63,500.00	74,000.00	.....
.....	.....	2,676,003.00	488,000.00	.....	141,000.00	138,000.00	.....
.....	1,000	3,273,100.00	118,000.00	.....	119,600.00	95,000.00	.....
.....	.....	1,814,910.00	63,100.00	.....	104,200.00	113,800.00	.....
.....	.....	1,773,000.00	208,000.00	.....	239,493.40	112,750.00	.....
.....	300	1,748,768.00	122,786.50	.....	229,638.70	108,285.00	.....
.....	61,005	1,145,054.00	153,331.75	.....	253,358.00	113,954.25	.....
.....	173,000	355,500.00	143,000.00	.....	363,000.00	98,250.00	.....
.....	184,618	1,484,882.00	214,250.00	.....	330,750.00	58,250.00	.....
.....	165,100	3,056,000.00	403,400.00	.....	152,000.00	58,250.00	.....

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION TO 1887.
RECAPITULATION.

Calendar year.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1844.....		\$1, 250, 610	\$4, 087, 715		\$89, 345. 00	
1845.....		736, 530	2, 743, 640		276, 277. 50	
1846.....		1, 018, 750	2, 736, 155		279, 272. 50	
1847.....		14, 337, 580	5, 382, 685		482, 060. 00	
1848.....		1, 813, 340	1, 863, 560		98, 612. 50	
1849.....		6, 775, 180	1, 184, 645		111, 147. 50	\$936, 789
1850.....	\$26, 225, 220	3, 489, 510	860, 160		895, 547. 50	511, 301
1851.....	48, 043, 100	4, 393, 280	2, 651, 955		3, 867, 337. 50	3, 658, 820
1852.....	44, 860, 520	2, 811, 060	3, 689, 635		3, 283, 827. 50	2, 201, 145
1853.....	26, 646, 520	2, 522, 530	2, 305, 095		3, 519, 615. 00	4, 384, 149
1854.....	18, 052, 340	2, 305, 760	1, 513, 235	\$491, 214	1, 896, 397. 50	1, 657, 016
1855.....	25, 046, 820	1, 487, 010	1, 257, 090	171, 465	600, 700. 00	824, 883
1856.....	30, 437, 560	1, 429, 900	1, 806, 665	181, 530	1, 213, 117. 50	604, 416
1857.....	28, 797, 500	481, 060	1, 232, 970	104, 673	796, 235. 00	801, 602
1858.....	21, 873, 480	343, 210	439, 770	6, 399	144, 082. 50	131, 472
1859.....	13, 782, 840	253, 930	361, 235	46, 914	142, 220. 00	193, 431
1860.....	22, 584, 400	278, 830	352, 365	42, 465	164, 360. 00	51, 234
1861.....	74, 989, 060	1, 287, 330	3, 332, 130	18, 216	3, 241, 295. 00	527, 499
1862.....	18, 926, 120	234, 950	69, 825	17, 355	300, 882. 50	1, 326, 865
1863.....	22, 187, 200	112, 480	97, 360	15, 117	27, 075. 00	6, 250
1864.....	19, 958, 900	60, 800	40, 540	8, 040	7, 185. 00	5, 950
1865.....	27, 874, 000	207, 050	144, 535	3, 495	62, 302. 50	3, 725
1866.....	30, 820, 500	237, 800	253, 200	12, 090	105, 175. 00	7, 180
1867.....	23, 436, 300	121, 400	179, 600	7, 950	78, 125. 00	5, 250
1868.....	18, 722, 000	241, 550	288, 625	14, 625	94, 062. 50	10, 525
1869.....	17, 238, 100	82, 850	163, 925	7, 575	84, 612. 50	5, 925
1870.....	22, 819, 480	164, 430	143, 550	10, 605	51, 387. 50	9, 335
1871.....	20, 456, 740	254, 650	245, 000	3, 990	68, 375. 00	3, 930
1872.....	21, 230, 600	244, 500	275, 350	6, 090	52, 575. 00	3, 530
1873.....	55, 456, 700	173, 680	754, 605	75	512, 562. 50	125, 125
1874.....	33, 917, 700	799, 270	203, 530	125, 460	9, 850. 00	198, 820
1875.....	32, 737, 820	78, 350	105, 240	60	30, 050. 00	420
1876.....	46, 386, 920	104, 280	61, 820	135	23, 052. 50	3, 245
1877.....	43, 504, 700	211, 490	182, 660	4, 464	92, 630. 00	3, 920
1878.....	45, 916, 500	1, 031, 440	1, 427, 470	246, 972	1, 160, 650. 00	3, 020
1879.....	28, 889, 260	6, 120, 320	3, 727, 155	9, 690	331, 225. 00	3, 030
1880.....	17, 749, 120	21, 715, 160	22, 831, 765	3, 108	7, 490. 00	1, 636
1881.....	14, 585, 200	48, 796, 250	33, 458, 430	1, 650	1, 700. 00	7, 660
1882.....	23, 295, 400	24, 740, 640	17, 831, 885	4, 620	10, 100. 00	5, 040
1883.....	24, 980, 040	2, 595, 400	1, 647, 990	2, 820	4, 900. 00	10, 840
1884.....	19, 944, 200	2, 110, 800	1, 922, 250	3, 318	4, 982. 50	6, 206
1885.....	13, 875, 560	4, 815, 270	9, 065, 030	2, 730	2, 217. 50	12, 205
1886.....	22, 120	10, 621, 600	18, 282, 160	3, 426	10, 220. 00	6, 016
1887.....	5, 662, 420	8, 706, 800	9, 560, 435	18, 480	15, 705. 00	8, 543
Total.....	1, 031, 932, 960	188, 104, 010	189, 197, 205	1, 596, 216	28, 518, 075. 00	18, 267, 948

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

RECAPITULATION.

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
.....	\$20,000	\$1,885,500.00	\$1,068,000.00	.....	\$7,250.00	\$32,500.00	.....
.....	24,500	1,341,500.00	230,500.00	.....	198,500.00	78,200.00	.....
.....	169,600	2,257,000.00	127,500.00	.....	3,130.00	1,350.00	.....
.....	140,750	1,870,000.00	275,500.00	.....	24,500.00	63,700.00	.....
.....	15,000	1,880,000.00	36,500.00	.....	45,150.00	63,400.00	.....
.....	62,600	1,781,000.00	85,000.00	.....	113,900.00	72,450.00	.....
.....	47,500	1,341,500.00	150,700.00	.....	244,150.00	82,250.00	.....
.....	1,300	301,375.00	62,000.00	.....	142,650.00	82,050.00	\$185,022.00
.....	1,100	110,565.00	68,265.00	.....	196,550.00	63,025.00	559,905.00
.....	46,110	2,430,354.00	4,146,555.00	.....	1,327,301.00	785,251.00	342,000.00
.....	33,140	4,111,000.00	3,466,000.00	.....	624,000.00	365,000.00	20,130.00
.....	26,000	2,288,725.00	857,350.00	.....	207,500.00	117,500.00	4,170.00
.....	63,500	1,903,500.00	2,129,500.00	.....	703,000.00	299,000.00	43,740.00
.....	94,000	1,482,000.00	2,726,500.00	.....	712,000.00	433,000.00	31,260.00
.....	.....	5,993,000.00	2,002,250.00	.....	189,000.00	258,000.00	48,120.00
.....	636,500	2,074,000.00	421,000.00	.....	97,000.00	45,000.00	10,950.00
.....	733,930	1,032,850.00	312,350.00	.....	78,700.00	92,950.00	8,610.00
.....	78,500	2,078,950.00	1,237,650.00	.....	209,650.00	164,050.00	14,940.00
.....	12,090	802,175.00	249,887.50	.....	102,830.00	74,627.50	10,906.50
.....	27,660	709,830.00	48,015.00	.....	17,196.00	5,923.00	643.80
.....	31,170	518,785.00	28,517.50	.....	26,907.00	4,523.50	14.10
.....	47,000	593,450.00	25,075.00	.....	18,550.00	6,675.00	255.00
.....	49,625	899,812.50	11,381.25	.....	14,372.50	6,536.25	681.75
.....	60,325	810,162.50	17,156.25	.....	14,662.50	6,431.25	138.75
.....	182,700	769,100.00	31,500.00	.....	72,625.00	18,295.00	123.00
.....	424,300	725,950.00	23,150.00	.....	70,660.00	21,930.00	153.00
.....	445,462	829,758.50	23,935.00	.....	52,150.00	26,830.00	120.00
.....	1,117,136	1,741,655.00	53,255.50	.....	109,371.00	82,493.00	127.80
.....	1,118,600	866,775.00	68,762.50	.....	261,045.00	189,247.50	58.50
\$1,225,000	296,600	1,593,780.00	414,190.50	.....	443,329.10	51,830.00	18.00
4,910,000	.....	1,406,650.00	215,975.00	.....	319,151.70	.....	.....
6,279,600	.....	5,117,750.00	1,278,375.00	\$265,598	2,406,570.00	.....	.....
6,192,150	.....	7,451,575.00	7,839,287.50	5,180	3,015,115.00	.....	.....
13,092,710	.....	7,540,255.00	6,024,927.50	102	1,735,051.00	.....	.....
4,259,900	22,495,550	726,200.00	849,200.00	120	187,880.00	.....	.....
1,541	27,560,100	2,950.00	3,675.00	.....	1,510.00	.....	.....
1,987	27,397,355	4,877.50	3,738.75	.....	3,735.50	.....	.....
960	27,927,975	5,487.50	3,243.75	.....	2,497.50	.....	.....
1,097	27,574,100	2,750.00	4,075.00	.....	391,110.00	.....	.....
979	28,470,039	4,519.50	3,859.75	.....	767,571.20	.....	.....
.....	28,136,875	2,637.50	2,218.75	.....	393,134.90	.....	.....
.....	28,697,767	3,065.00	3,632.50	.....	257,711.70	.....	.....
.....	31,423,886	2,943.00	1,471.50	.....	658,409.40	.....	.....
.....	33,611,710	2,855.00	2,677.50	.....	1,573,838.90	.....	.....
35,965,924	291,326,595	122,815,768.00	39,302,079.00	271,000	20,955,366.00	4,880,219.40	1,282,087.20

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION TO 1843.
RECAPITULATION.

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1793-1795.....			
1796.....			
1797.....			
1798.....			
1799.....			
1800.....			
1801.....			
1802.....			
1803.....			
1804.....			
1805.....			
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1834.....			
1835.....			
1836.....			
1837.....			
1838.....			
1839.....			
1840.....			
1841.....			
1842.....			
1843.....			

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.
RECAPITULATION.

MINOR COINAGE.		TOTAL COINAGE.			
Cents.	Half cents.	Gold.	Silver.	Minor.	Total.
\$10,660.33	\$712.67	\$71,485.00	\$370,683.80	\$11,373.00	\$453,541.80
9,747.00	577.40	77,960.00	72,348.50	10,324.40	160,632.90
8,975.10	535.24	128,190.50	19,320.45	9,510.34	157,020.79
9,797.00	-----	205,610.00	330,291.00	9,797.00	545,698.00
9,045.85	60.83	213,285.00	423,515.00	9,106.68	645,906.68
28,221.75	1,057.65	317,760.00	224,296.00	29,279.40	571,335.40
13,628.37	-----	422,570.00	74,758.00	13,628.37	510,956.37
34,351.00	71.83	423,310.00	58,343.00	34,422.83	516,075.83
24,713.53	489.50	258,377.50	87,118.00	25,203.03	370,698.53
7,568.38	5,276.56	258,642.50	100,340.50	12,844.94	371,827.94
9,411.16	4,072.32	170,367.50	149,388.50	13,483.48	333,239.48
3,480.00	1,780.00	324,505.00	471,319.00	5,260.00	801,084.00
7,272.21	2,380.00	437,495.00	597,448.75	9,652.21	1,041,595.96
11,090.00	2,000.00	284,665.00	684,300.00	13,090.00	982,055.00
2,228.67	5,772.86	169,375.00	707,376.00	8,001.53	884,752.53
14,585.00	1,075.00	501,435.00	638,773.50	15,660.00	1,155,868.50
2,180.25	315.70	497,805.00	608,340.00	2,495.95	1,108,740.95
10,755.00	-----	290,435.00	814,029.50	10,755.00	1,115,219.50
4,180.00	-----	477,140.00	620,951.50	4,180.00	1,102,271.50
3,578.30	-----	77,270.00	561,687.50	3,578.30	642,535.80
-----	-----	3,175.00	17,308.00	-----	20,483.00
28,209.82	-----	-----	28,575.75	28,209.82	56,785.57
39,484.00	-----	-----	607,783.50	39,484.00	647,267.50
31,670.00	-----	242,940.00	1,070,454.50	31,670.00	1,345,064.50
26,710.00	-----	258,615.00	1,140,000.00	26,710.00	1,425,325.00
44,075.50	-----	1,319,030.00	501,680.70	44,075.50	1,864,786.20
3,890.00	-----	189,325.00	825,762.45	3,890.00	1,018,977.45
20,723.39	-----	88,980.00	805,806.50	20,723.39	915,509.89
-----	-----	72,425.00	895,550.00	-----	967,975.00
12,620.00	-----	93,200.00	1,732,477.00	12,620.00	1,858,297.00
14,611.00	315.00	156,385.00	1,564,583.00	14,926.00	1,735,894.00
15,174.25	1,170.00	92,245.00	2,002,090.00	16,344.25	2,110,679.25
23,577.32	-----	194,565.00	2,869,200.00	23,577.32	3,087,342.32
22,606.24	3,030.00	140,145.00	1,575,600.00	25,636.24	1,741,381.24
14,145.00	2,435.00	295,717.50	1,994,578.00	16,580.00	2,306,875.50
17,115.00	-----	643,105.00	2,495,400.00	17,115.00	3,155,620.00
33,592.60	11.00	714,270.00	3,175,600.00	33,603.60	3,923,473.60
23,620.00	-----	798,435.00	2,579,000.00	23,620.00	3,401,055.00
27,390.00	770.00	978,550.00	2,759,000.00	28,160.00	3,765,710.00
18,551.00	600.00	3,954,270.00	3,415,002.00	19,151.00	7,388,423.00
38,784.00	705.00	2,186,175.00	3,443,003.00	39,489.00	5,668,667.00
21,110.00	1,990.00	4,135,700.00	3,606,100.00	23,100.00	7,764,900.00
55,583.00	-----	1,148,305.00	2,096,010.00	55,583.00	3,299,898.00
63,702.00	-----	1,809,765.00	2,333,243.40	63,702.00	4,206,710.40
31,286.61	-----	1,376,847.50	2,209,778.20	31,286.61	3,617,912.31
24,627.00	-----	1,675,482.50	1,726,703.00	24,627.00	3,426,812.50
15,973.67	-----	1,091,857.50	1,132,750.00	15,973.67	2,240,581.17
23,833.90	-----	1,829,407.50	2,332,750.00	23,833.90	4,185,991.40
24,283.20	-----	8,108,797.50	3,834,750.00	24,283.20	11,967,830.70

XXIII.—COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION TO 1887.
RECAPITULATION.

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1844.....			
1845.....			
1846.....			
1847.....			
1848.....			
1849.....			
1850.....			
1851.....			
1852.....			
1853.....			
1854.....			
1855.....			
1856.....			
1857.....			
1858.....			
1859.....			
1860.....			
1861.....			
1862.....			
1863.....			
1864.....			\$396,950.00
1865.....		\$341,460.00	272,800.00
1866.....	\$737,125.00	144,030.00	63,540.00
1867.....	1,545,475.00	117,450.00	58,775.00
1868.....	1,440,850.00	97,560.00	56,075.00
1869.....	819,750.00	48,120.00	30,930.00
1870.....	240,300.00	40,050.00	17,225.00
1871.....	28,050.00	18,120.00	14,425.00
1872.....	301,800.00	25,860.00	1,300.00
1873.....	227,500.00	35,190.00	
1874.....	176,900.00	23,700.00	
1875.....	104,850.00	6,840.00	
1876.....	126,500.00	4,860.00	
1877.....			
1878.....	117.50	70.50	
1879.....	1,455.00	1,236.00	
1880.....	997.75	748.65	
1881.....	3,618.75	32,417.25	
1882.....	573,830.00	759.00	
1883.....	1,148,471.05	318.27	
1884.....	563,697.10	169.26	
1885.....	73,824.50	143.70	
1886.....	166,514.50	128.70	
1887.....	763,182.60	238.83	
Total	9,044,808.75	939,470.16	912,020.00

ZATION, BY CALENDAR YEARS AND BY DENOMINATION OF PIECES—Continued.

RECAPITULATION.

MINOR COINAGE.		TOTAL COINAGE.			
Cents.	Half cents.	Gold.	Silver.	Minor.	Total.
\$23,987.52	\$5,427,670.00	\$3,013,250.00	\$23,987.52	\$8,464,907.52
38,948.04	3,756,447.50	1,873,200.00	38,948.04	5,668,595.54
41,208.00	4,034,177.50	2,558,580.00	41,208.00	6,633,965.50
61,836.69	20,202,325.00	2,374,450.00	61,836.69	22,638,611.69
64,157.99	3,775,512.50	2,040,050.00	64,157.99	5,879,720.49
41,785.00	\$199.32	9,007,761.50	2,114,950.00	41,984.32	11,164,695.82
44,268.44	199.06	31,981,738.50	1,866,100.00	44,467.50	33,892,306.00
98,897.07	738.36	62,614,492.50	774,397.00	99,635.43	63,488,524.93
50,630.94	56,846,187.50	999,410.00	50,630.94	57,896,228.44
66,411.31	648.47	39,377,909.00	9,077,571.00	67,059.78	48,522,539.78
42,361.56	276.79	25,915,962.50	8,619,270.00	42,638.35	34,577,870.85
15,748.29	282.50	29,387,968.00	3,501,245.00	16,030.79	32,905,243.79
26,904.63	202.15	35,673,188.50	5,142,240.00	27,106.78	40,842,535.28
177,834.56	175.90	32,214,040.00	5,478,760.00	178,010.46	37,870,810.46
246,000.00	22,938,413.50	8,495,370.00	246,000.00	31,679,783.50
364,000.00	14,780,570.00	3,284,450.00	364,000.00	18,429,020.00
205,660.00	23,473,654.00	2,259,390.00	205,660.00	25,938,704.00
101,000.00	83,395,530.00	3,783,740.00	101,000.00	87,280,270.00
280,750.00	20,875,997.50	1,252,516.50	280,750.00	22,409,264.00
498,400.00	22,445,482.00	809,267.80	498,400.00	23,753,149.80
529,737.14	20,081,415.00	609,917.10	926,687.14	21,618,019.24
354,292.86	28,295,107.50	691,005.00	968,552.86	29,954,665.36
98,265.00	31,435,945.00	982,409.25	1,042,960.00	33,461,314.25
98,210.00	23,828,625.00	908,876.25	1,819,910.00	26,557,411.25
102,665.00	19,371,387.50	1,074,343.00	1,697,150.00	22,142,880.50
64,200.00	17,582,987.50	1,266,143.00	963,000.00	19,812,130.50
52,750.00	23,198,787.50	1,378,255.50	350,325.00	24,927,368.00
39,295.00	21,032,685.00	3,104,038.30	99,890.00	24,236,613.30
40,420.00	21,812,645.00	2,504,488.50	369,380.00	24,686,513.50
116,765.00	57,022,747.50	4,024,747.60	379,455.00	61,426,950.10
141,875.00	35,254,630.00	6,851,776.70	342,475.00	42,448,881.70
135,280.00	32,951,940.00	15,347,893.00	246,970.00	48,546,803.00
79,440.00	46,579,452.50	24,503,307.50	210,800.00	71,293,560.00
8,525.00	43,999,864.00	28,393,045.50	8,525.00	72,401,434.50
57,998.50	49,786,052.00	28,518,850.00	58,186.50	78,363,088.50
162,312.00	39,080,080.00	27,569,776.00	165,003.00	66,814,859.00
389,649.55	62,308,279.00	27,411,693.75	391,395.95	90,111,368.70
392,115.75	96,850,890.00	27,940,163.75	428,151.75	125,219,205.50
385,811.00	65,887,685.00	27,973,132.00	960,400.00	94,821,217.00
455,981.09	29,241,990.00	29,246,968.45	1,604,770.41	60,093,728.86
232,617.42	23,991,756.50	28,534,866.15	796,483.78	53,323,106.43
117,653.84	27,773,012.50	28,962,176.20	191,622.04	56,926,810.74
176,542.90	28,945,542.00	32,086,709.90	343,186.10	61,375,438.00
452,264.83	23,972,383.00	35,191,081.40	1,215,686.26	60,379,150.66
8,117,874.32	39,926.11	1,457,616,414.00	516,799,038.60	19,054,099.34	1,993,469,551.94

XXIV.—PRODUCTION OF GOLD AND SILVER IN THE UNITED STATES FROM THE ORGANIZATION OF THE MINT, IN 1792, TO 1844, AND ANNUALLY SINCE.

[The estimate from 1792 to 1873, inclusive, is by R. W. Raymond, Commissioner, and since by the Director of the Mint.]

Years.	Gold.	Silver.	Total.
April 2, 1792—July 31, 1834.....	\$14,000,000	Insignificant.	\$14,000,000
July 31, 1834—December 31, 1844.....	7,500,000	\$250,000	7,750,000
1845.....	1,008,327	50,000	1,058,327
1846.....	1,130,357	50,000	1,180,357
1847.....	889,085	50,000	939,085
1848.....	10,000,000	50,000	10,050,000
1849.....	40,000,000	50,000	40,050,000
1850.....	50,000,000	50,000	50,050,000
1851.....	55,000,000	50,000	55,050,000
1852.....	60,000,000	50,000	60,050,000
1853.....	65,000,000	50,000	65,050,000
1854.....	60,000,000	50,000	60,050,000
1855.....	55,000,000	50,000	55,050,000
1856.....	55,000,000	50,000	55,050,000
1857.....	55,000,000	50,000	55,050,000
1858.....	51,000,000	500,000	50,500,000
1859.....	50,000,000	100,000	50,100,000
1860.....	46,000,000	150,000	46,150,000
1861.....	43,000,000	2,000,000	45,000,000
1862.....	39,200,000	4,500,000	43,700,000
1863.....	40,000,000	8,500,000	48,500,000
1864.....	46,100,000	11,000,000	57,100,000
1865.....	53,225,000	11,250,000	64,475,000
1866.....	53,500,000	10,000,000	63,500,000
1867.....	51,725,000	13,500,000	65,225,000
1868.....	45,000,000	12,000,000	60,000,000
1869.....	49,500,000	12,000,000	61,500,000
1870.....	50,000,000	16,000,000	66,000,000
1871.....	43,500,000	23,000,000	66,500,000
1872.....	36,000,000	28,750,000	64,750,000
1873.....	36,000,000	35,750,000	71,750,000
1874.....	33,500,000	37,300,000	70,800,000
1875.....	33,400,000	31,700,000	65,100,000
1876.....	39,900,000	38,800,000	78,700,000
1877.....	46,900,000	39,800,000	86,700,000
1878.....	51,200,000	45,200,000	96,400,000
1879.....	38,900,000	40,800,000	79,700,000
1880.....	36,000,000	39,200,000	75,200,000
1881.....	34,700,000	43,000,000	77,700,000
1882.....	32,500,000	46,800,000	79,300,000
1883.....	30,000,000	46,200,000	76,200,000
1884.....	30,800,000	48,800,000	79,600,000
1885.....	31,800,000	51,600,000	83,400,000
1886.....	35,000,000	51,000,000	86,000,000
1887.....	33,000,000	53,350,000	86,350,000
Total.....	1,772,880,769	803,450,000	2,576,336,769

XXV.—WELLS, FARGO & CO. (EXPRESS AND BANKING) PRECIOUS METALS PRODUCT, UNITED STATES AND MEXICO.

WELLS, FARGO & CO., EXPRESS AND BANKING,
San Francisco, December 31, 1887.

The following is a copy of our annual statement of precious metals produced in the States and Territories west of the Missonri River (including British Columbia, and reecipts by express from the west east States of Mexico) during 1887, which shows aggregate products as follows: Gold, \$33,074,022; silver, \$51,578,118; copper, \$10,362,746; lead, \$9,631,073. Total gross result, \$104,645,959.

As stated repeatedly, the facilities afforded for the transportation of bullion, ores, and base metals, by the extension of railroads into mining districts increase the difficulty of verifying the reports of the prodncts from several important loalities. Especially is this the case in the reports from Colorado and Montana, and the general tendency is to exaggeration when the aetnal values are not obtainable from authen-tic sources; but the aggregate result as shown herein, we think, may be relied on with reasonable confidence as approximately eorrect :

States and Territories.	Gold dust and bullion by express.	Gold dust and bullion by other conveyances.	Silver bullion by ex-press.	Ores and base bullion by freight.	Total.
California.....	\$10,760,052	\$1,076,905	\$972,707	\$853,259	\$13,662,923
Nevada.....	2,590,962	.....	5,355,647	2,285,844	10,232,453
Oregon.....	650,000	300,000	.....	.....	950,000
Washington.....	130,000	30,000	.....	.....	160,000
Alaska.....	559,000	50,000	.....	.....	609,000
Idaho.....	1,940,000	200,000	2,800,000	3,300,000	8,240,000
Montana.....	4,400,000	200,000	10,783,275	10,100,000	25,483,275
Utah.....	13,910	.....	2,049,090	5,574,730	7,637,730
Colorado.....	4,900,000	.....	6,480,000	11,913,000	23,293,000
New Mexico.....	147,800	50,000	279,434	3,752,000	4,229,234
Arizona.....	680,545	200,000	1,073,985	3,817,020	5,771,550
Dakota.....	2,385,320	200,000	473,285	.....	3,058,605
Mexico (west coast States).....	17,801	.....	744,234	.....	762,035
British Columbia.....	556,154	.....	.....	.....	556,154
Total.....	29,731,544	2,306,905	31,011,657	41,595,853	104,645,959

The gross yield for 1887, shown above, segregated, is approximately as follows :

Metals.	Proportion.	Amount.
Gold.....	31.61	\$33,074,022
Silver.....	49.29	51,578,118
Copper.....	9.90	10,362,746
Lead.....	9.20	9,631,073
Total.....	.....	104,645,959

ANNUAL PRODUCTS OF LEAD, COPPER, SILVER, AND GOLD IN THE STATES
AND TERRITORIES WEST OF THE MISSOURI RIVER, 1870-1887.

Year.	Production as per W., F. & Co.'s statements, including amounts from British Columbia and west coast of Mexico.	Product after deducting amounts from British Columbia and west coast of Mexico.	The net product of the States and Territories west of the Missouri River, exclusive of British Columbia and west coast of Mexico, divided, is as follows:			
			Lead.	Copper.	Silver.	Gold.
1870.....	\$54,000,000	\$52,150,000	\$1,080,000	.....	\$17,320,000	\$33,750,000
1871.....	58,284,000	55,784,000	2,100,000	.....	19,286,000	34,398,000
1872.....	62,236,959	60,351,824	2,250,300	.....	19,924,429	38,177,395
1873.....	72,258,693	70,139,860	3,450,000	.....	27,483,302	39,206,558
1874.....	74,401,045	71,965,610	3,800,000	.....	29,699,122	38,466,488
1875.....	80,889,057	76,703,433	5,100,000	.....	31,635,239	39,968,194
1876.....	90,875,173	87,219,859	5,040,000	.....	39,292,924	42,886,935
1877.....	98,421,754	95,811,582	5,085,250	.....	45,846,109	44,880,223
1878.....	81,154,622	78,276,167	3,452,000	.....	37,248,137	37,576,030
1879.....	75,349,501	72,688,888	4,185,769	.....	37,032,857	31,476,262
1880.....	80,167,936	77,232,512	5,742,390	\$898,000	38,033,055	32,559,067
1881.....	84,504,417	81,198,474	6,361,902	1,195,000	42,987,613	30,653,959
1882.....	92,411,835	89,207,549	8,008,155	4,055,037	48,133,039	29,011,318
1883.....	90,313,612	84,639,212	8,163,550	5,683,921	42,975,101	27,816,640
1884.....	84,975,954	81,633,835	6,834,091	6,086,252	43,529,925	25,183,567
1885.....	90,181,260	87,311,382	8,562,991	7,838,036	44,516,599	26,393,756
1886.....	103,011,761	100,160,222	9,185,192	9,276,755	52,136,851	29,561,424
1887.....	104,645,959	103,327,770	9,631,073	10,362,746	50,833,884	32,500,067

The exports of silver during the past year to Japan, China, the Straits, etc., have been as follows:

From London, \$23,861,805; from Marseilles, \$4,699,906; from San Francisco, \$14,444,907. Total, \$43,006,618, as against \$44,034,590 last year. Pounds sterling estimated at \$4.84.

UNITED STATES OF MEXICO.

PRODUCT OF GOLD AND SILVER IN THE REPUBLIC OF MEXICO REVISED AND
CORRECTED FROM 1877 TO 1887.

Years.	Gold.	Silver.	Total.
1877-1878.....	\$747,000	\$24,837,000	\$25,584,000
1878-1879.....	881,000	25,125,000	26,006,000
1879-1880.....	942,000	26,800,000	27,742,000
1880-1881.....	1,013,000	29,234,000	30,247,000
1881-1882.....	937,000	29,329,000	30,266,000
1882-1883.....	956,000	29,569,000	30,525,000
1883-1884.....	1,055,000	31,695,000	32,750,000
1884-1885.....	914,000	33,226,000	34,140,000
1885-1886.....	1,026,000	34,112,000	35,138,000
1886-1887.....	1,047,000	34,600,000	35,647,000
Total.....	9,518,000	298,527,000	368,045,000

COINAGE OF GOLD, SILVER, AND COPPER IN THE REPUBLIC OF MEXICO FROM THE 1ST OF JULY, 1873, TO THE 30TH OF JUNE, 1887.

Years.	Gold.	Silver.	Copper.
1873-1874.....	\$866, 743	\$18, 816, 067	\$15, 966
1874-1875.....	862, 619	19, 386, 958	21, 712
1875-1876.....	809, 401	19, 454, 054	30, 654
1876-1877.....	695, 750	21, 415, 128	9, 035
1877-1878.....	691, 998	22, 081, 203	41, 864
1878-1879.....	658, 206	22, 162, 987	16, 300
1879-1880.....	521, 826	24, 018, 528	14, 035
1880-1881.....	492, 068	24, 617, 395	42, 258
1881-1882.....	452, 590	25, 146, 260	11, 972
1882-1883.....	407, 600	24, 083, 921	.....
1883-1884.....	328, 698	25, 377, 379	.....
1884-1885.....	423, 250	25, 840, 728	.....
1885-1886.....	425, 000	25, 850, 000	.....
1886-1887.....	410, 000	25, 600, 000	.....
Total.....	8, 045, 749	323, 883, 608	203, 296

SUMMARY.

Gold.....	\$8, 045, 749
Silver.....	323, 883, 608
Copper.....	203, 296
Grand total.....	332, 132, 653

COINAGE OF MEXICO FROM THE ESTABLISHMENT OF THE MINTS IN 1537 TO THE END OF THE FISCAL YEAR OF 1887.

Periods.	Gold.	Silver.	Copper.	Total.
COLONIAL EPOCH.				
Unmilled coin from 1537 to 1731.....	\$8, 497, 950	\$752, 067, 456	\$200, 000	\$760, 765, 406
Pillar coin, 1732 to 1771.....	19, 889, 014	441, 629, 211	.....	461, 518, 225
Bust coin, 1772 to 1821.....	40, 391, 447	888, 563, 989	342, 893	929, 298, 329
	68, 778, 411	2, 082, 260, 656	542, 893	2, 151, 581, 960
INDEPENDENCE.				
Iturbide's Imperial Bust, from 1822-1823	557, 392	18, 575, 569	.....	19, 132, 961
Republic Eagle, 1824 to 30th June, 1873..	45, 040, 628	740, 246, 485	5, 235, 177	790, 522, 290
	45, 598, 020	758, 822, 054	5, 235, 177	809, 655, 251
REPUBLIC.				
Eagle coin, from 1st July, 1873, to 30th of June, 1887.....	8, 045, 749	323, 883, 608	203, 296	332, 132, 653

SUMMARY.

Colonial epoch (from 1537 to 1821).....	\$2, 151, 581, 960
Independence (from 1822 to 1873).....	809, 655, 251
Republic (from 1873 to 1887).....	332, 132, 653
Total.....	3, 293, 369, 864

The exhibits of production and mintage indicate a steady development of the mining interests of the United States of America, and also of Mexico, and with the increasing facilities of railway communication fostering every department of industry, the outlook for a continued growth in the product of precious metals is flattering.

JOHN J. VALENTINE,
Vice-President and General Manager Wells, Fargo & Co.

XXVI.—COINAGES OF VARIOUS COUNTRIES—CALENDAR YEARS,

Countries.	1884.	
	Gold.	Silver.
United States.....	\$23,991,756	\$28,534,866
Mexico.....	328,698	25,377,378
Great Britain.....	11,309,819	3,204,824
Australia.....	22,196,106	
India*.....		17,353,531
Canada.....		
France.....		23,160
Cochin-China.....		120,000
Monaco.....		
Belgium.....		
Italy.....	62,165	2,121,953
Switzerland.....		
Spain.....	4,983,004	6,738,971
Portugal.....	186,840	
Netherlands.....		182,910
Germany.....	13,723,494	114,319
Austria-Hungary†.....	2,444,004	4,987,781
Norway.....		
Sweden.....	1,022,420	132,784
Denmark.....		
Russia‡.....	18,615,074	1,238,746
Turkey.....		
Egypt.....		
Siam.....		
Japan.....	569,415	3,599,912
Hayti.....		
Chili.....		
Argentine Republic.....		
Peru.....		1,400,949
Colombia.....		
Congo.....		
Venezuela.....		
Guatemala.....		
Brazil.....		
Honduras.....		
Nicaragua.....		
Straits Settlements.....		
Hawaiian Islands.....		700,000
Costa Rica.....		
Hong Kong.....		
Total.....	99,432,795	95,832,084

* Rupee calculated at coining rate, \$0.4737.

EXCEPT IN THE CASE OF MEXICO AND OF INDIA FOR 1884.

1885.		1886.		1887.	
Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
\$27,773,012	\$28,962,176	\$28,945,542	\$32,086,709	\$23,972,383	\$35,191,081
423,250	25,840,727	367,490	26,991,804	398,647	26,844,031
14,366,677	3,540,719	-----	2,031,194	9,728,498	4,142,136
21,694,857	-----	22,524,595	-----	24,122,267	-----
106,987	48,487,114	-----	27,121,414	4,249	44,142,013
-----	-----	-----	225,000	-----	85,000
55,854	-----	4,455,733	29,795	4,760,960	1,719,742
-----	1,279,511	-----	3,215,771	-----	3,126,410
164,648	-----	289,500	-----	-----	-----
-----	-----	-----	921,768	-----	583,632
635,873	230,831	227,771	1,795,364	-----	6,253,200
-----	-----	965,000	501,800	-----	270,200
2,435,108	3,678,314	2,369,765	5,057,506	-----	11,389,414
246,240	-----	179,626	299,765	270,000	960,120
280,000	80,400	217,647	-----	163,831	76,380
1,939,443	577,664	8,506,210	1,153,963	28,135,270	715,343
2,791,958	4,147,659	2,684,139	4,384,433	2,669,750	5,556,395
-----	53,600	539,484	-----	-----	80,400
33,500	78,281	982,188	-----	314,830	56,082
-----	-----	-----	13,624	-----	-----
20,685,852	964,769	14,761,717	1,304,101	20,109,276	1,551,710
-----	-----	3,652,000	880,000	-----	-----
-----	-----	-----	3,204,151	246,354	2,159,690
-----	-----	-----	-----	-----	2,216,065
1,004,005	6,320,927	900,165	9,086,077	897,426	13,270,555
-----	-----	-----	144,750	-----	500,000
77,580	564,080	37,210	966,080	25,360	333,000
984,000	-----	1,988,670	-----	9,173,370	-----
-----	1,326,266	-----	592,065	-----	1,685,000
-----	-----	26,965	1,354,226	-----	-----
-----	-----	-----	-----	-----	19,300
-----	-----	-----	1,286,345	-----	-----
-----	-----	-----	27,387	-----	-----
58,738	12,090	20,653	30,373	-----	-----
-----	106,510	-----	-----	-----	71,978
-----	400,000	-----	-----	-----	400,000
-----	-----	-----	-----	-----	177,000
-----	112,936	-----	148,036	-----	-----
-----	-----	-----	-----	-----	400,000
95,757,582	126,764,574	94,642,070	124,854,101	124,992,465	160,984,877

† Silver florin calculated at coining rate, \$0.482.

‡ Silver rouble calculated at coining rate, \$0.7718.

XXVII.—WORLD'S PRODUCTION OF GOLD AND SILVER.

[Kilogram of gold, \$664.60. Kilogram of silver, \$41.56.]

Countries.	1883.				1884.			
	Gold.		Silver.		Gold.		Silver.	
	<i>Kilos.</i>	<i>Dollars.</i>	<i>Kilos.</i>	<i>Dollars.</i>	<i>Kilos.</i>	<i>Dollars.</i>	<i>Kilos.</i>	<i>Dollars.</i>
United States..	45,140	30,000,000	1,111,646	46,200,000	46,344	30,800,000	1,174,206	48,800,000
Anstraliasia ..	40,852	27,150,000	3,610	150,000	42,558	28,284,000	4,525	188,000
Mexico	1,438	956,000	711,480	29,569,000	1,780	1,183,000	655,870	27,258,000
European countries:								
Russia	30,272	20,119,000	9,990	415,000	32,913	21,874,000	9,360	389,000
Germany	458	304,000	^b 142,700	5,930,000	555	369,000	^b 160,000	6,650,000
Austria-Hungary	1,638	1,088,000	48,700	2,024,000	1,658	1,102,000	49,300	2,049,000
Sweden	37	25,000	1,583	66,000	20	13,000	1,816	75,000
Norway			5,645	235,000			6,387	265,000
Italy	^c 142	94,000	^c 29,253	1,216,000	^c 142	94,000	^c 29,259	1,216,000
Spain			^f 54,325	2,258,000			^f 54,325	2,258,000
Turkey	^e 10	7,000	^e 1,323	55,000	^e 10	7,000	^e 1,323	55,000
France			6,356	264,000			5,905	245,000
Great Britain	2	1,000	8,500	353,000			8,060	335,000
Dominion of Canada ..	1,435	954,000	^e 5,030	209,000	^e 1,435	954,000	^e 5,030	209,000
South American countries:								
Argentine Republic ..	118	78,000	11,500	478,000	^g 118	78,000	^g 11,500	478,000
Colombia ...	^h 5,802	3,856,000	^h 18,287	760,000	^h 5,802	3,856,000	^h 18,287	760,000
Bolivia	109	72,000	384,985	16,000,000	ⁱ 109	72,000	ⁱ 240,616	10,000,000
Chili	^j 500	332,000	^j 160,000	6,650,000	500	332,000	160,000	6,650,000
Brazil	952	633,000			^k 952	633,000		
Venezuela ...	5,023	3,338,000			^l 7,033	4,674,000		
Peru	^j 180	120,000	^j 45,909	1,908,000	180	120,000	45,909	1,908,000
Central American countries.								
Costa Rica								
Japan	^h 290	193,000	^h 12,940	538,000	296	197,000	23,460	975,000
Africa	^o 1,078	717,000	^o 449	19,000	^o 1,250	830,000	^o 238	10,000
China (Amoor district) ...	^p 8,057	5,355,000			^p 9,362	6,222,000		
India (British)								
Total	143,533	95,392,000	2,774,227	115,297,000	153,017	101,694,000	2,665,386	110,773,000

^a G. W. Griffin, United States consul at Sydney, reports the gold production of Anstraliasia for 1886 at \$25,883,884, and for 1885 at \$27,361,603.

^b The production officially reported with a deduction of 88,000 kilograms, given by Dr. Soetbeer for 1884, as the amount from foreign ores smelted.

^c Monatshefte zur Statistik des Deutschen Reichs, October, 1886.

^d Estimate of the Bureau of the Mint, based upon the production for 1885.

^e Estimated same as officially communicated for 1886.

^f Estimate of Dr. Soetbeer for 1883.

^g Estimate of the Bureau of the Mint, based upon the production for 1883.

^h Estimated same as officially communicated for 1882.

ⁱ Estimate of the Bureau of the Mint, based upon the annual average credited Bolivia by Dr. A. Soetbeer.

XXVII.—WORLD'S PRODUCTION OF GOLD AND SILVER.

Coining rate in United States silver dollars.]

1885.				1886.			
Gold.		Silver.		Gold.		Silver.	
<i>Kilos.</i>	<i>Dollars.</i>	<i>Kilos.</i>	<i>Dollars.</i>	<i>Kilos.</i>	<i>Dollars.</i>	<i>Kilos.</i>	<i>Dollars.</i>
47,848	31,800,000	1,241,578	51,600,000	52,663	35,000,000	1,227,141	51,000,000
41,287	^a 27,439,000	25,220	1,048,000	39,761	^a 26,425,000	29,403	1,222,000
1,304	867,000	772,670	32,112,000	924	614,000	794,033	33,000,000
38,125	25,338,000	15,550	646,000	30,872	20,518,000	12,707	528,100
^e 1,376	916,000	^b 142,340	5,916,000	1,065	708,000	^b 156,400	6,500,000
1,774	1,179,000	52,748	2,192,200	^d 1,774	1,179,000	^d 52,748	2,192,200
47	31,000	2,326	96,000	67	45,000	3,081	128,000
		7,200	299,000			^d 7,200	299,000
^e 142	94,000	^e 29,259	1,216,000	195	129,600	33,839	1,406,350
		^f 54,335	2,258,000			^f 54,335	2,258,000
^e 10	7,000	^e 1,323	55,000	10	7,000	1,323	55,000
		51,000	2,120,000			46,789	1,944,550
		7,607	316,000			10,124	420,750
1,679	1,116,000	^e 5,030	209,000	2,019	1,330,442	5,030	209,000
^g 118	78,000	^g 11,500	478,000	30	20,000	1,444	60,000
^g 3,762	2,500,000	^g 9,625	400,000	3,762	2,500,000	9,625	400,000
^g 109	72,000	^h 240,616	10,000,000	^g 109	72,000	^h 240,616	10,000,000
^e 500	332,000	^e 210,000	8,727,600	500	332,000	210,000	8,727,600
1,204	800,000	2,640	110,000	^k 1,502	998,000	^k 141	5,850
7,033	4,674,000			^l 5,020	3,336,000		
226	150,000	47,840	1,988,000	^m 170	113,000	^m 96,246	4,000,000
9	6,000			ⁿ 131	87,000		
265	176,000	23,085	960,000	492	327,235	32,242	1,340,000
^e 2,083	1,384,000	^e 1,274	53,000	^e 2,163	1,438,000	^e 3,165	132,000
^p 6,997	4,650,000			^q 5,492	3,650,000		
203	135,000			634	421,600		
156,103	103,744,000	2,954,766	122,799,800	149,355	99,250,877	3,027,632	125,828,400

^j Estimated same as officially communicated for 1884.^k Export of gold and silver through the custom-house at Rio de Janeiro.^l Production of the two mills of "El Callao Mining Company."^m Estimate of the Bureau of the Mint, based upon exports of bullion and ore officially reported for 1886.ⁿ Estimated same as officially communicated for 1887.^o Imports into United Kingdom from West and South Africa, extracted from board of trade returns by A. Sauerbeck, F. S. S.^p Dr. Ivan C. Michels.^q Imports of gold into Great Britain from China.

XXVIII.—VALUE OF GOLD IMPORTED AND EXPORTED INTO AND FROM BRITISH INDIA FROM AND TO FOREIGN PORTS; ALSO OF THE GOLD RECEIVED INTO THE MINTS, AND OF THE GOLD COINAGE IN THE MINTS OF THE THREE PRESIDENCY TOWNS, IN EACH YEAR FROM 1835-'36 TO 1886-'87.

[From "Finances of India." Calcutta, 1888.]

Official year.	From and to foreign ports.			Received into the mints.			Value of gold coinage.
	Imported.	Exported.	Surplus.	From individuals.	From Government.	Total.	Single mohurs.
1835-'36.....	£333,399	£3,481	£329,918	£165,445	£34,292	£199,737	£109,327 ‡3,522 ‡14,880 §69,765
1836-'37.....	421,694	1,970	419,724	1,635	25,530	27,165	6,815
1837-'38.....	462,588	31,718	430,870	45,374	62,454	107,828	25,426
1838-'39.....	266,531	7,606	258,925	63,504	39,711	103,215	26,303 §8,167 *32,626
1839-'40.....	231,223	4,580	226,643	121,760	83,410	205,170	§46,530 56,772
1840-'41.....	137,884	572	137,312	35,587	4,401	39,988	23,101
1841-'42.....	166,360	737	165,623	6,293	16,090	22,383	
1842-'43.....	212,441	1,280	211,161	9,064	66	9,130	
1843-'44.....	407,038	515	406,523	6,227	63	6,290	16,634
1844-'45.....	719,453	9,353	710,100	16,277	20,783	37,060	26,339
1845-'46.....	551,966	7,450	544,476	17,119	2,356	19,475	30,142
1846-'47.....	852,839	5,890	846,949	37,367	35,186	72,553	42,734
1847-'48.....	1,048,778	9,662	1,039,116	26,352	2,904	29,256	46,291
1848-'49.....	1,401,748	52,830	1,348,918	70,095	2,901	72,996	70,470
1849-'50.....	1,159,548	42,555	1,116,993	52,830	5,694	58,524	44,147
1850-'51.....	1,155,310	2,016	1,153,294	80,197	34,209	114,406	123,717
1851-'52.....	1,338,778	71,165	1,267,613	195,594	1,663	197,257	62,553
1852-'53.....	1,341,106	168,805	1,172,301	209,229	1	209,230	
1853-'54.....	1,078,708	17,265	1,061,443	104,292	6,667	110,959	145,679
1854-'55.....	882,921	151,431	731,490	12,479	8,970	21,449	2,676
1855-'56.....	2,508,353	2,108	2,506,245	201,327	1,202	202,529	167,863
1856-'57.....	2,176,002	84,788	2,091,214	118,437	3	118,440	128,302
1857-'58.....	2,830,084	47,011	2,783,073	48,134	252	48,386	43,783
1858-'59.....	4,437,339	10,886	4,426,453	117,642	41	117,683	132,273
1859-'60.....	4,288,037	3,893	4,284,234	95,126	9,614	104,740	64,307
1860-'61.....	4,242,441	9,872	4,232,569	48,483	8	48,491	65,038
1861-'62.....	5,190,432	6,007	5,184,425	69,154	84,315	153,469	58,667
1862-'63.....	6,881,566	33,410	6,848,156	112,984	196	113,180	130,666
1863-'64.....	8,925,412	27,106	8,898,306	50,328	9,297	59,625	54,354
1864-'65.....	9,875,032	35,068	9,839,964	91,530	148	91,678	95,672
1865-'66.....	6,372,894	648,418	5,724,476	28,426	3,393	31,819	17,665
1866-'67 (11 months)....	4,581,472	739,144	3,842,328	3,630	322	3,952	27,725
1867-'68.....	4,775,924	166,458	4,609,466	16,249	1	16,250	21,534
1868-'69.....	5,176,976	17,624	5,159,352	20,659	20,534	41,193	25,156
1869-'70.....	5,690,299	98,283	5,592,016	63,410	210	63,620	78,510
1870-'71.....	2,785,975	500,453	2,285,522	4,725	254	4,979	4,143
1871-'72.....	3,573,778	8,434	3,565,344	31,251	157	31,408	15,412
1872-'73.....	2,622,371	79,009	2,543,362	33,938	933	34,871	31,795
1873-'74.....	1,648,807	266,169	1,382,638	12,265	.....	12,265	15,498
1874-'75.....	2,089,236	215,701	1,873,535	12,035	440	12,475	14,034
1875-'76.....	1,836,381	291,250	1,545,131	8,424	267	8,691	17,150
1876-'77.....	1,443,712	1,236,362	207,350	5,935	18	5,953	.....
1877-'78.....	1,578,928	1,110,798	468,130	16,112	3	16,115	15,636
1878-'79.....	1,463,050	2,359,223	896,173	1,236	.....	1,236	85
1879-'80.....	2,050,394	299,889	1,750,505	13,507	1	13,508	14,730
1880-'81.....	3,672,058	16,859	3,655,199	12,261	17	12,278	13,335
1881-'82.....	4,856,392	12,408	4,843,984	23,039	40	23,079	33,970
1882-'83.....	5,095,135	164,264	4,930,871	18,822	56	18,878	17,495
1883-'84.....	5,469,457	6,952	5,462,505	10,970	.....	10,970	.....
1884-'85.....	4,778,172	106,236	4,671,936	14,707	155	14,862	12,964
1885-'86.....	3,091,541	328,606	2,762,935	9,588	13	9,601	22,586
1886-'87.....	2,833,558	656,493	2,177,065	9,272	.....	9,272	.....

* Old standard.

† Double.

‡ One-third.

§ Single.

XXIX.—VALUE OF SILVER IMPORTED AND EXPORTED INTO AND FROM BRITISH INDIA FROM AND TO FOREIGN PORTS; ALSO OF THE SILVER RECEIVED INTO THE MINTS, AND OF THE SILVER COINAGE IN THE MINTS OF THE THREE PRESIDENCY TOWNS, IN EACH YEAR FROM 1835-'36 TO 1886-'87.

[From "Finances of India," Calcutta, 1888.]

Official year.	From and to foreign ports.			Received into the mints.		
	Imported.	Exported.	Surplus.	From individuals.	From Government.	Total.
1835-'36	£1, 833, 673	£221, 777	£1, 611, 896	£1, 320, 311	£1, 611, 130	£2, 931, 441
1836-'37	1, 646, 810	307, 958	1, 338, 852	1, 243, 538	2, 970, 196	4, 213, 734
1837-'38	2, 215, 020	248, 076	1, 966, 944	2, 083, 637	1, 276, 108	3, 359, 745
1838-'39	2, 850, 380	205, 250	2, 645, 130	2, 091, 184	1, 255, 682	3, 346, 866
1839-'40	1, 937, 022	286, 551	1, 650, 471	1, 681, 238	1, 648, 024	3, 329, 262
1840-'41	1, 707, 483	305, 813	1, 401, 670	1, 476, 959	1, 326, 060	2, 803, 019
1841-'42	1, 678, 086	394, 858	1, 283, 228	1, 402, 749	2, 302, 164	3, 704, 913
1842-'43	3, 235, 011	282, 566	2, 952, 445	2, 752, 380	880, 633	3, 633, 013
1843-'44	4, 743, 740	1, 047, 699	3, 696, 041	4, 081, 765	1, 407, 724	5, 489, 489
1844-'45	3, 176, 048	1, 187, 486	1, 988, 562	3, 033, 142	1, 760, 340	4, 793, 482
1845-'46	1, 961, 357	1, 028, 867	932, 490	1, 504, 803	1, 136, 340	2, 641, 143
1846-'47	2, 087, 082	708, 833	1, 378, 249	1, 516, 934	1, 479, 804	2, 996, 738
1847-'48	922, 185	1, 416, 376	*494, 191	613, 526	881, 405	1, 494, 931
1848-'49	2, 798, 628	2, 484, 724	313, 904	1, 901, 968	779, 939	2, 681, 907
1849-'50	2, 235, 792	962, 185	1, 273, 607	1, 918, 266	568, 597	2, 486, 863
1850-'51	2, 656, 498	539, 273	2, 117, 225	2, 253, 558	996, 314	3, 249, 872
1851-'52	3, 713, 280	847, 923	2, 865, 357	3, 696, 625	958, 803	4, 655, 428
1852-'53	5, 490, 227	885, 203	4, 605, 024	5, 397, 639	488, 802	5, 886, 441
1853-'54	3, 770, 643	1, 464, 899	2, 305, 744	3, 254, 087	802, 469	4, 056, 556
1854-'55	1, 145, 137	1, 115, 537	29, 600	473, 979	610, 937	1, 084, 916
1855-'56	8, 792, 793	598, 418	8, 194, 375	8, 048, 302	592, 513	8, 640, 815
1856-'57	12, 237, 695	1, 164, 448	11, 073, 247	10, 228, 730	1, 150, 415	11, 379, 145
1857-'58	12, 985, 332	766, 384	12, 218, 948	10, 486, 379	1, 272, 166	11, 758, 545
1858-'59	8, 379, 692	651, 350	7, 728, 342	5, 927, 572	125, 719	6, 053, 291
1859-'60	12, 068, 926	921, 363	11, 147, 563	5, 403, 644	6, 023, 346	11, 426, 990
1860-'61	6, 434, 636	1, 106, 627	5, 328, 009	4, 002, 958	127, 575	4, 130, 533
1861-'62	9, 761, 545	675, 089	9, 086, 456	7, 350, 873	1, 536, 375	8, 887, 249
1862-'63	13, 627, 401	1, 077, 244	12, 550, 157	10, 746, 375	610, 669	11, 357, 044
1863-'64	14, 037, 169	1, 240, 450	12, 796, 719	9, 210, 413	482, 847	9, 693, 260
1864-'65	11, 488, 320	1, 409, 522	10, 078, 798	8, 853, 397	467, 297	9, 320, 694
1865-'66	20, 184, 407	1, 515, 734	18, 668, 673	14, 330, 912	169, 243	14, 500, 155
1866-'67 (11 months)	8, 655, 432	1, 692, 329	6, 963, 103	5, 574, 646	239, 807	5, 814, 453
1867-'68	6, 999, 450	1, 405, 488	5, 593, 962	4, 248, 628	70, 357	4, 318, 983
1868-'69	9, 978, 978	1, 377, 956	8, 601, 022	5, 774, 487	68, 359	5, 842, 846
1869-'70	8, 264, 408	946, 264	7, 318, 144	6, 624, 159	108, 219	6, 732, 378
1870-'71	2, 062, 237	1, 720, 313	941, 924	974, 505	97, 044	1, 071, 549
1871-'72	8, 007, 525	1, 487, 209	6, 520, 316	4, 173, 510	36, 016	4, 209, 526
1872-'73	1, 934, 214	1, 219, 070	715, 144	1, 888, 402	76, 123	1, 964, 525
1873-'74	4, 143, 726	1, 647, 902	2, 495, 824	2, 669, 039	36, 648	2, 705, 147
1874-'75	6, 051, 810	1, 409, 608	4, 642, 202	4, 694, 161	55, 915	4, 750, 076
1875-'76	3, 464, 341	1, 908, 986	1, 555, 355	2, 005, 179	36, 189	2, 041, 368
1876-'77	9, 992, 408	2, 793, 536	7, 198, 872	7, 865, 995	21, 727	7, 887, 722
1877-'78	15, 776, 532	1, 100, 197	14, 676, 335	17, 239, 321	89, 257	17, 328, 578
1878-'79	5, 593, 699	1, 623, 005	3, 970, 694	6, 102, 737	522, 203	6, 624, 940
1879-'80	9, 605, 001	1, 735, 259	7, 869, 742	9, 463, 081	93, 618	9, 556, 719
1880-'81	5, 316, 156	1, 423, 582	3, 892, 574	3, 183, 733	162, 461	3, 346, 194
1881-'82	6, 466, 389	1, 087, 339	5, 379, 050	2, 213, 338	738, 892	2, 952, 230
1882-'83	8, 358, 022	877, 795	7, 480, 227	5, 116, 972	850, 789	5, 967, 761
1883-'84	7, 408, 506	1, 003, 355	6, 405, 151	3, 248, 165	525, 044	3, 773, 209
1884-'85	9, 110, 025	1, 864, 394	7, 245, 631	6, 441, 855	254, 904	6, 696, 759
1885-'86	12, 385, 260	779, 631	11, 606, 629	8, 969, 350	162, 659	9, 432, 009
1886-'87	8, 219, 761	1, 064, 023	7, 155, 738	4, 714, 419	146, 529	4, 860, 948

* Deficit.

XXIX.—VALUE OF SILVER IMPORTED AND EXPORTED INTO AND FROM BRITISH INDIA FROM AND TO FOREIGN PORTS, ETC.—Continued.

Official year.	Value of the silver coinage.		
	Rupees.	Half, quarter, and one-eighth rupees.	Total.
1835-'36	£2, 234, 715	£74, 305	£2, 329, 020
1836-'37	3, 737, 060	135, 129	3, 872, 189
1837-'38	3, 054, 310	321, 266	3, 375, 576
1838-'39	3, 793, 886	176, 733	3, 970, 619
1839-'40	2, 816, 009	253, 958	3, 069, 967
1840-'41	2, 793, 765	130, 805	2, 924, 570
1841-'42	3, 760, 243	21	3, 760, 264
1842-'43	3, 071, 571	223, 215	3, 294, 786
1843-'44	4, 461, 275	211, 420	4, 672, 704
1844-'45	4, 341, 964	354, 850	4, 696, 814
1845-'46	3, 368, 643	487, 575	3, 856, 218
1846-'47	2, 811, 241	109, 611	2, 920, 852
1847-'48	1, 669, 385	112, 872	1, 782, 257
1848-'49	2, 437, 043	141, 823	2, 578, 866
1849-'50	2, 064, 425	346, 783	2, 411, 208
1850-'51	2, 493, 605	122, 812	2, 616, 417
1851-'52	4, 125, 323	123, 168	4, 248, 491
1852-'53	5, 271, 541	238, 424	5, 509, 965
1853-'54	5, 139, 019	114, 338	5, 253, 437
1854-'55	1, 163, 774	202, 127	1, 365, 901
1855-'56	6, 778, 575	195, 084	6, 973, 659
1856-'57	10, 376, 883	402, 403	10, 779, 286
1857-'58	12, 083, 761	467, 512	12, 551, 303
1858-'59	6, 239, 551	302, 716	6, 542, 267
1859-'60	10, 038, 128	639, 796	10, 677, 924
1860-'61	4, 827, 399	364, 929	5, 192, 328
1861-'62	6, 908, 151	162, 679	7, 070, 830
1862-'63	8, 992, 965	258, 503	9, 251, 468
1863-'64	11, 268, 097	209, 328	11, 477, 425
1864-'65	10, 109, 332	249, 091	10, 358, 423
1865-'66	14, 405, 305	101, 744	14, 507, 049
1866-'67 (11 months)	5, 930, 381	188, 476	6, 118, 857
1867-'68	4, 165, 029	148, 256	4, 313, 285
1868-'69	4, 008, 037	198, 994	4, 207, 031
1869-'70	7, 257, 273	316, 287	7, 473, 560
1870-'71	1, 411, 141	307, 056	1, 718, 197
1871-'72	1, 638, 562	51, 832	1, 690, 394
1872-'73	3, 589, 432	391, 495	3, 980, 927
1873-'74	2, 002, 768	362, 239	2, 370, 007
1874-'75	4, 423, 178	473, 706	4, 896, 884
1875-'76	2, 109, 920	440, 298	2, 550, 218
1876-'77	5, 793, 188	477, 934	6, 271, 122
1877-'78	15, 943, 498	236, 828	16, 180, 326
1878-'79	7, 000, 257	210, 513	7, 210, 770
1879-'80	10, 080, 213	176, 755	10, 256, 968
1880-'81	4, 208, 951	40, 724	4, 249, 675
1881-'82	1, 858, 393	327, 881	2, 186, 274
1882-'83	5, 996, 962	511, 495	6, 508, 457
1883-'84	3, 391, 586	271, 814	3, 663, 400
1884-'85	5, 551, 106	243, 106	5, 794, 232
1885-'86	10, 097, 180	188, 386	10, 285, 566
1886-'87	4, 040, 451	576, 086	4, 616, 537

XXX.—VALUE OF OLD RUPEES RECEIVED AT THE MINTS IN INDIA IN EACH YEAR FROM 1835-'36 TO 1886-'87, AND OF NEW RUPEES AND SMALL SILVER COIN COINED DURING THE SAME PERIOD.

[From "Finances of India," Calcutta, 1888.]

Years.	Value of old rupees received into new rupees.				Value of new rupees and small silver coin coined from old rupees, bullion, etc.			
	Calcutta mint.	Madras mint.*	Bombay mint.	Total re-coinage.	Calcutta mint.	Madras mint.	Bombay mint.	Total new coinage.
1835-'36	£1,363,674		£157,307	£1,520,981	£1,624,996	£126,400	£577,624	£2,329,020
1836-'37	1,732,056		955,346	2,687,402	2,981,430		890,759	3,872,189
1837-'38	877,884		358,792	1,236,676	2,093,410		1,282,166	3,375,576
1838-'39	750,972		217,170	968,142	2,676,375		1,294,244	3,970,619
1839-'40	373,932		546,385	920,317	2,162,757		907,210	3,069,967
1840-'41	387,209		311,817	699,026	1,641,079		1,283,491	2,924,570
1841-'42	802,707	£227,905	566,266	1,596,878	2,512,631	258,600	989,032	3,760,264
1842-'43	159,928	80,740	347,322	587,990	2,061,186	164,633	1,069,567	3,294,786
1843-'44	142,181	361,781	350,406	854,371	2,176,608	422,846	2,073,250	4,672,704
1844-'45	462,338	203,113	229,043	894,524	2,833,560	317,236	1,546,018	4,696,814
1845-'46	585,021	255,330	179,146	1,019,497	2,253,233	236,904	1,366,081	3,856,218
1846-'47	158,330	523,931	35,579	717,900	1,647,812	608,345	664,695	2,920,852
1847-'48	228,766	280,054	247,689	765,509	1,011,994	349,527	420,736	1,782,257
1848-'49	334,059	121,185	132,770	588,014	1,330,327	129,664	1,118,875	2,578,866
1849-'50	244,463	94,889	132,665	471,957	1,359,712	83,441	965,055	2,411,208
1850-'51	278,509	191,585	471,394	941,488	1,213,110	195,417	1,207,890	2,616,417
1851-'52	166,352	135,312	627,854	929,518	1,788,019	370,677	2,089,795	4,248,491
1852-'53	179,611	77,861	135,182	392,654	2,736,621	393,497	2,379,847	5,509,965
1853-'54	150,197	68,060	416,525	634,782	2,318,270	675,085	2,260,082	5,253,437
1854-'55	360,457	40,071	123,625	524,153	704,317	286,842	374,742	1,365,901
1855-'56	206,530	37,094	105,588	349,212	3,876,232	545,232	2,552,195	6,973,659
1856-'57	328,661	65,999	46,061	440,721	6,691,081	867,797	3,220,408	10,779,286
1857-'58	47,062	27,186	29,658	103,906	7,309,331	962,220	4,279,752	12,551,303
1858-'59	56,861	21,795	44,905	123,561	3,866,489	485,317	2,190,461	6,542,267
1859-'60	15,337	35,575	25,428	76,340	6,060,115	566,163	4,051,646	10,677,924
1860-'61	88,540	5,453	11,475	105,468	2,698,625	513,464	1,980,239	5,192,328
1861-'62	355,468	21,397	22,813	399,678	2,571,645	439,907	4,059,278	7,070,830
1862-'63	79,264	19,518	5,126	103,908	2,511,453	673,225	6,066,790	9,251,468
1863-'64	62,961	8,939	5,135	77,035	2,598,015	1,277,671	7,601,739	11,477,425
1864-'65	388,877	15,182	21,398	425,457	4,122,650	644,828	5,590,945	10,358,423
1865-'66	127,241	3,714	1,319	132,274	6,571,173	544,964	7,390,912	14,507,049
1866-'67 (11 months)	49,482	5,342	9,432	64,256	3,471,148	148,080	2,499,629	6,118,857
1867-'68	29,679	11,092	31,024	71,795	1,665,950	34,766	2,612,569	4,313,285
1868-'69	34,914	11,078	16,282	62,274	1,537,687	18,751	2,650,593	4,207,031
1869-'70	33,062		3,858	36,920	3,170,769		4,302,791	7,473,560
1870-'71	20,513		5,329	25,842	474,712		1,243,485	1,718,197
1871-'72	13,472		5,438	18,910	1,080,009		610,385	1,690,394
1872-'73	27,497		123	27,620	1,045,953		2,934,974	3,980,927
1873-'74	28,930		1,103	30,033	790,910		1,579,097	2,370,007
1874-'75	42,726		1,413	44,139	1,771,462		3,125,422	4,896,884
1875-'76	31,587		836	32,423	818,346		1,731,872	2,550,218
1876-'77	19,759		1,975	21,734	2,079,285		4,191,837	6,271,122
1877-'78	67,379		22,104	89,483	5,151,821		11,028,505	16,180,326
1878-'79	37,408		30,173	67,581	2,324,495		4,886,275	7,210,770
1879-'80	44,534		40,399	84,933	2,135,417		8,121,551	10,256,968
1880-'81	120,259		40,725	160,984	1,050,982		3,198,693	4,249,675
1881-'82	441,854		†296,819	738,673	847,751		1,338,523	2,136,274
1882-'83	512,661		†317,611	830,272	1,429,907		5,078,550	6,508,457
1883-'84	409,277		†125,309	534,586	1,274,660		2,388,740	3,663,400
1884-'85	218,249		§34,147	252,396	1,237,107		4,557,125	5,794,232
1885-'86	429,998		§32,443	462,441	3,469,732		6,815,834	10,285,566
1886-'87	¶67,862		¶32,787	100,649	1,074,572		3,541,965	4,616,537

* The Madras mint ceased to exist from September 1, 1869.

† Consists of Government coins £197,092 and 231,442, native coins £24 and 13, and old Portuguese Indian coins £99,703 and 86,156, respectively.

‡ Inclusive of £55,982, being value of shroff marked, light, and soldered rupees paid in exchange to the currency department, etc.

§ Includes native and old Portuguese Indian coins.

¶ Includes £26,645 Burmese coins.

¶¶ Includes £10,363 native coins.

XXXI.—TALE AND VALUE OF THE SEVERAL DENOMINATIONS OF GOLD, SILVER, AND COPPER COINS STRUCK IN THE MINTS OF THE THREE PRESIDENCIES, SHOWING FOR BRITISH INDIA THE TOTALS FOR EVERY FIVE YEARS FROM 1835-'36 TO 1886-'87—Continued.

[From "Finances of India," Calcutta, 1888.]

VALUE.

Official year.	Gold, single mohurs.	Silver.				Total.
		Rupees.	Half rupees.	Quarter rupees.	One-eighth rupees.	
1835-'36 to 1839-'40.	1 ¹ £343,361	£15,655,980	£543,410	£414,081	² £86,900	£16,617,371
1840-'41 to 1844-'45.	122,846	18,428,818	419,766	348,554	152,000	19,349,138
1845-'46 to 1849-'50.	233,784	12,350,738	568,673	405,494	224,497	13,549,402
1850-'51 to 1854-'55.	334,625	18,193,342	297,804	338,333	164,732	18,994,211
1855-'56 to 1859-'60.	536,528	45,516,897	568,382	822,400	616,759	47,524,438
1860-'61 to 1864-'65.	404,397	42,105,943	401,411	514,326	328,793	43,350,473
1865-'66 to 1869-'70.	170,590	35,766,023	297,600	344,724	211,434	36,619,781
1870-'71 to 1874-'75.	80,882	13,070,082	488,050	561,398	536,881	14,656,411
1875-'76 to 1879-'80.	47,601	40,927,076	410,716	682,064	449,548	42,469,404
1880-'81 to 1884-'85.	77,784	21,007,018	315,298	551,385	528,337	22,402,038
1885-'86 to 1886-'87.	22,586	14,137,631	277,929	272,809	213,734	14,902,103
Total	2,374,984	277,159,548	4,589,039	5,255,568	3,430,615	290,434,770

Copper.

Official year.	Half annas.	Quarter annas.	Half pice.	Pie pieces.
1835-'36 to 1839-'40	£25,788	³ £304,336		⁴ £24,197
1840-'41 to 1844-'45	47,918	259,014		12,198
1845-'46 to 1849-'50	59,052	267,625		15,918
1850-'51 to 1854-'55	38,685	260,576	£25,271	11,619
1855-'56 to 1859-'60	126,160	355,106	17,619	25,892
1860-'61 to 1864-'65	279,423	639,808	67,492	50,233
1865-'66 to 1869-'70	92,221	395,952	19,033	7,867
1870-'71 to 1874-'75		73,506		4,564
1875-'76 to 1879-'80	32,734	400,134		21,350
1880-'81 to 1884-'85		⁵ 334,359		15,628
1885-'86 to 1886-'87		⁶ 147,265	10,890	15,223
Total	711,921	3,437,682	140,305	204,689

Copper.

Official year.	Cents.					Grand total of gold, silver, and copper coins.
	Five cents.	Whole cents.	Half cents.	Quarter cents.	Total.	
		One cash. £6				
1835-'36 to 1839-'40					£364,327	£17,325,059
1840-'41 to 1844-'45					319,130	19,791,114
1845-'46 to 1849-'50		8,154	£11,327	£16,141	378,217	14,161,403
1850-'51 to 1854-'55		14,668	2,779	813	354,411	19,683,247
1855-'56 to 1859-'60		18,619	6,896	2,335	552,567	48,613,533
1860-'61 to 1864-'65		20,971	5,164	1,895	1,064,986	44,819,856
1865-'66 to 1869-'70		11,541	2,050	819	529,484	37,319,855
1870-'71 to 1874-'75	£16,025	56,413	15,170	1,689	167,667	14,904,960
1875-'76 to 1879-'80	5,550	53,030	2,320		515,118	43,032,123
1880-'81 to 1884-'85	2,950	21,444	3,392	112	377,885	22,857,707
1885-'86 to 1886-'87		25,111			198,489	15,123,178
Total	24,525	229,957	49,398	23,804	4,822,281	297,632,035

¹ Includes £168,256 of old standard mohurs, £3,322 of double mohurs, £14,830 of one-third mohurs.

² Includes £1,300 of single annas.

³ Includes £8,522 of sicca single pice.

⁴ Includes £887 of sicca pie-pieces.

⁵ Includes £10,091 and £4,828, being the value of new Portuguese-Indian one-quarter and one-eighth tangas, respectively.

⁶ Includes £7,500 and £3,500, being the value of new Portuguese-Indian one-quarter and one-eighth tangas, respectively.

XXXI.—TALE AND VALUE OF THE SEVERAL DENOMINATIONS OF GOLD, SILVER, AND COPPER COINS STRUCK IN THE MINTS OF THE THREE PRESIDENCIES, SHOWING FOR BRITISH INDIA THE TOTALS FOR EVERY FIVE YEARS FROM 1835-'36 TO 1886-'87—Continued.

[From "Finances of India," Calcutta, 1888.]

TABLE.

Official year.	Gold, single mohurs.	Silver.				Total.
		Rupees.	Half rupees.	Quarter rupees.	One-eighth rupees.	
		No.	No.	No.	No.	
1835-'36 to 1839-'40	1233, 686	156, 559, 801	10, 868, 205	16, 563, 244	2416, 000	184, 407, 250
1840-'41 to 1844-'45	81, 895	184, 288, 179	8, 395, 331	13, 942, 150	12, 160, 031	218, 785, 691
1845-'46 to 1849-'51	155, 860	123, 507, 378	11, 373, 458	16, 219, 750	17, 959, 783	169, 060, 369
1850-'51 to 1854-'55	223, 083	181, 933, 423	5, 956, 076	13, 533, 305	13, 178, 590	214, 601, 394
1855-'56 to 1859-'60	357, 672	455, 168, 973	11, 367, 650	32, 896, 027	49, 340, 701	548, 773, 351
1860-'61 to 1864-'65	269, 598	421, 059, 432	8, 028, 219	20, 573, 038	26, 303, 418	475, 964, 107
1865-'66 to 1869-'70	113, 727	357, 660, 230	5, 951, 992	13, 788, 956	16, 914, 687	394, 315, 865
1870-'71 to 1874-'75	358, 666	130, 700, 819	9, 760, 968	22, 455, 925	42, 970, 470	205, 868, 182
1875-'76 to 1879-'80	31, 735	409, 270, 763	8, 214, 321	27, 282, 556	35, 963, 841	480, 731, 481
1880-'81 to 1884-'85	51, 856	210, 070, 195	6, 305, 982	22, 055, 431	42, 266, 945	280, 698, 553
1885-'86 to 1886-'87	15, 057	141, 376, 310	5, 558, 601	10, 912, 340	17, 098, 720	174, 945, 971
Total	1, 592, 835	2, 771, 595, 503	91, 780, 803	210, 222, 722	274, 553, 186	3, 348, 152, 214

Official year.	Copper.			
	Half annas.	Quarter annas.	Half pice.	Pie-pieces.
	No.	No.	No.	No.
1835-'36 to 1839-'40	11, 452, 175	4194, 434, 313	.....	546, 352, 326
1840-'41 to 1844-'45	15, 333, 680	165, 768, 981	.....	23, 420, 600
1845-'46 to 1849-'50	18, 896, 747	171, 280, 421	.....	30, 561, 693
1850-'51 to 1854-'55	12, 379, 285	166, 768, 196	32, 347, 153	22, 308, 802
1855-'56 to 1859-'60	40, 351, 922	227, 268, 270	22, 552, 525	40, 712, 043
1860-'61 to 1864-'65	89, 415, 375	409, 467, 106	86, 389, 694	96, 446, 947
1865-'66 to 1869-'70	29, 510, 628	253, 410, 068	24, 362, 037	15, 105, 204
1870-'71 to 1874-'75	.....	47, 043, 968	.....	8, 763, 072
1875-'76 to 1879-'80	10, 474, 944	256, 085, 632	.....	40, 988, 514
1880-'81 to 1884-'85	.....	6217, 473, 167	.....	30, 005, 568
1885-'86 to 1886-'87	.....	96, 489, 993	13, 939, 270	29, 229, 596
Total	227, 814, 756	2, 205, 490, 115	179, 590, 679	392, 893, 795

Official year.	Copper.					Grand total of gold, silver, and copper coins.
	Cents.					
	Five cents	Whole cents.	Half cents.	Quarter cents.	Total.	
	No.	No. One cash.	No.	No.	No.	
1835-'36 to 1839-'40	.....	66, 958	.....	.....	252, 305, 772	436, 946, 708
1840-'41 to 1844-'45	.....	.....	.....	.....	204, 523, 261	423, 390, 847
1845-'46 to 1849-'50	.....	3, 623, 986	10, 068, 435	28, 695, 442	263, 126, 124	432, 342, 353
1850-'51 to 1854-'55	.....	6, 519, 226	2, 469, 647	1, 445, 959	244, 238, 268	459, 062, 745
1855-'56 to 1859-'60	.....	8, 382, 681	6, 199, 716	4, 185, 846	358, 653, 003	907, 784, 026
1860-'61 to 1864-'65	.....	9, 320, 610	4, 590, 499	3, 367, 865	698, 998, 096	1, 175, 231, 801
1865-'66 to 1869-'70	.....	5, 129, 150	1, 822, 103	1, 456, 000	330, 795, 190	725, 224, 782
1870-'71 to 1874-'75	3, 205, 000	35, 461, 131	26, 889, 392	5, 226, 775	126, 589, 338	332, 516, 186
1875-'76 to 1879-'80	1, 110, 000	27, 247, 000	4, 640, 000	.....	340, 546, 120	821, 309, 336
1880-'81 to 1884-'85	590, 000	10, 642, 621	3, 360, 000	200, 000	262, 271, 356	543, 021, 765
1885-'86 to 1886-'87	.....	12, 848, 679	.....	.....	152, 587, 538	327, 468, 566
Total	4, 905, 000	119, 242, 042	60, 039, 792	44, 577, 887	3, 234, 554, 066	6, 584, 299, 115

¹ Includes 98,283 old standard mohurs, 1,174 double mohurs, 29,760 one-third mohurs.
² Includes 208,000 single annas.
³ Includes 5,288 two-third mohurs, 4,621 one-third mohurs.
⁴ Includes 5,113,478 sicca single pies.
⁵ Includes 1,597,276 sicca pies.
⁶ Includes new Portuguese Indian quarter tangas 3,550,335, and one-eighth tangas 6,332,930.

XXXII.—COINAGE OF THE SAUGOR MINT SINCE ITS ESTABLISHMENT.

1825-'26	£11,798
1826-'27	48,063
1827-'28	79,974
1828-'29	45,259
1829-'30	66,399
1830-'31	97,078
1831-'32	86,906
1832-'33	107,451
	539,928
Copper	28,339
Total	568,267

XXXIII.—VALUES OF THE SEVERAL DENOMINATIONS OF SMALL SILVER COINS, AND TOTAL VALUE OF THE GOLD, SILVER, COPPER, AND ENTIRE COINAGE AT THE MINTS OF THE THREE PRESIDENCY TOWNS IN EACH YEAR FROM 1835-'36 TO 1886-'87.

[From "Finances of India," Calcutta, 1888.]

Official year.	Half rupees.	Quarter rupees.	One-eighth rupees.	Total.	Total value of the coinage.			
					Gold.	Silver.	Copper.	Total.
1835-'36	£45,413	£24,992	£2,600	£74,305*	£197,494	£2,329,020	£59,961	£2,586,475
1836-'37	89,741	45,388		135,129	6,815	3,872,189	42,925	3,921,929
1837-'38	171,932	149,334		321,266	25,425	3,375,576	92,926	3,493,928
1838-'39	91,625	82,108		176,733	34,470	3,970,619	97,737	4,102,826
1839-'40	141,699	112,259		253,958	79,156	3,069,967	70,779	3,219,902
1840-'41	95,405	35,460		130,865	56,772	2,924,570	64,974	3,046,316
1841-'42	16		5	21	23,101	3,760,264	69,541	3,852,906
1842-'43	74,649	101,003	47,563	223,215		3,294,786	32,924	3,327,710
1843-'44	113,172	77,440	20,817	211,429	16,634	4,672,704	69,619	4,758,957
1844-'45	136,524	134,711	83,615	354,850	26,339	4,696,814	82,072	4,805,225
1845-'46	276,255	144,429	66,891	487,575	30,142	3,856,218	91,145	3,977,505
1846-'47	69,919	28,234	11,458	109,611	42,734	2,920,852	79,727	3,043,313
1847-'48	21,209	48,293	43,370	112,872	46,291	1,782,257	96,389	1,924,937
1848-'49	67,477	59,914	14,432	141,823	70,470	2,578,866	69,713	2,719,049
1849-'50	133,813	124,623	88,347	346,783	44,147	2,411,208	41,243	2,496,598
1850-'51	66,651	36,407	19,754	122,812	123,717	2,616,417	44,289	2,784,423
1851-'52	16,473	69,130	37,565	123,168	62,553	4,248,491	79,929	4,390,973
1852-'53	129,697	73,920	34,807	238,424		5,509,965	56,074	5,566,039
1853-'54	36,717	48,789	28,832	114,338	145,679	5,253,437	56,014	5,455,130
1854-'55	48,266	110,087	43,774	202,127	2,676	1,365,901	118,105	1,486,682
1855-'56	68,648	106,292	20,144	195,084	167,863	6,973,659	36,066	7,177,588
1856-'57	106,086	174,976	121,341	402,403	128,302	10,779,86	61,488	10,969,076
1857-'58	130,082	167,526	169,934	467,542	43,783	12,551,303	138,605	12,733,691
1858-'59	49,847	165,812	87,057	302,716	132,273	6,542,267	149,953	6,824,493
1859-'60	213,719	207,794	218,283	639,796	64,307	10,677,924	166,455	10,908,686
1860-'61	129,653	153,795	81,481	364,929	65,038	5,192,328	243,235	5,500,601
1861-'62	65,157	69,024	28,498	162,679	58,667	7,070,830	150,681	7,280,178
1862-'63	39,785	124,937	93,781	258,503	130,660	9,251,468	150,254	9,532,388
1863-'64	67,001	53,316	89,014	209,328	54,354	11,477,425	289,102	11,826,881
1864-'65	99,815	113,254	36,022	249,091	95,672	10,358,423	231,714	10,685,809
1865-'66	10,361	66,271	25,112	101,744	17,665	14,507,049	269,337	14,794,051
1866-'67 (11 months)	54,178	72,404	61,894	188,476	27,725	6,118,857	143,567	6,290,149
1867-'68	75,679	27,323	45,254	148,256	21,534	4,313,265	26,361	4,361,180
1868-'69	99,119	86,234	13,641	198,994	25,156	4,207,031	90,219	4,322,406
1869-'70	58,261	92,493	65,533	216,287	78,510	7,473,560		7,552,070
1870-'71	91,236	110,228	105,592	307,056	4,143	1,718,197	6,121	1,728,461
1871-'72	20,707	20,981	10,144	51,832	15,412	1,690,394	25,049	1,730,855
1872-'73	149,122	125,212	117,161	391,495	31,795	3,980,927	11,012	4,023,734
1873-'74	116,911	128,564	116,764	362,239	15,498	2,370,007	14,461	2,399,966
1874-'75	110,074	176,412	187,220	473,706	14,034	4,896,884	111,024	5,021,942
1875-'76	136,609	200,887	102,802	440,298	17,150	2,550,218	105,660	2,673,028
1876-'77	100,613	197,123	180,198	477,934		6,271,122	123,429	6,394,551
1877-'78	53,615	110,847	72,366	236,828	15,636	16,180,326	148,591	16,344,553
1878-'79	69,488	91,106	49,919	210,513	85	7,210,770	66,648	7,277,503
1879-'80	50,391	82,101	44,263	176,755	14,730	10,256,968	70,790	10,342,488
1880-'81	8,984		31,740	40,724	13,355	4,249,675	18,560	4,281,590
1881-'82	125,562	116,712	85,607	327,881	33,970	2,186,274	8,995	2,229,239
1882-'83	73,452	225,686	212,357	511,495	17,495	6,508,457	107,679	6,633,631
1883-'84	107,300	76,357	88,157	271,814		3,663,400	137,361	3,800,764
1884-'85		132,630	110,476	243,106	12,964	5,794,232	105,287	5,912,483
1885-'86	89,866	53,549	44,971	188,386	22,586	10,285,566	81,361	10,389,513
1886-'87	188,062	219,260	168,763	576,085		4,616,537	117,128	4,733,665

* The total of silver coinage for 1835-'36 includes £1,300 of single annas.

XXXIV.—INDEX TO MINES OF THE UNITED STATES.

MINES OF CALIFORNIA, 1867.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Advance	Markleeville	Alpine	John Weis.
California and Illinois	do	do	Cyrus Coleman.
German	do	do	John Weis.
Morning Star	do	do	Do.
North Calaveras	do	do	
North Colorado	do	do	Cyrus Coleman.
North Tarshish	do	do	Do.
Colorado No. 2 Gold and Silver.	Monitor	do	N. D. Arnot.
Orion Gold and Silver	do	do	
Exehoquer	Silver Creek	do	John D'Arcy.
Isabella Gold and Silver	do	do	Lewis Chalmers, superintendent.
Pennsylvania	do	do	A. Nelson.
Stella	do	do	Lewis Chalmers, superintendent.
Altura	Woodford	do	Edward Barnes.
Nil Desperandum	do	do	Do.
Polaris	do	do	D. R. Hawkins.
Bunker Hill Gold	Amador City	Amador	N. W. Crocker, superintendent.
Black Hills	do	do	John Palmer, superintendent.
Cornet Mine	do	do	J. R. Tregloan.
Gover	do	do	John Palmer.
Gover Improvement	do	do	Jonas Call, superintendent.
Hammock Kal	do	do	
Keystone Consolidated	do	do	T. J. Shackelford, secretary.
Loyal	do	do	John Palmer.
Nevada	do	do	Humphry Reese.
South Spring Hill Gold	do	do	J. R. Tregloan.
Wabash	do	do	
Loyal	Drytown	do	G. R. Borese, clerk.
North California	do	do	Joseph Carrara.
Olive	do	do	M. C. Randolph.
Phoenix Reduction Works	do	do	E. S. Barney, superintendent.
Potosi	do	do	C. H. Thomas, superintendent.
Royal Lead	do	do	
Seaton	do	do	H. Reeves.
Alphi	Jackson	do	W. F. Detert.
Amador Queen	do	do	Shugart & Morgan.
Amador Tunnel	do	do	A. Halsey, secretary.
Kearsing	do	do	Girochio Bros.
Kennedy	do	do	P. Reichling, superintendent.
Kittridge	do	do	
Live Oak Claim	do	do	James Harris.
Marletto Mine	do	do	R. W. Petre.
Mammoth Gold	do	do	W. A. Nevills.
Modoc	do	do	Fayett Maco.
Mucro	do	do	A. Halsey, secretary.
Provideneo Consolidated Gold and Silver.	do	do	James White.
St. Julian	do	do	J. R. Price.
Volunteer	do	do	
Zeile	do	do	W. F. Detert, superintendent.
Purrington Ditch	Oleta	do	Judge A. Purrington.
Pan	Pine Grove	do	E. Haskell.
Wheeler, J. T.	do	do	
Gregory, Warron & Co.	Plymouth.	do	
Philadelphia	do	do	Lamb & Clements.
Pioneer	do	do	John Evans.
Plymouth Consolidated Gold	do	do	Charles T. Bridges.
Plymouth Rock Quartz	do	do	
Reaves Quartz	do	do	D. D. Reaves.
Consolidated Amador	Sutter Creek	do	F. B. Lathan, secretary.
Iowa	do	do	J. H. Tibbits.
Lincoln	do	do	L. D. Re Stewart.
Wildman	do	do	J. R. Tregloan.
Mahoney	do	do	T. B. Valentine.

MINES OF CALIFORNIA, 1887.—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Amador Reduction Works	Sutter Creek	Amador	E. C. Voorheis.
Big Tunnel	Jackson	do	
Farrell, James & Co.	do	do	
Robinson	do	do	
New London	Plymouth	do	
Sutter Mine	Sutter Creek	do	L. D. R. Stewart.
Aeme Mill	Volcano	do	J. M. Burlington, secretary.
Amador Mill	do	do	
Belding	do	do	Edward Powers.
Consolidated Amador Hydraulic Gold and Land.	do	do	L. McLan.
Downs' Mine	do	do	Geo. Parker, superintendent.
Fogus Mill	do	do	J. M. Mryle.
Fifty-Four	do	do	Evans & Fitzpatrick.
Golden Gate	do	do	N. P. Sargent.
Shealor, James W.	do	do	
Telegraph Hill	do	do	Evans & Fitzpatrick.
Volcano Tunnel	do	do	Charles McLaughlin.
Washington	do	do	Edward Bowers.
Ring Gulch Quartz	Bangor	Butte	
South Honcut	do	do	W. J. Rickman, superintendent.
Best & Co., S. M.	Berdans	do	
Dix, John	do	do	
Eureka Tunnel	do	do	Garland & Dodge.
Rich, Fred R.	do	do	
Ohio	do	do	McCain, superintendent.
Union Tunnel	do	do	James Calderback & Co.
Hida	Bidwell's Bar	do	
Marlow, M.	do	do	
Big Bend Tunnel	Big Bend	do	N. A. Harris, superintendent.
Golden Channel	do	do	G. W. North, superintendent.
Dieter Mill	Cherokee	do	Charles Dieter.
Nesbit	do	do	John Nesbit.
McGrath & Co.	do	do	
Spring Valley Gold	do	do	Louis Glass, superintendent.
Empire Hill Mine	Clipper Mills	do	Bean & Wilson.
McFarlan Hill	do	do	Joseph Rich.
Vail Henry	Forbestown	do	
John Adams	do	do	Howley & Gale.
Bare and Parks Mine	Magalia	do	John Bare.
Pneumatic	Oroville	do	J. P. Leonard.
Captain	Paradise	do	F. W. Day, superintendent.
Mary	do	do	Do.
Zelina	do	do	Do.
Perkins	Con Cow	do	Lemet Brothers.
Minch & Gwynn	Forbestown	do	
Norman Mill	do	do	William S. Moses, superintendent.
Roberts & Kendall	do	do	A. T. Roberts.
Union Quartz	do	do	T. Oliver.
Westall	do	do	D. McLanren.
Wild Yankee	Inskip	do	John N. Besse.
Hintz Brothers	John Adams	do	William Hintz.
McIntyre Mine	do	do	Adams & McIntyre.
Calamity	Lovelock	do	T. J. Sparks.
Meridith Mine	do	do	John J. Merideth.
Snow & Kendall	do	do	
Black Channel	Magalia	do	Fred W. Day, superintendent.
Choates, Richard	do	do	
Eureka	do	do	A. S. Collins, superintendent.
Fulton	do	do	E. C. Fulton.
Magalia Consolidated	do	do	Henry Abbott, superintendent.
Magalia Gold	do	do	Pershbacker & Starr.
McBride Quartz	Nimshew	do	
Branka	Oroville	do	John Berry or Bovey.
Hendricks, W. C.	do	do	
Oro	do	do	L. D. Freer, secretary.
Treasure Box	do	do	Ed Harkness, treasurer, Big Bend.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Golden Eagle	Paradise	Butts	F. W. Day.
Buchanan Hill Mine	Yankee Hill	do	George Williams.
Smith Quartz Mine	do	do	S. C. Henry and James Smith, jr.
Manzanita Gold	Sulphur Creek	Colusa	John F. Budy, manager.
Angol Quartz	Angel's Camp	Calaveras	Charles Yozer, superintendent.
Baumhogger Mine	do	do	— (Near Altaville.)
Becktel	do	do	L. Rose, superintendent.
Benfeldt Mine	do	do	Fred Benfeldt.
Bennett Mine	do	do	J. H. Bennett.
Black Oak	do	do	Charles D. Smyth.
Bovee	do	do	Captain Cushing.
Bully Bully Quartz	do	do	James Gunter.
Cherokee	do	do	B. R. Prince.
Confidence Quartz	do	do	J. J. Fletcher, jr.
Douglas & Cogswell	do	do	
Excelsior	do	do	Carter Bros.
Findley & Co	do	do	
Gold Cliff	do	do	Nickerson, superintendent.
Gold Hill	do	do	George Osborn.
Hill	do	do	H. B. Potters.
Jack Rabbit	do	do	Alexander Demartine.
Jesus Maria	do	do	F. Spurling.
Jones Mine	do	do	Dr. Jones (city).
Keystone Gold	do	do	D. D. Demorest <i>et al.</i>
Lewis & Co	do	do	
Maltman Bros	do	do	
Marshall	do	do	Captain Cushing.
Matson, Jas. & V. J.	do	do	
Matterson	do	do	
Melones Consolidated	do	do	G. W. Grayson (S. F.).
Monarchville	do	do	S. C. Thompson.
Morgan Mine	do	do	James Fair.
Maryett	do	do	C. D. Lane.
Patterson	do	do	W. F. Drake, Futtletown.
Stickles	do	do	Rose A. Halsey, secretary.
Suffolk Gold	do	do	Charles A. Smith, superintendent (S. F.).
Union Gold Mine	do	do	C. H. Hamilton.
Utica	do	do	A. Havel, superintendent (C. D. Lane).
Whittle & Graham	do	do	Joseph Whittle and Louis Graham.
Waterman, William	do	do	
Boot Jack	Campo Seco	do	W. I. Fortyth.
Satelite	do	do	W. D. Ranlett, owner.
Mexican Mine	Glencoe	do	Lewis & Fairchild.
Doe	do	do	
Fidity Mine	do	do	William Irines.
Glencoe Consolidated	do	do	Walter A. Childs.
Henry Arastra Mill	do	do	Henry & Co.
Patrick Kinn	do	do	
Posey Mine	do	do	
Sanderson & Beebe	do	do	Andrew Sanderson.
Sierra Queen	do	do	Walter A. Childs.
Lillian & Mauritas	Copperopolis	do	J. F. Carter & Co.
Pine Log & Peyall	do	do	Do.
Calaveras	Milton	do	
Hendricks, William	do	do	
New York and Calaveras Gold	do	do	
North Hill	do	do	O. T. Knight.
Blue Jay	Mokelumne Hill	do	C. Schlund.
Boston	do	do	Robinson & Brown.
Bryan Quartz	do	do	
Buena Vista	do	do	
Campo Seco	do	do	L. L. Pringle.
Gwynn Mine	do	do	
Jilson Tunnel	do	do	William Jilson.
Eureka Quartz Mill	do	do	— (Rich Gulch.)
Oneto & Barattine	do	do	Israel Knox (S. F.).
Quaker City Mine	do	do	
Riverside	do	do	Nuner & Lowery.
Lewis & Fairchild	do	do	
Penobscot	do	do	Geo. Emerson.
Pine Peak	do	do	Cook Bros.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Rough Diamond	Mokelumne Hill	Calaveras	Emmet Jillson.
Safe Deposit Tunnel	do	do	A. Knell.
Tiger	do	do	C. Schlund (Ilex Gold).
Whiskey Lode	do	do	McLane & Co.
Whiskey Slide	do	do	
Danzio	Mountain Ranch	do	G. Roderino.
Madrid	do	do	Do.
North Star	do	do	
Ritter	do	do	Do.
Smiths	do	do	Do.
Rothgoib	do	do	
J. T. Collier	Murphys	do	
Morse & Ryder	do	do	R. Senter.
Oro Plata	do	do	T. B. Morse.
Taylor Mine	do	do	Geo. S Taylor.
Cunliff & Driver	do	do	
Kelly	do	do	
John Sature	do	do	
Tulloch Mine	do	do	
Benson Bros	North Branch	do	Jas. A. Benson, superintendent.
Last Chance Tunnel	do	do	Do.
Morrinac	do	do	A. Macciavello.
Never Sweat	do	do	Jos. Bright (via Central Hill).
Carigan & Jones	Railroad Flat	do	
Clark W	do	do	
Fine Gold Quartz	do	do	Patrick Kervin, superintendent.
Lancaster & Co	do	do	
Adelaide	Robinson's Ferry	do	Wood Bros.
Bradbury	do	do	Francis Bradbury.
Our Flag	do	do	Rapp & McArdle Bros.
Rising Sun Mine	do	do	Do.
T. Agostini	San Andreas	do	Care of T. Pierano & Co.
Campbell & Hill	do	do	
Comet	do	do	W. H. Stefler.
Donallins & Hegaman	do	do	
German	do	do	J. Ellingwood.
H. A. Hedrick	do	do	
Mexican	do	do	F. Aldonso.
Pioneer Chief	do	do	W. A. Roberts (Black Thorn).
Pulsifer	do	do	Bennet & Allen.
G. Roncalli	do	do	Care of Piarino & Co.
E. Solari & Co	do	do	
Table Mountain and San Andreas.	do	do	J. L. Treat.
Treat & Wyllie	do	do	
Vanderbilt	do	do	Joel T. Hamby.
Yankee Camp	do	do	W. H. Johnson.
G. Zinoglio	do	do	Care of Piarino & Co.
Amelia	Sheep Ranch	do	Chevanno.
Oro Pino	do	do	F. Corbin.
Sheep Ranch Mine	do	do	J. B. Haggin (S. F.).
Brank & Sanders	Telegraph City	do	H. H. Saunders.
Eagle Copper and Silver	do	do	Utter & Utter.
G. Arrato	Vallicita	do	
Burch & Sloan Quartz Mine.	do	do	
Martinez	do	do	M. Sangomario.
Red Wheel	do	do	F. Bacogalapi.
Anna	West Point	do	Steger & Granville.
Bismark	do	do	Mentzel & Egnour.
Bowers	do	do	Moore & Co.
Bushman & Co	do	do	
Champion	do	do	Haskin & Hedler.
Colorado	do	do	Eagan & Co.
Constitution	do	do	Pittz & Black.
Rubio Domingo	do	do	
Florida	do	do	Ferguson & Co.
Henley Mill	do	do	
Henry	do	do	Rowe, Jenkins & Co.
Jackdaw	do	do	
Keltz	do	do	O.B. Pixley, superintendent.
Lockwood	do	do	Bushman & Co.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Lone Star.....	West Point.....	Calaveras.....	Reed & Hillary (San Andreas).
McGee.....	do.....	do.....	
Nellie Mud.....	do.....	do.....	T. Sawyer & Co.
Oro Fino.....	do.....	do.....	W. Cook & Brother.
Reed & Wickham.....	do.....	do.....	Ita H. Reed (San Andreas).
Russell Reduction Works.....	do.....	do.....	J. Morrio, secretary (includes Lockwood <i>et al</i>)
Scorpion.....	do.....	do.....	J. Quinn, superintendent.
Soap Root Mine.....	do.....	do.....	John Henry, superintendent
Stager & Cook.....	do.....	do.....	
Star of the West.....	do.....	do.....	
Tom Paine.....	do.....	do.....	Reed & Engdon.
Trirakoff.....	do.....	do.....	J. E. Marchland.
Valentine.....	do.....	do.....	C. B. George, superintendent.
Water Lilly.....	do.....	do.....	Castle & Watkins.
Wisconsin.....	do.....	do.....	T. Watters & Co.
Bald Hill.....	Crescent City.....	Del Norte.....	
Del Norte Quartz.....	do.....	do.....	J. E. Murphy.
Bunker Hill.....	Happy Camp.....	do.....	J. B. Temple.
Classic Hill.....	do.....	do.....	Camp & Co.
B. F. Cutter.....	do.....	do.....	
Gordon & Lain.....	do.....	do.....	C. Gordon.
Hartman.....	do.....	do.....	
Last Venture.....	do.....	do.....	H. F. Doolittle.
Morgan's Point.....	do.....	do.....	A. Doolittle.
Muck-a-muck.....	do.....	do.....	Mrs. M. Reeves (S. F.)
Merry Gulch.....	do.....	do.....	S. C. Howard.
Patrick's Bar and Hill.....	do.....	do.....	Moore & Co.
Patterson Bar.....	do.....	do.....	John Douglas.
Pennsylvania Mine.....	do.....	do.....	C. Gordon.
Quartz Gulch.....	do.....	do.....	D. G. Evans.
Richards.....	do.....	do.....	David Hine.
Richardson, S. S.....	do.....	do.....	
Shmtt & Brother.....	do.....	do.....	Frank D. Richards.
Town Gulch.....	do.....	do.....	George Hillman.
Wingate Hill.....	do.....	do.....	G. B. Temple.
Bunker Hill.....	Clarksville.....	El Dorado.....	J. J. Ryan.
B. F. Burgiss.....	do.....	do.....	
Thomas B. Everett.....	do.....	do.....	
Berry Fords.....	do.....	do.....	
Gwinn & Taylor.....	do.....	do.....	
Lowry & Taylor.....	do.....	do.....	A. P. Lowry.
Long Mill.....	do.....	do.....	
Miller & Winchell.....	do.....	do.....	
G. S. Tong.....	do.....	do.....	
White Rock.....	do.....	do.....	Charles Chapman.
Cox & Co.....	Coloma.....	do.....	Roger Cox.
A. J. Peterson.....	do.....	do.....	
Hope.....	Cool.....	do.....	David Musser.
Bungartner & Co.....	Diamond Springs.....	do.....	
Diamond Springs.....	do.....	do.....	
Griffith Consolidated.....	do.....	do.....	
Grand Victory.....	do.....	do.....	F. L. Bates, superintendent
Davidson.....	El Dorado.....	do.....	Peter Gross.
Hanilla.....	do.....	do.....	
Lamoille.....	do.....	do.....	J. Long.
Mount Lookout.....	do.....	do.....	
Ophir.....	do.....	do.....	Do.
Starlight.....	do.....	do.....	Do.
Wm. Barney.....	Fair Play.....	do.....	
Wm. Gardner.....	do.....	do.....	
Mat Leonard.....	do.....	do.....	
Mansfield.....	do.....	do.....	
Phillipine, Rinoldo.....	Garden Valley.....	do.....	N. B. Hail.
Orth & Anderson.....	do.....	do.....	
Alhambra.....	Georgetown.....	do.....	Redd & Ballard.
Alpine Ledge.....	do.....	do.....	Rob't Skinner.
Betty Quartz.....	do.....	do.....	G. H. Barklage.
M. Bleibtrein & Co.....	do.....	do.....	
Blue Rock Mill.....	do.....	do.....	John Flynn.
Bob Read.....	do.....	do.....	
Bright Hope.....	do.....	do.....	Gibbs & Hurlburt.
L. Bryant.....	do.....	do.....	
Buckeye Hill.....	do.....	do.....	John J. Flora.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Burnham Mine	Georgetown.....	El Dorado	Rob't Burnham,superintendent.
Cashier	do	do	John Morgan.
Cedarburg Mine	do	do	E. W. Hulford.
Cheek Mine	do	do	E. C. Cheek, owner.
Clipper Quartz	do	do	Powning.
Alex. Connell	do	do	
Cooley	do	do	Geo. Bower.
Doro Mill	do	do	
Esperanza	do	do	Burlingham, superintendent.
Eureka Mill	do	do	Dr. Spencer.
French Joe	do	do	
Garfield	do	do	
Georgia Slide Gem Mine.....	do	do	Joseph Rheinhart.
Golden State Mill	do	do	Thos. Armstrong & Co.
F. Goosman	do	do	
Gopher Hole	do	do	Hewitt & Savage.
Green Stone Ledge	do	do	Clark Brown & Co.
Hanson Mill	do	do	
G. Henry	do	do	
Jones Hill Quartz	do	do	R. M. Barstow.
Jordon & Zombro	do	do	J. E. Jordon.
Josephine	do	do	Jos. Nonges (S. F.).
Knox Bros	do	do	
Mameluke	do	do	T. Lebonf.
Martin & Miller	do	do	
Martha Aven	do	do	
Modden	do	do	
Morrill & Peterson	do	do	
M. Mullen	do	do	
Thos. Murphy	do	do	
Old Maid	do	do	Dover & McLaughlin.
Joseph O'Neil	do	do	
Pacific Quartz	do	do	Joseph Rheinhart.
Parsons	do	do	S. Hanson.
Pease & Blair	do	do	J. C. Rich.
Powers & Son	do	do	
Quartz Gravel	do	do	E. A. Pease.
Rip Van Winkle	do	do	J. E. Jordon.
Rubicon	do	do	G. H. Barcklage.
State Mountain Mine	do	do	B. W. C. Benjamin.
Smeder & Forni	do	do	
St. John Mine	do	do	J. W. Horseton.
Dr. Stone	do	do	
Success	do	do	W. N. Grover.
Vaughn Quartz	do	do	Roach & Vaughn.
George West	do	do	
Wildwood	do	do	
Charles A. Farrar	do	do	
O. P. Vaugh	do	do	
Jacob Warf	Coloma	do	
Calumet	Diamond Springs	do	F. L. Bates, superintendent.
Charles Pascal	Granite Hill	do	
George Gale	do	do	
Kimball	do	do	George W. Russell.
Silvester Quartz	do	do	F. S. Silvester.
M. Baxter & Co.	Green Valley	do	
Boulder	do	do	D. Blair & Co.
Ed. Brandon	do	do	
Frank Coyle & Co.	do	do	
Conrad Etzell & Co.	do	do	
John Friedman	do	do	
H. H. Freres	do	do	
Gillespie Quartz	do	do	J. Gillespie & Murry.
Hodge's Quarter	do	do	James Hodge & Co.
Jurgens Quartz Mine	do	do	J. Jurgens.
William Kay & Co.	do	do	
John Kepp & Co.	do	do	
Aylmer Pelton	do	do	
Pine Hill	do	do	A. J. Hare & Co.
Pyramid	do	do	J. W. Hodgkin, superintendent.
James Russell & Co.	do	do	
Sailor Jack	do	do	Arch. Bosquit & Co.
A. D. Skinner & Co.	do	do	

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
James Skinner, jr.....	Green Valley	El Dorado	
Thomas Smith	do	do	
R. T. Spencer	do	do	
Fred Sundberg	do	do	
Union	do	do	
Barr	Greenwood	do	
Buckman Bros.....	do	do	W. A. Buckman.
Russ Davis.....	do	do	
Garibaldi	do	do	
Garfield	do	do	T. G. Bitty.
Peter Shepard	do	do	
John Gallagher	do	do	
Gilbert & Davis	do	do	
Grit	do	do	Jake Burnes.
Hines	do	do	
Hoosier Bar	do	do	
Merry	do	do	Martin Bleithew.
Modoc	do	do	Lewis Sites.
Miller	do	do	F. R. J. Dixon.
Never Sweat	do	do	L. E. P. Lachance.
Revenge Mine and Mill.....	do	do	F. R. J. Dixon, agent.
Sardine.....	do	do	Do.
Sliger	do	do	
Smith	do	do	Smith Brothers.
Spanish	do	do	M. M. Rowe.
Spanish Dry Diggings.....	do	do	Charles E. Buckman
Taylor Mine.....	do	do	
Union	do	do	Andrew Heiker.
H. Von Bremen.....	do	do	
F. Zeigler	do	do	
Armstrong & Roberts.....	Grizzly Flat.....	do	
Carrie Hale.....	do	do	William Bradloy.
Cole Mine	do	do	William Cole.
Crystal Gold.....	do	do	L. L. Alexander (Mendon).
Driesbach	do	do	
Eagle	do	do	S. P. Hoskin, agent.
Flagstaff.....	do	do	Jonathan Camp.
Gronse Gulch.....	do	do	W. F. Henson, manager.
W. F. Henson.....	do	do	
Jerry Kendall.....	do	do	Kendall & Russell.
Melton.....	Greenwood	do	H. H. McClellan.
Morey & Jeffrey.....	do	do	E. R. Morey.
Mount Hope.....	do	do	W. R. Parson.
Mount Pleasant	do	do	James Finley, superintendent.
Ohio.....	do	do	A. H. McAfee.
Pie Pie	do	do	Anton J. Meyer & Co.
E. F. Russell.....	do	do	
Sellers Ranch.....	do	do	Sam Fingley.
Spencer & Morey	do	do	
Stillwagon	do	do	Samuel Lane.
Treat Mine.....	do	do	
Chicago and Ohio Consol- idated	do	do	Smith & Hare.
Hale & Norcross.....	do	do	Melton & Gallager.
Independence	do	do	— Russell, superintendent.
Marshall & Hun.....	do	do	Alexander Marshall.
Philip Oswald	do	do	
J. M. Oxley	do	do	
Tholen & Norman	do	do	
E. Williamson	do	do	
Gopher Boulder	Kelsey.....	do	F. E. Morse, manager
Lone Jack	do	do	A. S. Jensen.
Old Judge	do	do	W. P. Newell.
Hardscrabble.....	Lotus.....	do	Bomback & Co.
Cumberland Mill	Nashville.....	do	J. C. Heald.
Adams Gulch.....	do	do	Heald, Moffey & Co.
Falcon Mine.....	do	do	Jesse M. Vandergrift.
Gem	do	do	Lamb & Clements.
Gold Mountain Mine	do	do	B. E. Carter.
Hermitage Mine.....	do	do	Dr. Smith (Plymouth).
Inez Gold.....	do	do	J. C. Heald.
Lone Star.....	do	do	Do.
Louis Padrie	do	do	Jesse M. Vandergrift.
Margarita Mine	do	do	Do.
Monitor.....	do	do	J. C. Heald.

MINES OF CALIFORNIA, 1887--Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Nashville Mine	Nashville	El Dorado	Joshua Hendy (S. F.).
Hot Spur	do	do	Jesse M. Vandergrift.
Wido West	do	do	Hale & Bangham (Shingle Springs).
Hanilla	do	do	J. C. Heald.
McNulty Mine	Mud Springs	do	D. W. C. Morgan, superintendent.
Frank Miller	do	do	
N. S. Miller	do	do	
Church Union Extension	do	do	
Highville	Newton	do	Patterson.
Iowa Hill	do	do	Samuel Snow.
Newton	do	do	
John B. Paganini	do	do	
Yerga & Stephens	do	do	
J. P. Allen	Placerville	do	
Alpine Quartz Mine	do	do	Leroy M. Lindsey.
George Anderson & Co.	do	do	
J. & J. Blair	do	do	
Adam Brooks	do	do	
Cohn & Smith	do	do	
Cedar Hill	do	do	Samuel Hutchinson, jr.
Cedar Springs Gold	do	do	J. M. Brown, superintendent.
Chapparel	do	do	W. K. Addersley.
Coffin & Read	do	do	
Peter Cota	do	do	
Chili Ravine	do	do	Landecker & Co.
John Donaldson	do	do	
Fortuna	do	do	Rulison & Lilkens.
F. Goyan & Co.	do	do	
Green Mountain Tunnel	do	do	Capt. N. O. Ames.
Joseph A. Hancock	do	do	
T. O. Hardie	do	do	
Joseph Holcomb	do	do	
Griffith Hopkins	do	do	
R. Hoskins	do	do	
Jonathan Hall	do	do	
Gideon Geffrey	do	do	
Lyon Tunnel	do	do	J. E. Lyon.
Lynden Mine	do	do	
D. W. Macomber	do	do	
Mason & Keelough	do	do	B. D. Mason.
Maginnis	do	do	
Charles Maynard	do	do	
John McCuen	do	do	
Miller Gold Quartz	do	do	N. Miller.
J. H. Naper	do	do	
Negro Hill	do	do	Ed Hancock.
North Star	do	do	Thomas Ward.
New York Lead	do	do	
Oak Ranch Gold	do	do	Samuel Gregory & Bros.
Oldfield Bros	do	do	T. J. Oldfield.
Pacific	do	do	
Placerville Gold Quartz	do	do	Thomas Price (S. F.)
Placerville No. 2	do	do	W. A. Jones.
F. H. Powers	do	do	
Reed & Kaufman	do	do	
Ringold	do	do	
Pietro Rivera	do	do	
Abraham Rhoads	do	do	
Rogers Mine	do	do	D. N. Coffen, superintendent
Sandstone	do	do	L. McNeil.
W. W. Stone	do	do	
Joseph Symonds	do	do	
George Sulkovich	do	do	
G. W. Vineyard	do	do	
White Rock	do	do	Ward & Loury.
Woodside	do	do	E. C. Cheek.
Joseph White	do	do	
Gentle Annie	do	do	George H. Hilbert.
Robert Gregor	do	do	
Gribben Bros.	do	do	
Hilbert Bros	do	do	
Marshall	do	do	
Club. Neiper	do	do	
Pleasant Valley	Pleasant Valley	do	W. E. Hughes, foreman.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Old Hodge Rock Mine	Placerville	El Dorado	George Kimbleson.
Barnes Quartz	Shingle Springs	do	William Barnes.
Briggs & Crane	do	do	
Big Canyon Gold	do	do	John F. Knox, secretary (S. F.).
Enreka	do	do	J. A. Graham.
Granger Bros.	do	do	M. L. Granger.
Grays Flat	do	do	
Houx	do	do	D. P. Gray.
Oro Fino	do	do	J. H. Kennedy.
Towler & Granger Quartz	do	do	Towler & Granger.
F. B. Tuck	do	do	
Thomas Davidson	do	do	
D. Coffin	Smith's Flat	do	
Fred. Beufeldt	do	do	
Murdock	do	do	
Oak Grove	do	do	George Gregory.
Thomas Potts	do	do	
Annie	Coarse Gold Gulch.	Fresno	John Kosh.
Deadwood	do	do	W. T. Henderson.
Maggie	do	do	
Chapman, Hoxie & Co.	Fresno	do	
Hampton	do	do	
Hancock	do	do	
N. D. Phelps	do	do	
G. W. Rolls	do	do	
Butterfly Mine	Fresno Flats	do	
Last Chance	do	do	Rule & McKenzie.
Spangled Gold	do	do	
Fresno Enterprise	Gertrude	do	J. P. Cates, manager.
Lucky Bill	do	do	W. H. Oxindine.
Cunningham	Fresno	do	
Harber	do	do	
Lady Ellen	do	do	
Lang & Co.	do	do	
Peter Gorley	do	do	
J. J. Musick	do	do	
Oro Fino	do	do	
Smith	do	do	
Texas Flat	do	do	
Yosemite	do	do	
Antelope	Grub Gulch	do	Do.
Homestake	do	do	Do.
Mineral King	do	do	
Gambetta	do	do	John Haley, owner.
Surprise and Josephine	do	do	Daniel B. Gillet, jr., superintendent.
Blue and Bartlett	Hildreth	do	
Golconda	do	do	
Abbey Mine	Madera	do	G. W. Grayson (S. F.).
Hanover	do	do	James Arnold.
Hildreth	do	do	William Dunphy, (S. F.)
James and Francis	do	do	John Francis.
King's Gulch	do	do	
William Leverone	do	do	
McDonald	do	do	
Mountain View	do	do	Harris & Hoxie.
Volcano	do	do	O'Neal & Co.
Zebra	do	do	Thomas Boden, superintendent.
Lewis Wilson	do	do	
Hawkeye	Narbo	do	Long & Co.
Mines d'or de Quarter Mountain.	do	do	J. R. Senpham, superintendent.
Sampson Flat	Squaw Valley	do	W. P. Rider.
Half Dollar	Big Pine	Inyo	J. T. Irwin.
Montezuma	do	do	Gregg & Burt.
Whitman Ledge	do	do	
Casey	Bishop's Creek	do	C. T. Melvin, superintendent.
Mountain Chief	do	do	Casey Mining Company.
Polita	do	do	George Storey.
Belmont	Cerro Gordo	do	W. L. Hunter.
Enterprise	do	do	Hawler & Keller.
North Union Ayres	do	do	George Weist.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
South Buena Vista	Corro Gordo	Inyo	G. T. Hawley.
Union Consolidated	do	do	T. Borland.
Ygnacio	do	do	George T. Hawley.
American Union	Darwin	do	James Ponnor.
Branch Mint	do	do	N. S. Thompson.
Cabinet	do	do	
Coon	do	do	
Coso	do	do	
Defiance	do	do	P. Reddy.
Delmonte	do	do	S. P. Reid.
Essex	do	do	
Essex No. 2	do	do	N. S. Thompson.
Gipsey Queen	do	do	
Hemlock	do	do	
Inyo Consolidated	do	do	
Lookout	do	do	Frank Fitzgerald.
Mariposa	do	do	Robert Steer.
May Belle	do	do	Jackson & Gould.
Mininita	do	do	Frank Fitzgerald.
Modest	do	do	
Panamint	do	do	B. S. Hubbard.
Phoenix	do	do	Gorman & Eddy.
Prospector	do	do	
Red Cloud	do	do	
Sim Reed	do	do	
Riolly Milling	do	do	
Snow Canyon	do	do	J. C. Eddy.
Surprise Valley Mining and Milling.	do	do	N. G. Fairman, attorney.
Vulcan	do	do	
Wyoming	do	do	
Chloride	do	do	O. K. Berry.
Clipper Mine	do	do	J. D. Casey.
Golden Rule	do	do	Broder & Co.
Last Chance	do	do	Tim Connor.
Pipper, Riddle & Co	do	do	
Eighty-One	Deep Springs	do	
Pioneer	do	do	
Brown Monstor	Independence	do	A. W. Ebbeshutz.
Cleveland Mine	do	do	Jerry Mavis.
Eagle	do	do	P. Carter.
Golden Star	do	do	P. Carter and John Pattison.
Indiana	do	do	S. D. Woodhall.
Union	do	do	Reynolds & Negloan.
White Hill	do	do	John Alexander.
Modoc Consolidated	do	do	J. W. Pew, secretary.
William Grant	do	do	
Maxum Mill	do	do	John Anton.
McElvoy	do	do	
Swansea	Keeler	do	Thomas C. Boland
Coal Burner	Lone Pine	do	C. Meysan, superintendent.
Corona	do	do	Do.
Chuloh	do	do	S. F. Preston (S. F.).
Flagstaff	do	do	C. Meysan, superintendent.
Keynote	do	do	L. Lasky.
Long John	do	do	W. E. Smith, R. C. Spear.
Swansea Belle	do	do	E. H. Edwards & Co.
Brown	do	do	R. C. Spear.
El Toro	do	do	Do
Enterprise	Bakersfield	Kern	H. A. Blodget.
Hirshfield and Jacoby	do	do	
Longlara	do	do	Hirshfield & Webb.
Long Tom	do	do	W. H. Brood.
Sau Euridigio	do	do	L. C. Flores.
Pine Tree	Greenwich	do	J. M. Bullington, secretary, (S. F.).
Confidenco	Havilah	do	A. Brown.
Fairmont	do	do	William Johns.
Fame	do	do	John Hayes.
Friday	do	do	Phil Roberts.
Havilah Consolidated	do	do	D. L. Peese, superintendent.
Little Angel	do	do	P. O'Brien.
Mountain Chief	do	do	William Johns.
New World, N. ½	do	do	Ed. Heury.
Ophir	do	do	

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Oriental	Havilah	Kern	John Hayes.
Palmer, R	do	do	
Pluto	do	do	Max Helmes.
Santa Rosa	do	do	E. G. Martinez.
Warrington	do	do	Charles E. Sherman.
J. Ayres	Kernville	do	
Mineral Mountain	do	do	Charles Harley (S. F.).
José Morono	Havilah	do	
Sumner	do	do	J. Michaels & Co.
Tom Lane	do	do	Fred. Echoff.
J. L. Hoosock	Tehachapi	do	
Hugh Mann	Weldon	do	
Harding Bros	Coppervale	Lassen	
Jennie Collins	do	do	F. S. Chapman.
James Monroe	do	do	
Rising Star	do	do	
E. C. Ryder	do	do	
Brush Hill	Hayden Hill	do	E. Beckman.
Blue Bell	do	do	Preston, Hammond & Co.
Evening Star	do	do	W. C. Howard.
Golden Eagle	do	do	L. H. Hopkins.
Herbert Bros	do	do	
Brisly Hoes	do	do	
Hopkins, Consolidated	do	do	W. H. Nash.
Juniper	do	do	J. McFarling (Oakland).
New Hope	do	do	
Branham & McDow	Susanville	do	
Watson	do	do	Powers & Weisenberg.
Bavarian	Anaheim	Los Angeles	
William Arams	Gorman's station	do	
Castac	do	do	Hall & Frazier.
Golconda	do	do	D. M. Menzies, superintendent.
D. B. Milliken	do	do	
Stonewall	do	do	W. E. Downing.
Josephine	Ravenna	do	Veasey & Whidden.
Tohongo	do	do	L. Haight.
Eureka	Bear Valley	Mariposa	John L. Smith.
Smith Henderson	do	do	
Bandarita	Coulterville	do	C. L. Mast.
Compromise	do	do	
Flanagan	do	do	
Mary Harrison	do	do	G. Douglas.
Melvina	do	do	Do.
Potosi	do	do	Do.
Red Cloud	do	do	J. S. Carter, superintendent.
Virginia	do	do	C. L. Mast.
Wide West	do	do	J. L. Brown, superintendent.
Archie Dickenson	Cathey	do	G. W. Dickenson.
Christmas Gift	do	do	Do.
Maggie Johnson	do	do	Do.
Early Vein	Darrah	do	Revel Bros.
San José	do	do	R. F. Shafter & Son.
Vanderbilt	do	do	James H. Hall.
Cranberry	Hites Cove	do	O. H. Ward.
Hites Gold Mill	do	do	J. R. Hite & Co.
Amelia	Hornitos	do	George Chittenden.
John Ellen & Co.	do	do	John Ellen.
Armstrong Gulch	do	do	Jerome R. Brown.
N. A. Bailey	do	do	
William Carson	do	do	
Duncan Mine	do	do	Jerome R. Brown.
Enterprise Mill	do	do	R. W. Barcroft.
Eureka	do	do	A. W. Robinson.
Francis Mine	do	do	A. E. Chodzko (S. F.).
Green Valley Mine	do	do	J. C. Cook.
Grimshaw	do	do	
L. F. Jacobs & Co.	do	do	
Jersey	do	do	
Thomas W. Marshall	do	do	Mrs. J. Campedonica.
Moore Hill Mine	do	do	J. D. Craighan.
Mount Gaines	do	do	M. Huling.
New York Channel	do	do	Bryan.
Pilgrim	do	do	J. C. Cook.
Poolo	do	do	M. Huling.
Quartz Mountain	do	do	J. D. Craighan.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Red Mine.....	Hornitos.....	Mariposa.....	
Frank Sanchez.....	do.....	do.....	
Santo Domingo.....	do.....	do.....	Larmora & Armenta.
Silver Lead.....	do.....	do.....	A. B. Rawley.
F. J. Thorn.....	do.....	do.....	
Washington.....	do.....	do.....	Webber, superintendent.
Washington, No. 9.....	do.....	do.....	Do.
Yosemite Mill.....	do.....	do.....	M. Huling, superintendent.
Gonzales.....	Indian Gulch.....	do.....	F. T. Houghton, superintendent.
Breen Quartz.....	Mariposa.....	do.....	D. Breen.
Buena Vista.....	do.....	do.....	J. T. Turner, owner.
John S. Dietz.....	do.....	do.....	
M. Davany.....	do.....	do.....	
Green's.....	do.....	do.....	Green & Marsh.
J. H. Malone.....	do.....	do.....	
McCaffroy & Heiser.....	do.....	do.....	
M. J. Mullery.....	do.....	do.....	
North Hite and Yosemite.....	do.....	do.....	James A. Hennessey.
Robinson & Clark.....	do.....	do.....	
M. M. Rumley.....	do.....	do.....	
George Cliftenden.....	do.....	do.....	
Borasca Mine.....	Benton.....	Mono.....	
Ellingboer, Grove & Co.....	Mariposa.....	Mariposa.....	
Paddy McCann.....	do.....	do.....	Dr. W. H. Robinson.
Schanz Mine.....	do.....	do.....	
Black Ruby Ledge.....	Soledad.....	Monterey.....	
Borasca Mine.....	Benton.....	Mono.....	John F. Milnor, owner.
Comet.....	do.....	do.....	M. Harrington.
Illinois.....	do.....	do.....	Callahan & Isabel.
Indian Queen.....	do.....	do.....	William Adams, jr.
Little Emily Milling.....	do.....	do.....	W. H. Russell, superintendent.
Neal.....	do.....	do.....	James Goyan.
Silver Star.....	do.....	do.....	Tucker & Mitchell.
Bechtel Consolidated.....	Bodie.....	do.....	George W. Sessions, secretary (S. F.).
P. Dowd.....	Benton.....	do.....	
Kersage.....	do.....	do.....	John Kremlow.
Montgomery Mill.....	do.....	do.....	W. H. Russell.
M. Clinton.....	Bodie.....	do.....	
Bodie Consolidated.....	do.....	do.....	George W. Sessions, secretary (S. F.).
Bodie Tunnel.....	do.....	do.....	Charles C. Harvey, secretary (S. F.).
Bryant.....	do.....	do.....	R. T. Pierco.
Bulwer Consolidated.....	do.....	do.....	William Willis, secretary (S. F.).
Champion.....	do.....	do.....	2 Nevada Block (S. F.).
Comstock Slum Mill.....	do.....	do.....	John Wagner.
Consolidated Pacific.....	do.....	do.....	Martin Jones (S. F.).
Goodshaw.....	do.....	do.....	Charles C. Harvey (S. F.).
Lake View.....	do.....	do.....	Fox & Kellogg (S. F.).
Mono Gold.....	do.....	do.....	George W. Sessions, secretary (S. F.).
Oro.....	do.....	do.....	
Standard Consolidated.....	do.....	do.....	Lockwood & Davidson, J. W. Pow.
Sunshine Slum Mill.....	do.....	do.....	Do.
Syndicato.....	do.....	do.....	Jacob Stadtfeldt, jr., secretary.
Tioga Consolidated.....	do.....	do.....	62 Nevada Block (S. F.).
Aurora Mine.....	Bridgeport.....	do.....	
California Comstock.....	Clinton.....	do.....	Anderson & Trojan.
Homestake.....	do.....	do.....	C. F. McKinney.
Kentuck.....	do.....	do.....	H. E. Ballou (S. F.).
Lady Hayes.....	do.....	do.....	Dr. G. W. Simmons.
Silverado.....	do.....	do.....	Thomas Downing.
Star.....	do.....	do.....	D. T. Meagher.
Summer's Consolidated.....	do.....	do.....	Martin Jones, superintendent (S. F.).
Monto Cristo.....	do.....	do.....	A. Kilpatrick & Co.
Top Sawyer.....	Homer.....	do.....	
Collamer.....	Lundy.....	do.....	A. F. Hector (Bodie).
Ella Bloss.....	do.....	do.....	
Gold Band.....	do.....	do.....	Paul Rouze.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Golden Crown	Lundy	Mono	Thomas Bennett, president (New Bedford, Mass.).
Golden Prince	do	do	Paul Rouze.
Gorilla	do	do	A. A. Enquist, 436 Mont- gomery (S. F.).
Great Sierra Consolidated Silver	do	do	Thomas Bennett, president (New Bedford, Mass.).
Josephine	do	do	A. F. Hector (Bodie).
Josie Green	do	do	Do.
May Lundy	do	do	Fox & Kellogg (S. F.).
Easley	Calistoga	Napa	Renolds & Hartwell.
Palisade	do	do	R. F. Grigsby (Napa City).
Doekum and Silas Heath	French Corral	Nevada	James Madden.
Milton Water	do	do	H. Pichon, secretary (S. F.).
Robert's Red Ledge	do	do	Daniel Roberts.
Slide Quartz	do	do	C. E. Bradford, superintend- ent.
Badger Hill Mine	Grass Valley	do	H. B. Johnston, secretary.
Boston	do	do	A. B. Brady.
Green Mountain	do	do	S. T. Jones, secretary.
Golden Flat Quartz	do	do	John Skewes.
Hartery	do	do	William Loutzenheiser.
Idaho Quartz	do	do	Edward Coleman, superin- tendent.
O'Connor	do	do	Thomas J. Mitchell, secre- tary.
North Banner Tunnel	do	do	George Fletcher, manager.
Phoenix	do	do	Thomas J. Mitchell, secre- tary.
Rocky Bar	do	do	H. Sylvester.
State Ledge	do	do	A. B. Brady.
Powning, G. and S.	do	do	Do.
Alpha	do	do	William George.
Anglieie	do	do	Hugh Elias.
Badger	do	do	
Bowery Quartz	do	do	Charles W. Kitts.
Cambridge	do	do	Edward Coleman.
Centennial	do	do	James Bennallack.
Central North Star	do	do	Michael Kelley.
Center Silver	do	do	Rnttman Bros.
Coe	do	do	James Tretheway.
Eureka	do	do	James Watt.
General Stoneman	do	do	Samuel Granger.
Gold Point	do	do	James Bennallack.
Hobrook & Harrington	do	do	E. E. Holbrooke.
Horseshoe Gold and Silver	do	do	T. R. Cooley.
Kentucky	do	do	John Thomas.
Kohinoor	do	do	Thomas J. Mitchell.
Lucky	do	do	Edward Coleman.
Madison Hill	do	do	J. Smith.
Maryland	do	do	S. P. Dorsey.
Mohegan	do	do	John Skewes.
Morning Dew	do	do	Edward Coleman.
North Ex. Pittsburg Q.	do	do	Samuel Granger.
Osborn Hill	do	do	John Smith.
Pennsylvania Consolidated	do	do	M. Byrne, jr.
San Francisco	do	do	James Bennallack.
Scotfield Gold Quartz	do	do	Edward Coleman.
Town Talk	do	do	M. Byrne, jr.
Nicholl Quartz and Placer	do	do	H. B. Nicholl.
North Banner and Wood- ville Quartz	do	do	George Fletcher.
Lowell Hill	Lowell Hill	do	J. Martin Barney.
Blue Bell	Mayhert	do	J. G. Freedenhurr, superin- tendent.
Croesus Mine	do	do	B. J. Watson, superintend- ent.
Consolidated Wyoming	Nevada City	do	J. M. Buffington, secretary.
Chicago Quartz	do	do	W. F. Euglebright.
Deadwood	do	do	J. J. Lyon, superintendent.
El Capitan	do	do	F. N. Burns.
Emma Gold	do	do	Hethington & Hasting.
Goose Nest Mine	do	do	George W. Jones, superin- tendent.
Green Mountain Mine	do	do	Kistler Bros.
Lincoln	do	do	E. H. Moore, jr.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Mammoth Blue Gravel	Nevada City	Nevada	J. M. Binfington, secretary, (S. F.).
Merrifield	do	do	Citizens' Bank.
Mayflower	do	do	W. H. Martin.
Mountaineer	do	do	W. A. Dennis, superintendent.
Nevada County	do	do	E. C. Ashburn, secretary.
Nevada City Gold Quartz	do	do	J. W. Spague, superintendent.
Pittsburg Gold	do	do	Phil. Richards (S. F.).
Providence Gold and Silver	do	do	A. Wahrath & Hunter.
Rock Creek	do	do	J. E. C. Hall.
St John Quartz	do	do	John C. Curry.
Derbec Blue Gravel	do	do	Theodore Wetzel, secretary (S. F.).
American	do	do	E. H. Gaylord.
Chalk Bluff	do	do	John Spaulding.
Champion	do	do	J. B. Treadwell.
Evangeline	do	do	W. J. Organ.
General Grant	do	do	Edward Spaford.
Lone Star	do	do	George W. Jones.
Lord & Shockley	do	do	A. Lord.
Miller & Walling	do	do	J. M. Walling.
New England	do	do	Joseph Thomas.
North Merrifield	do	do	Henry McCoy.
Orleans	do	do	O. Maltman.
Orleans Extension	do	do	Do.
Potosi	do	do	John Byrne.
Red Dog	do	do	John Spaulding.
Rose and Duryeas	do	do	Do.
Spanish	do	do	E. H. Gaylord.
West Providence	do	do	Austin Wahrath.
Willow Valley	do	do	George W. Weld.
Yon Bet	do	do	John Spaulding.
W. H. Kistle	do	do	
Thomas Robinson	do	do	
Eureka	North Bloomfield	do	M. Arfman.
Mabel Gravel Mine	do	do	William H. Radford.
Walkenshaw	do	do	W. R. Williams.
Broderick	North Columbia	do	J. C. Broderick (S. F.).
Hawley & McIntosh	do	do	James McIntosh, superintendent.
Eureka Lake and Yuba Land.	North San Juan	do	Lazard Freres.
Lone Ridge Gravel	do	do	John T. Morgan (Nevada City).
J. P. Stidger	do	do	
Henry M. Place	do	do	N. C. Tulley.
Armstrong Ranch	do	do	
Boss Mine	do	do	
John Block	Rough and Ready	do	
Sheeler	do	do	J. Sheeler, superintendent.
M. Beglinger	do	do	
Hudson	do	do	John Marshall.
L. S. Johnson	do	do	
Chas. Mellish & Co	do	do	
Prince	do	do	H. C. Schroder, president.
A. W. Reese	do	do	
W. H. Rex	do	do	
Anton Silver	do	do	
Tarpey Quartz	do	do	
Albion Ditch	Spenceville	do	
Champion Gold	do	do	C. C. Bator, owner.
Golden Jacket	do	do	H. Malowaring, superintendent.
Keystone	Sweetland	do	Joseph Keifler, manager.
Buckeye	do	do	W. Warner, jr., (Chinese).
Manzanita	do	do	H. Pichoir, secretary (S. F.).
Eagle Bird Quartz	do	do	C. B. Shattuck, superintendent.
Fall Creek	Washington	do	C. P. Robinson (S. F.).
Hathaway, Frank & Co	do	do	
Yuba Quartz Gold	do	do	J. B. Haggin (S. F.).
G. S. Brown	Yon Bet	do	J. S. Goodwin.
Newark	do	do	Goodwin & Lund.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Plymara Flumo and Central Drift.	Washington	Nevada	Henry Richards, superintendent.
Cedar Quartz	Auburn	do	J. R. Nickerson.
Greely Blackman	do	do	H. G. Blackman (S. F.).
Mascotte Quartz	Oakland	do	W. H. Weldon.
Mount Oro	Truckee	do	Seth Martin.
Shamrock	do	do	Patrick Riley (S. F.).
G. P. Thurston	do	do	G. P. Thurston (S. F.).
W. B. Bourn	do	do	W. B. Bourn (S. F.).
Alta Placer	Alta	Placer	Boyle & Ranhart.
Baltimore Quartz	Auburn	do	William & Sampson Hale.
Rock Creek Quartz	do	do	
Mammoth Bar	do	do	J. W. Pew, secretary (S. F.).
Minna Picci	do	do	J. W. McCullough.
Anton Zantgraf	do	do	(Mine in El Dorado County.)
Thomas N. Hosmer	Bath	do	
Paragon	do	do	Breese & Wheeler.
Excelsior	Cisco	do	A. P. Whittell (S. F.).
Rob E. Lee	do	do	J. B. Griffin, secretary.
J. L. Huchius	Clipper Gap	do	
Golden Gate Consolidated	Colfax	do	A. D. Bowley.
Rising Sun	do	do	P. H. Krainer, Safe Deposit (S. F.).
Polar Star	Dutch Flat	do	John Spaulding.
Roash	Bath	do	W. H. Grinnell.
H. Ford	do	do	
P. C. White	do	do	
Extension Quartz	Colfax	do	Werry.
Little Pine Tree	do	do	Do.
Rising Sun and Big Oak Tree.	do	do	Do.
Southern Cross	Dutch Flat	do	C. T. Bridges.
Dalonega	do	do	
Nicholl, W. & P. (bankers)	do	do	
Dahlonaga	Emigrant Gap	do	Hoagland & Teal.
Last Chance	do	do	J. B. Haggin (S. F.).
Lindsley	do	do	C. P. Robinson (S. F.).
Pease & Allen	do	do	
Big Spring	Forest Hill	do	Richard Pecht.
Dardanelles	do	do	D. W. Maltby, superintendent.
Live Oak	do	do	F. Chappellet (S. F.).
Mayflower	do	do	Do.
Missouri	do	do	Charles Harley, owner.
Smith's Point	do	do	W. A. Cranage.
Baker Divide	do	do	William Dodge, jr.
Bryan, Hamlin & Romaldo	do	do	
Tiger	do	do	Adam McDonald.
Bear River Undercurrent	Gold Run	do	W. H. Kinder.
Canyon Creek	do	do	Gould & Kinder.
Dover Quartz	Iowa Hill	do	
Independence Hill and Blue Wing.	do	do	J. B. Hobson.
Indian Canyon	do	do	J. H. Neff.
Robert H. Lewis	do	do	
Mountain Gate	do	do	G. W. Snyder.
Poole Quartz	do	do	A. A. Poole.
Strawberry	do	do	William Watts.
J. J. McIntyre	do	do	(Damascus.)
Prospect Hill	do	do	H. Hoorman & Co.
Saint Patrick	Lincoln	do	Geo. D. Aldrich.
Boulder	do	do	
Big Gun	Michigan Bluff	do	H. L. Van Eman
Byrne	do	do	Byrne & Runbold.
Elk Horn	do	do	Meyers & Longforth.
Hidden Treasure	do	do	H. T. Power.
Never Sweat	do	do	Sutcliff Bros. & Burnham.
Rainbow	do	do	Edward Polifka.
Bald Mountain Mine	do	do	J. H. Neff & Co.
Wm. Hollis	do	do	
New Year's Mill	Newcastle	do	James F. McCurdy.
Crater	Ophir	do	Geo. D. Aldrich.
Doig	do	do	Shurtcliff & Robinson.
Belvoir Mine	do	do	
Gold Blossom	do	do	
Alabama Extension	Penryn	do	Dr. Wright, superintendent.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Chicago Phoenix.....	Peurnyn.....	Placer.....	Dan Buck, secretary (S. F.).
Gold Leaf.....	do.....	do.....	McCloud, Buffe, Mills & Grant.
James Laird.....	Pine.....	do.....	(Now Loomis.)
Lee Mine.....	do.....	do.....	J. S. Wall, superintendent.
Old River Placer.....	Rocklin.....	do.....	Geo. T. Hoadley.
Sam'l R. Bradley.....	Todds.....	do.....	Spring Garden, Forest Hill.
Ferrier, Harper & Co.....	do.....	do.....	Jas. S. Ferrier (Union Tunnel).
John Schippman.....	do.....	do.....	
J. H. White & Co.....	do.....	do.....	
Dead Horse.....	Yankee Jim.....	do.....	O. W. Henderson.
Bucks Valley Quartz.....	Bucks Ranch.....	Plumas.....	
Granite.....	do.....	do.....	A. Christie.
Homestake.....	do.....	do.....	Emery Thompson.
Crescent Mills.....	Crescent Mills.....	do.....	J. H. Isham, secretary.
Green Mountain Gold.....	do.....	do.....	C. G. Rogers.
Premium.....	do.....	do.....	R. W. Young.
Taylor-Plumas.....	do.....	do.....	M. B. Bransford.
Plumas-Eureka.....	Eureka Mills.....	do.....	Wm. Johns, secretary.
Genesee Gold.....	Genesee.....	do.....	Jos. Gruss, superintendent.
Cherokee.....	Greenville.....	do.....	P. H. Kraner (city).
New York Quartz.....	do.....	do.....	Thos. Freleaven.
Plumas National Gold.....	do.....	do.....	L. E. Austin.
Southern Eureka.....	do.....	do.....	Geo. Standert.
Steamboat.....	do.....	do.....	T. R. Chapin.
Cunningham Bros.....	La Porte.....	do.....	James Cunningham.
J. W. Hendell.....	do.....	do.....	
Suffolk.....	do.....	do.....	Israel Copland, superintendent.
Twelve Mile Bar.....	Meadow Valley.....	do.....	
Hapgood Bishop & Co.....	Mohawk.....	do.....	N. H. Hapgood.
Empire.....	Quincy.....	do.....	James Thompson.
Elizabethtown.....	do.....	do.....	A. E. Leavitt.
J. D. Goodwin.....	do.....	do.....	
Rice & Greaves.....	do.....	do.....	A. Halsey (city).
Plumas Consolidated.....	do.....	do.....	do.
Plumas Water.....	Spanish Ranch.....	do.....	N. Cadwallader (San José).
Rush Creek Flat.....	do.....	do.....	A. H. Brooks.
Silver Star.....	do.....	do.....	S. S. Taylor.
Spanish creek.....	do.....	do.....	do.
Morton, W. B.....	Taylorville.....	do.....	
Salesbury & Crocker.....	do.....	do.....	
Brown Bear.....	Washington.....	do.....	Andrew Jackson.
Raccoon.....	do.....	do.....	W. D. Weseman.
Sheldon.....	do.....	do.....	J. Phelan.
Summit.....	do.....	do.....	C. Mayn.
P. D. Echarde.....	do.....	do.....	
Echarde.....	Folsom.....	Sacramento.....	(Custom Mill).
James Jordon.....	Michigan Bar.....	do.....	
Welch & Gallogby's.....	do.....	do.....	Martin Welch.
Garfield.....	Calico.....	San Bernardino.....	William Raymond, manager (S. F.).
Goleonda.....	do.....	do.....	J. M. Bullington, secretary (S. F.).
Pinto.....	do.....	do.....	Henry Myers.
Young Waterman.....	do.....	do.....	Robert Anderson, owner.
Mammoth Chief.....	Daggett.....	do.....	J. B. Osborne.
Meteor.....	do.....	do.....	Clark Bros.
Morning Star.....	do.....	do.....	S. P. Blade.
Queen of the Desert.....	do.....	do.....	Clark Bros.
Sampson.....	do.....	do.....	S. P. Blade.
Odessa Silver.....	Hawley.....	do.....	W. W. Stow, president (S. F.).
Golden Queen.....	Providence.....	do.....	I. B. Cook.
La Practi.....	do.....	do.....	John Domingo.
R. C. Hall.....	do.....	do.....	
Tip Top Claim.....	do.....	do.....	R. Gorman.
Witt & Steidell.....	do.....	do.....	
Grey Hound.....	do.....	do.....	
Temescal Tin.....	Temescal.....	do.....	M. A. Thompson & Co.
Jim Blaine.....	Fenner.....	do.....	Abram Hoag.
Five Points.....	do.....	do.....	Charles J. Perkins.
North Star.....	Cromberg.....	Plumas.....	do.
Vermont Mine.....	do.....	do.....	L. V. Tefft.
Merain & Adams.....	Genesee.....	do.....	J. M. Jackson.
Alsop & Wing.....	Greenville.....	do.....	Charles Merain.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Alum Cove	Greenville	Plumas	
American	do	do	
Block & Gamble	do	do	
Blue Lead	do	do	
Bressler, Ellis & Firmstone	do	do	Macanley & Co.
Jeff. Buffington	do	do	(Big Flat.)
Cameron	do	do	(Cariboo.)
Crown Point	do	do	J. P. Hall.
Golden Curry	do	do	Do.
Hornet	do	do	
Highland Chief	do	do	
Ophir Consolidated	do	do	J. P. Hall.
Piazzoni Baptiste	do	do	
San José	do	do	
C. C. Brown	Prattville	do	
Malvern Hill	do	do	
Swiss	do	do	
H. McCollah	Michigan Bar	Sacramento	
G. H. Cook	Calico	San Bernardino	
King Mine	do	do	
Runover Mill	do	do	
George and Frank Silveria	do	do	
Fisher & Co	Needles	do	
Higgins & McDonald	do	do	
Cambria	Providenco	do	(Mescal via Ivanpah.)
John Carter	do	do	
Echo	do	do	
Red Cloud	do	do	
Kerr's Perseverance Mino.	do	do	
Relief Claim	do	do	
Desert Queen	do	do	Madison & Schoonmaker.
Lucky Louise	do	do	B. Collins.
Mountain King	do	do	Madison & Schoonmaker.
Yuma Mill	El Rio	San Diego	L. D. Roadebusch (lessee).
Gold Slate	Pinacate	do	Abram Hoag.
Good Hope	do	do	W. H. Van Plyke.
San Jacinto	San Jacinto	do	R. M. Moorer.
Shenandoah	do	do	S. Farley, superintendent.
Paymaster	Glamis	do	H. W. Blaisdell, superintendent.
City of Richmond	Julian	do	
Cowles Bros. & Chalmers	do	San Diego	
El Dorado	do	do	Col. I. R. Dunkelberger.
Keystone	do	do	
Owens	do	do	James Farrell & Co.
Shenandoah Mill	do	do	Farley.
Ensign	Pozo	San Luis Obispo	
First Chance	do	do	Horace Pullen.
Chas. Spurgeon	do	do	
J. K. Williams	Blair	Shasta	C. L. Williams, secretary (Stella).
Lookout	Anderson	do	Tim Quinn.
Bully Hill	Copper City	do	Chas. C. Jones (S. F.)
Winthrop	do	do	Do.
Brown Bear and Gopher	French Gulch	do	Frank Wheeler.
Cold Spring	do	do	Wm. T. Higgins <i>et al.</i>
Cooper	do	do	
Deadwood	do	do	Gibson Bros.
Empire Quartz	do	do	G. W. Meyer.
Niagara Quartz Mill	do	do	W. T. Coleman.
Old Washington Mill	do	do	John Syme.
Queen of Diamonds	do	do	Thos. Green.
Scorpion and Cold Spring	do	do	Col. Gannon & Co.
Chico	Igo	do	G. W. Atkins.
Continental Con.	do	do	Litten & Bennett.
Dixon and Cooper	do	do	E. M. Dixon
Hope	do	do	E. L. Ballou.
Manzanita	do	do	Do.
After Thought	Oak Run	do	Wm. B. Cahoon, secretary.
Donkey	do	do	John Goutte (Red Bluff).
Cumberland	Ono	do	R. G. Hart.
Sharp	do	do	Louis H. Sharp (S. F.).
Sherer & Pattler	Redding	do	
Compton Magee & Co.	Shasta	do	
Central	do	do	Bell & Hopping.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Gold Hill Hy	Shasta	Shasta	S. Grotfend, sr., and Wm. Magee.
Iron Mountain	do	do	John O. Earl (S. F.).
Lost Confidence	do	do	Do.
Spring Creek	do	do	Abraham Halsey (S. F.).
Mad Ox	do	do	Chennowith Bros.
Shasta Mill	do	do	O. P. Woodward.
Osceola	Alleghany	Sierra	Theo. H. Smith.
Rainbow Quartz	do	do	H. U. Noble, treasurer.
American Hill	Downieville	do	H. Spaulding, secretary.
Bald Mountain Extension Gold.	do	do	J. W. Orear, secretary.
Aden Denmire	do	do	
Egleston & Mowry	do	do	H. Spaulding, secretary.
Keystone	do	do	H. Scammon.
W. A. Morse	do	do	
James Patterson	do	do	
B. F. Folsom & Co	Fir Cap	do	
Julian & Richards	do	do	David Richards.
Bald Mountain Drift Gr	Forest City	do	Henry Pichovi, secretary (S. F.).
Pilgrim Mine	do	do	H. S. Saunders, superintendent.
Union Consolidated Gold	Gibsonville	do	Gerhard Kahrs.
Golden Giant	Mountain House	do	George H. Gale.
Alaska Quartz	Pike City	do	A. Judson, secretary (S. F.).
Grizzly Quartz	do	do	M. I. Anson.
James Lewis	Port Wine	do	
Cleveland and Sierra	Scales	do	Joel Bean, superintendent.
Fair Play	do	do	Frank Cowden.
Union Hill	do	do	A. Westall.
Buck Hy and Quartz	Sierra City	do	
Eureka	do	do	Adam Leary.
Chips Quartz	do	do	
Colombo Mill	do	do	W. H. Rodda.
Madden & Murry	French Gulch	Shasta	
Loco Foro	Iron Mountain	do	Fred. Symonds, sr.
Sydor Mine	do	do	Carson & Snyder.
West	do	do	
Lower Springs Milling	Lower Springs	do	George H. Atkins, secretary (Igo).
Balaklava	Ono	do	Barney Conroy.
Bully Choop	do	do	
Dolly Varden	do	do	J. E. Henry.
Mammoth	do	do	A. C. Titus.
J. J. Noonan	do	do	
Pound Cake	do	do	J. E. Henry.
Old Digging Mine	Redding	do	Larned, Cook & Furth.
Moore & Morton	Shasta	do	
Senor Mine	do	do	F. B. Simmonds, sr.
Gold Dirt	Stella	do	
Florida	do	do	
Mammoth	do	do	
Mexican	do	do	
A. B. Paul <i>et al.</i>	do	do	
Texas Mine	do	do	Hart & Dav.
Grant Mine	Waugh	do	Sherer & Shaffer.
Florence	Sierra City	Sierra	J. F. Mooney.
Mountain	do	do	H. Warner.
Sierra Buttes	do	do	Thomas Preston, superintendent.
Steelman & Hayes	do	do	P. Hayes, Richard Steelman.
Young America Con	do	do	Angle Busch, president.
Pioneer	Saint Louis	do	W. S. Chapman (S. F.).
Belmont Quartz	Table Rock	do	M. Burth, secretary.
F. Bruckerman	do	do	
California Gold	do	do	M. McDonald.
Sierra Phenix	do	do	
Troxel	do	do	Henry Troxel.
Virginia Gold	do	do	E. J. Jones, secretary.
Oro	Downieville	do	S. D. Hill.
Horseshoe	do	do	T. S. Ford, secretary.
Montpelier	do	do	
Wide Awake	do	do	
Bald Mountain	Forest City	do	A. Wallace.
Copper Hill Quartz	do	do	McKillican & Bloomfield.

MINES OF CALIFORNIA, 1887.—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Gold Beator.....	Forest City.....	Sierra.....	Charles Hogarty (Moore's Plat).
Gold King.....	do.....	do.....	W. H. Weldon (Oakland).
Gold Queen.....	do.....	do.....	Do.
Mammoth Springs.....	do.....	do.....	Do.
Telephone.....	do.....	do.....	Do.
Pioneer.....	Gibsonville.....	do.....	George W. Cox (Oakland).
Bed Rock.....	Pike City.....	do.....	William Phillips & Bro.
Fritz & Greenwalt.....	do.....	do.....	
General Grant.....	do.....	do.....	
Grizzly Ledger.....	do.....	do.....	Hanson.
Pacific.....	do.....	do.....	John W. Greenbark & Co.
Smiflowe.....	do.....	do.....	Winchester.
George Abbo.....	Sierra City.....	do.....	
Canessa & Castagnetti.....	do.....	do.....	
Empire.....	do.....	do.....	E. D. Ayer, superintendent.
Glidden & Stewart.....	do.....	do.....	
Gold Valley.....	do.....	do.....	
Hughes & Osterman.....	do.....	do.....	
Perry Consolidated Mine.....	do.....	do.....	
Salinas & Mercier.....	do.....	do.....	Mooney, Hutchinson & Co.
Black Bear.....	Black Bear.....	Siskiyou.....	John Daggett, superintendent.
Klamath Quartz.....	do.....	do.....	James B. Tompkins.
Cummins.....	Callahan's Ranch.....	do.....	Fred. Hellmuth.
Fortune.....	do.....	do.....	George H. Mitchell.
Montezuma.....	do.....	do.....	J. B. Parker.
Piorson & McMahon.....	do.....	do.....	P. Piorson.
Sugar Hill.....	do.....	do.....	G. W. Smith.
Squaw Gulch.....	do.....	do.....	J. Boulongear.
R. Aubrey.....	Cottage Grove.....	do.....	
Emott Bros.....	do.....	do.....	William Elliott.
A. Halvorson.....	do.....	do.....	
S. Stenshaw.....	do.....	do.....	
George Ten Eyck.....	do.....	do.....	
H. W. Thomas.....	do.....	do.....	
Lange Bros.....	Cottonwood.....	do.....	
J. P. Jordan.....	Etna Mills.....	do.....	
Johnson Quartz.....	do.....	do.....	A. M. Johnson.
Linsey Quartz.....	do.....	do.....	H. Jewett.
Montezuma.....	do.....	do.....	Alex. Parker & Sons.
Quartz Valley Placer.....	do.....	do.....	R. H. Campbell, owner.
W. P. Bennett.....	Forks of Salmon.....	do.....	
Hamil & Bloemer.....	do.....	do.....	W. P. Bennett.
Cameron.....	Fort Jones.....	do.....	H. P. Mathewson.
Crooker Bros.....	do.....	do.....	
Deadwood.....	do.....	do.....	
Grizzly Quartz.....	do.....	do.....	William Bolds.
Leonard.....	do.....	do.....	
T. Martin & Co.....	do.....	do.....	
George Tompkins.....	do.....	do.....	
China Bar.....	Hamburgh.....	do.....	Myers & Perkins.
Hoosier Hill.....	do.....	do.....	
Kinsman.....	do.....	do.....	N. G. Kinsman.
Centennial.....	Honolulu.....	do.....	William N. Gott.
Empire Bar.....	do.....	do.....	Do.
Eastlick Bros.....	Oro Fino.....	do.....	
Turk Quartz Mill.....	do.....	do.....	Fred Turk.
John Young.....	do.....	do.....	
F. Ahlgreen & Co.....	Sawyor's Bar.....	do.....	Frank Ahlgreen.
John Anderson.....	do.....	do.....	
Wm. Burns.....	do.....	do.....	
Klamath Quartz.....	do.....	do.....	James E. Keane.
Kuckenbach & Co.....	do.....	do.....	
Last Chance.....	do.....	do.....	
Mohr & Lubin.....	do.....	do.....	Cyrus Lanyon.
Morning Star Quartz.....	do.....	do.....	
Martin Olson.....	do.....	do.....	
J. Ork.....	do.....	do.....	
Columbia Quartz.....	Scott River.....	do.....	George Cassen.
Mabel.....	do.....	do.....	H. J. Tompkins.
Thos. MacGuffey & Co.....	do.....	do.....	Thomas Magoffey & Bro.
San José Mill.....	do.....	do.....	G. A. Hicks.
Fort Goff.....	Seiad Valley.....	do.....	W. H. Wood & Co.
Mississippi Mine.....	do.....	do.....	W. T. Grider.

MINES OF CALIFORNIA, 1887—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Golden Island	Yreka	Siskiyou	William McConnell, superintendent.
Hawkinsville	do	do	Mannell A. Brazil & Co.
Matt Miller & Co	do	do	Philip Mott & Co,
Yreka Creek Gold	do	do	A. E. Schwatka, superintendent.
Hartstrand & Brackett	Callahan's Ranch	do	J. J. Loftus, superintendent.
Andrew Hamm	do	do	Do.
Hansen Mine	Ferks of Salmon	do	Do.
J. E. Horn	do	do	John S. Lowden, jr.
Kuntz Flat	do	do	
McNeal & McLanethlin	do	do	
Chas. Walker & Co	Fort Jones	do	
Jacob Daugle	Oro Fino	do	
Georgi	Scott River	do	Fisher & Co.
Henry Preckel	do	do	
Wm. Roehm	do	do	
Henry Tompkins	do	do	
Raddlefinger & Turk	Sawyer's Bar	do	
Laufon & Co	do	do	
John Carroll	Yreka	do	
Andrew Hamm	Knight's Ferry	Stanislaus	
William King	do	do	
James Punt'y	do	do	
Alsen Gold	La Grange	do	J. A. Hammond.
Daisy	do	do	Do.
Olsen Gold	do	do	Thos. Bell (S. F.).
Don Juan Point	Big Bar	Trinity	G. W. Henstis.
Vances Bar	do	do	C. J. Johnson.
Good Enough and Sarvis	Couer	do	George C. Sarvis.
Armstrong	do	do	Harvy Smith & Co.
Lemmel Brown	do	do	
Grover Cleveland	do	do	Powell & Loring.
Hard Tack	do	do	Ladd & Clements.
Hunter	do	do	Thos. and Jas. Sinclair.
Detlep Hansen	do	do	
Modoc	do	do	G. V. Hely.
Mountain Boomer	do	do	Ladd & Clements.
Mountaineer	do	do	E. T. Bagley, superintendent.
Ridgeway	do	do	George Dean.
Rocky Point Ledge	do	do	
O. P. Sherwood	do	do	Stephen Serwood.
Tough Nut	do	do	Frank J. Ladd & Co.
Uncle Sam	do	do	Charles E. Huff.
William Clements	do	do	
John A. Hubbard	do	do	
Ingraham's Bar	do	do	
Pike County Bar	do	do	
Rogers & Co	do	do	
Smiley Claim	do	do	
Holy Terror	Francis	do	Robert Wilkinson.
Uncle Sam	do	do	Corson & McDonald.
Virgin	do	do	John Hackleman.
Yankee Boy	do	do	Charles E. Huff.
Bartold	Lewiston	do	L. McDonald.
Barton Quartz	do	do	M. Sebastian.
Bismark Quartz	do	do	George Klein.
Black Bear	do	do	J. E. Gibson.
Bonanza	do	do	William Lappan.
Boston	do	do	Do.
Brown Bear	do	do	Henry Martin.
Centennial	do	do	
Confidence	do	do	C. Hickey.
Henry Clay	do	do	Davis & Frick.
Klein Quartz	do	do	George Klein.
Montezuma	do	do	Do.
Venecia	do	do	C. L. Barkemore.
Carter Bar	Lowdens Bank	do	R. W. Bates & Bro.
T. & L. Frey	do	do	
Poker Bar	do	do	O. E. Lowden.
Laws & Gilyean	Junction City	do	Oscar Laws.
Sheridan Bros	do	do	John Sheridan.
Harvey Bros	Weaverville	do	James Harvey.
Moore & Day	do	do	James M. Moore.

MINES OF CALIFORNIA, 1857—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Rule Bros.....	Westerville.....	Trinity.....	W. J. Rule.
Thanksgiving.....	do.....	do.....	Pailey, Bergin & Co.
William Levasseur.....	Coner.....	do.....	
New York and Ellen.....	do.....	do.....	W. Mills & Co.
Capt. H. S. Soule.....	do.....	do.....	
Ferry Bar.....	Douglas City.....	do.....	R. Silcox & Co.
Roe.....	do.....	do.....	Gardiner & Thomas.
Donald & Frank.....	Deadwood.....	do.....	
Vermont.....	do.....	do.....	J. Falan.
Day, Hubbard & Givens.....	Junction City.....	do.....	
Yellowstone.....	do.....	do.....	S. F. Coleman & Co.
G. P. Greenleaf.....	do.....	do.....	
F. Marsh.....	do.....	do.....	
William Farmer.....	Weaverville.....	do.....	
Oregon Gulch Mount.....	do.....	do.....	O. M. Loveridge.
Portillo & Valencia.....	do.....	do.....	
CConnell & Osgood.....	do.....	do.....	
Occidental & Bullychoop.....	Lewiston.....	do.....	C. Frick.
Jonathan Smith & Co.....	Minersville.....	do.....	
Double Standard.....	Visalia.....	Tulare.....	Stephen Barton.
John Holinquest.....	do.....	do.....	
Last Chance.....	White River.....	do.....	D. B. James.
Lucky Curse.....	do.....	do.....	Burton & James.
Old Eclipse.....	do.....	do.....	A. J. Matby.
Keyes Mining.....	do.....	do.....	David B. James, superintendent.
Bacigalispí.....	Visalia.....	do.....	
J. H. Tranger.....	do.....	do.....	
White Chief.....	do.....	do.....	
Butler Quartz.....	Big Oak Flats.....	Tuolumne.....	D. F. Longfellow.
Raggid Quartz.....	do.....	do.....	
Republican Quartz.....	Chinese Camp.....	do.....	Gurdon Brown.
Argentum.....	Columbia.....	do.....	J. Pownall & Co.
Atlas.....	do.....	do.....	S. Knapp.
Annie.....	do.....	do.....	Shraff & Blunett.
Bald Mountain.....	do.....	do.....	Hudson & Stueker.
Biddle & Whitehouse Quartz.....	do.....	do.....	Biddle & Whitehouse.
Continental.....	do.....	do.....	R. C. Davis.
Defiance.....	do.....	do.....	
Erving Quartz.....	do.....	do.....	William Erving.
Experimental Gold.....	do.....	do.....	Louis Engelke & Co.
Gem.....	do.....	do.....	J. M. Patterson & Bro.
Golden Era.....	do.....	do.....	Lewis Page.
Haight Mill.....	do.....	do.....	
Hennessey Mine.....	do.....	do.....	D. C. Hennessey & Co.
Hope.....	do.....	do.....	N. A. Arnold.
Italian.....	do.....	do.....	Joaquin Deluke.
Jacobs & Hart.....	do.....	do.....	Michael White.
Kincaid Flat.....	do.....	do.....	Do.
Kitty Milling.....	do.....	do.....	
Little Bonanza.....	do.....	do.....	
Magenta.....	do.....	do.....	David Levy.
Nervie.....	do.....	do.....	Joaquin Deluke.
Never Sweat.....	do.....	do.....	N. Ogden & Co.
Newbaumer.....	do.....	do.....	H. H. Eames.
Old Tuolumne.....	do.....	do.....	David Levy.
Oro Fino.....	do.....	do.....	
Perole.....	do.....	do.....	Asa Bacon.
Rifle.....	do.....	do.....	J. K. Hunter & Co.
Riverside Quartz Mill.....	do.....	do.....	Do.
Shine & Ogden.....	do.....	do.....	
Tiger.....	do.....	do.....	W. F. Jones.
Tuolumne Mill.....	do.....	do.....	B. G. Davis.
Belcher Consolidated.....	Groveland.....	do.....	
Blue Lizzard.....	do.....	do.....	Thomas B. Reid.
Cosmopolite.....	do.....	do.....	J. & William Moore.
Lewellyn James.....	do.....	do.....	
Kanaka Quartz.....	do.....	do.....	W. R. Shaw.
Mount Zion.....	do.....	do.....	Hunter & Richards.
Zielsaorf.....	do.....	do.....	Hunter & Zielsaorf.
Alabama.....	Jamestown.....	do.....	W. N. Harris.
App.....	do.....	do.....	John App.
Crystalline.....	do.....	do.....	Seeler Bros.
Gem.....	do.....	do.....	W. N. Harris.
Hestop Quartz.....	do.....	do.....	E. D. Bowman.

MINES OF CALIFORNIA, 1887.—Continued.

Name of mining company.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Quartz Mountain Gold.....	Jamestown.....	Tuolumne.....	E. D. Bowman.
Montezuma.....	Montezuma.....	do.....	T. M. Lane.
Bonanza.....	Sonora.....	do.....	Captain Colly.
Buchanan Mill.....	do.....	do.....	John A. Davis.
Cardinal.....	do.....	do.....	
Divols Bonanza.....	do.....	do.....	Captain Colly.
Garfield.....	do.....	do.....	John Williams and Philip Row.
Garrett & Sons.....	do.....	do.....	W. E. Garrett.
Golden Gate.....	do.....	do.....	H. G. Wetmore.
Gold Hunter.....	do.....	do.....	
Hazel Dell.....	do.....	do.....	M. B. Silver.
Hunter Mine.....	do.....	do.....	Josiah Phillips.
Hairman & Keil.....	do.....	do.....	
Justice.....	do.....	do.....	
Knot and Golden Star.....	do.....	do.....	Josiah Phillips.
William Lewis.....	do.....	do.....	
Louisiana.....	do.....	do.....	C. Lambardo.
New Albany.....	do.....	do.....	Dr. Walker.
Patterson Gold Mill.....	do.....	do.....	Edwin A. Rogers.
Sell.....	do.....	do.....	A. P. Johnson.
Sonora Gold and Investment.....	do.....	do.....	W. H. Culver.
Wilson.....	do.....	do.....	Frank McCann.
Yancy Quartz.....	do.....	do.....	T. M. Yancy.
Black Oak.....	Soulsbyville.....	do.....	C. S. Dowe.
Confidence Mill.....	do.....	do.....	
Sonora Gold.....	do.....	do.....	J. Leechman, superintendent.
Soulsby.....	do.....	do.....	Do.
Starr King Gold.....	do.....	do.....	Do.
Buchanan.....	Summerville.....	do.....	James Hamilton.
Dead Horse.....	do.....	do.....	Geo. B. Carter.
Morning Star.....	do.....	do.....	J. Clark.
Smith Bros.....	do.....	do.....	
Star.....	Columbia.....	do.....	Geo. T. McPherson.
Yankee Hill Gravel.....	do.....	do.....	L. Donders.
Differaon Bros.....	Groveland.....	do.....	
Middle Fork.....	do.....	do.....	F. Kelly.
Jno. F. Pod.....	do.....	do.....	
Hurbert Shaw.....	do.....	do.....	
Stockton.....	Sonora.....	do.....	
Wm. Hibbing.....	Soulsbyville.....	do.....	
Clark & Brown.....	Summerville.....	do.....	
P. Easton.....	do.....	do.....	
Louisiana.....	do.....	do.....	
Daneborg.....	Brown's Valley.....	Yuba.....	N. A. Rideout, secretary.
Colusa County.....	Brownsville.....	do.....	H. C. Crowder.
Steel.....	do.....	do.....	Thos. H. Steel.
James Tufford.....	do.....	do.....	
Union.....	do.....	do.....	Mannel Roderick, manager.
Washington.....	do.....	do.....	E. B. Sparks.
Brandy City.....	Camptonville.....	do.....	Chas. Allenberg, secretary (S. F.).
Great Eastern.....	do.....	do.....	Thos. Williams.
Luccan Quartz.....	Hansonville.....	do.....	B. D. Rodman.
Higgins Ledge.....	Marysville.....	do.....	Garrett & Elder.
Marysvill, T. and Q.....	do.....	do.....	F. E. Smith.
Landis and Loveridge.....	Smartsville.....	do.....	
Empire Hill.....	Strawberry Valley.....	do.....	Geo. W. Wilson.

MINES OF DAKOTA.

Name.	Location.	Name.	Location.
Adelphia	Deadwood.	Jefferson	Deadwood.
Big Bend Hydraulic...		Johnson	Rapid City.
Bullion	Do.	La Plata.....	Deadwood.
Baxton	Do.	Liberty.....	Central City.
Castle Chief.....	Rapid City.	Luray	Rapid City.
Center Shot.....	Deadwood.	Monna	Deadwood.
Climax	Do.	Mugwump.....	Do.
Caledonia.....		Mutual	Do.
Cora	Galena.	Pocahontas	Do.
Deadwood Terra.....	Lead City.	Portland.....	Central City.
Elk Mountain Carbonate.....	Central City.	Rattler	Deadwood.
Erie	Deadwood.	Retriever	Do.
Enterprise.....	Do.	Richmond	Deadwood and Galena.
Eureka	Do.	Rising Sun	Deadwood.
Far West.....	Do.	Rubicon	Do.
Golden Summit.....	Rapid City.	Ruby Bell	Do.
General Merritt	Galena.	Rutherford B. Hayes..	Galena.
Highland.....	Lead City.	Seabury-Calkins, Consolidated	Carbonate.
Hartshorn.....	Deadwood.	Seg. Iron Hill	Deadwood.
Hermosa (hydraulic)...		Silver Ridge.....	Do.
Hester A	Galena.	Spanish R.....	Do.
Horseshoe.....	Do.	Uncle Sam.....	Do.
Homestake	Lead City.	U. S. Grant	Do.
Iron Hill.....	Deadwood.	West Virginia.....	Do.
Isadorah.....	Lead City.		

MINES AND MINING FIRMS OF IDAHO.

Name.	Location.	Name.	Location.
Camas No. 2	Gillman, Alturas County.	Proutsite	Silver City.
Columbia and Bearer ..	Sawtooth, Alturas County.	Alturas.....	Rocky Bar.
Crooke & Co., A. J.	Clayton.	B. F. White	Gibbonsville.
Stein & Teed.....	Mineral.	Viola Smelter.....	Nicholia.
Senate	Galena.	Forest King	Idaho City.
Saulsbury & Co.....	Bay Horse.	General Custer	Custer.
Sampson & Stewart....	Ruthberg.	Gold Hill	Quartzburg.
Silver Mountain	Boisé County.	Elmira	Banner.
Scales & Wagner	Silver City.	Carrie Leonard	Ketchum.
A. J. Sands	Do.	Milo Smelter	Wardner.
Jacob Reeser	Rocky Bar.	Oro Fino	Silver City.
James Ruth	Ruthberg.	Cos-Mos	Do.
Lost River	Cliff.	Ruby	Heath.
R. H. Leonard.....	Silver City.	Silver Moon	Texas.
Queen of the Hills	Bellevue.	Helena	Wardner.
Idahoan	Gillman.	Hub	Martin.
Kootenai.....	Kootenai.	Spring Mountain	Lemlii.
De Lamar.....	Wagontown.	Sky Lark.....	Custer.
Doaiphan	Gilman.	Minnie Moore	Bellvne.
		Philadelphia Smelter ..	Ketchum.

MINES AND MINING FIRMS OF NEW MEXICO.

Name of mine, owner or agent.	County.	Post-office address.
Atlantic Mine	Grant	Pinos Altos.
Atwood Mining Company	do	Shakespeare.
Argo Mining Company	do	Silver City.
Alhambra Mine	do	Do.
Andy Johnson	Sierra	Kingston.
Batchelor Mine	Grant	Evansville.
Beatrice Mining and Smelting Company	do	Pinos Altos.
Bell & Stevens, Messrs.	do	Do.
Balbach Mining Company	do	Silver City.
Bremen Mining and Milling Company	do	Do.
Billing, Gustav	Socorro	Socorro.
Buckhorn Mining Company	do	Do.
Benson, Chandler & Thomas	Lincoln	White Oaks.
Bonnell, E. R., & Company	do	Do.
Blair & Cameron	Socorro	Chloride.
Black Colt Mine	Sierra	Kingston.
Bullion Mine	do	Do.
Brush Heap Mine	do	Do.
Beek Mine	Grant	Steins Pass.
Batchelor Mine	do	Do.
Chance Mine	do	Gage City.
Carlisle Mine	do	Carlisle.
Commercial Mine	do	Georgetown.
Cooney Silver Mining Company	Socorro	Cooney.
Christmas Mine	Lincoln	Bonito.
Comstock Mine	Sierra	Kingston.
Caledonia Mine	do	Do.
Cunningham, D. R.	Grant	Gold Hill.
Copper King Mine	do	Hachita.
Denning Sampling Works	do	Deming.
Dodd, James	do	Silver City.
Denniston, John	do	Do.
Dennis, John	do	Hachita.
Easton, E. W.	Socorro	Socorro.
Florence Silver Mining Company	do	Magdalena.
Flagler Reduction Works	Grant	Silver City.
Four Creeks Mining Company	Colfax	Springer.
Featherstone, G. W.	Socorro	San Marcial.
Ford, Charles H.	Lincoln	Bonito.
Gardiner, J. L., & Co.	do	Georgetown.
Golden City Mining Company	Santa Fé	Golden.
Graphic Mine and Smelting Company	Socorro	Socorro.
Graphic Mine	do	Magdalena.
Gypsy Queen Mine and Milling Company	Grant	Pyramid.
Glorietta Mining Company	do	Silver City.
Great American Mining Company	do	Do.
Grand Tower Mining Company	Socorro	Socorro.
Gila River and Telegraph Mountain Mining Company.	Grant	Telegraph.
Glass, J. G.	Lincoln	White Oaks.
Gillette, M. G.	Sierra	Kingston.
Hualpai Mining Company	Bernalillo	Albuquerque.
Howe, W. B., & Co.	Grant	Evansville.
Head & Hurst	do	Gage City.
Handy & Fisk	Santa Fé	Golden.
Hustop, D. D.	Grant	Last Chance.
Homestake Gold and Silver Mining Company	Lincoln	White Oaks.
Hachita Mining Company	Grant	Hachita.
Iconoclast Mining and Milling Company	Sierra	Kingston.
Illinois Mine	do	Do.
Iron Clad Mine	do	Do.
Iron King Mine	do	Do.
Iconoclast Mine	Grant	Lake Valley.
Imperial Silver Mining and Smelting Company	Socorro	Magdalena.
Indus Mine	Grant	Shakespeare.
Ida Hill Mine and Smelting Company	Socorro	Socorro.
Jewett, D. J. M.	Lincoln	White Oaks.
Kistler, J. H.	Grant	Carlisle.
Kollenberg & Co.	do	Silver City.
Kingston Sampling Works	Sierra	Kingston.
Kely Mine	Socorro	Magdalena.
Kellum, C. L.	Gold Hill	Gold Hill.
Lochiel Mining Company	Sierra	Kingston.
Lyons & Campbell	Grant	Silver City.
Lenoir, L. W.	Doña Ana	Las Cruces.
Lindner, Wormser & Co.	Grant	Deming.
Lady Franklin Mine	Sierra	Kingston.
Log Cabin Mine	do	Do.

MINES AND MINING FIRMS OF NEW MEXICO—Continued.

Name of mine, owner or agent.	County.	Post-office address.
Lake Valley Silver Mining Company	Grant.....	Lake Valley.
Longmaid, J. H.	do	Carlisle.
Mimbres Mining Company	do	Georgetown
Massachusetts and New Mexico Consolidated Mining Company.	do	Hachita.
Magdalena Mining Company	Socorro.....	Magdalena.
Mammoth Consolidated Milling, Mining and Smelt- Company.	Santa Fé	Santa Fé.
Massachusetts and New Mexico Mining Company..	Grant.....	Silver City.
Meredith & Ailman	do	Do.
Montezuma Mining Company	do	Do.
Merritt Milling and Mining Company	Socorro.....	Socorro.
Macgregor Mine	Grant.....	Silver City.
Memphis Mine	Doña Aña	Organ.
Montezuma Mining Company	Grant.....	Elizabethtown,
Milagos Mining Company	Bernalillo	Hell Cañon.
Mead, W. B. (owns in New Mexico)	do	Tucson, Ariz.
Nacimiento Mining Company	Bernalillo	Nacimiento.
Nowcomb, W. H.	Grant.....	Silver City.
New Mexico and Illinois Mining and Manufacturing Company.	San Miguel.....	Copper City.
New Year Mining Company	Grant.....	Hillsboro.
New Mexico Prospecting and Mining Company	San Miguel	Las Vegas.
Niagara Mining and Refining Company	Grant.....	Pyramid.
New York and New Mexico Milling, Mining, and Smelting Company.	Santa Fé	Santa Fé.
Ortiz Mining Company	do	Cerillos.
Old Man Mining Company	Grant.....	Fleming.
Parapet Mining Company	do	Georgetown.
Payne, Washington & Co.	do	Do.
Pacific No. 2 Mine	do	Pinos Altos.
Pyramid Mining Company	do	Pyramid.
Pecos River Mining Company	Santa Fé	Santa Fé.
Peabody Mining Company	Grant.....	Silver City.
Peacock Mine	do	Do.
Pearloss Mine	do	Do.
Peacock Mining Company	Socorro.....	Cooney.
Parsons Gold Mining Company	Lincoln.....	Bonito.
Pocahontas	Grant.....	Stein's Pass.
Ruelano Mining Company	Santa Fé	Santa Fé.
Reynold, Mrs. J.	Grant.....	Georgetown.
Río Grande Smelting Company	Socorro.....	Socorro.
Reno, Frank	Grant.....	Lordsburgh.
Raby, Joseph	do	Do.
Robert E. Lee	do	Pyramid.
San Miguel Mining Company	San Miguel.....	Copper City.
San Miguel Supply Company	do	Do.
Scholl, A. J.	Grant.....	Evansville.
Silver Dell Gold and Silver Mining Company	do	Georgetown.
Smith & Tower	do	Do.
Satisfaction Mine	do	Do.
Standard Mining Company	do	Gold Hill.
Superior Mining Company	Sierra.....	Kingston.
Sierra Bella	Grant.....	Lake Valley.
Sierra Bonanza	do	Do.
Sierra Grande	do	Do.
Smyth, O. R.	do	Lordsburgh.
Skillieorn, William	do	Pinos Altos.
Smith & Ailnam	do	Do.
Santa Rita Copper and Iron Company	do	Santa Rita.
Superior Mining Company	do	Shakespeare.
Seneca Silver Mining Company	do	Silver City.
Silver Bar Mining Company	do	Do.
Silver City Concentrating and Smelting Works	do	Do.
Solid Silver Mining Company	do	Do.
Socorro Mining and Prospecting Company	Socorro.....	Socorro.
San Pedro Mining Company	Santa Fé	Santa Fé.
Silver Hill Mining Company	Socorro.....	Cooney.
Star Mining Company	Bernalillo	Hell Cañon.
Straban & Stevens	do	Do.
Solid Silver Mining Company	do	Bullard's Peak.
Sheridan Mining Company	Socorro.....	Cooney.
Shields, E. G.	Doña Aña	Las Cruces.
Standard Mutual Mining Company	Grant.....	Shakespeare.
Soldier Mine	Lincoln.....	Bonito.
Stone, George	Grant.....	Deming.
Sterling, James	do	Lordsburgh.
Thomas & Co.	Lincoln.....	White Oaks.

MINES AND MINING FIRMS OF NEW MEXICO—Continued.

Name of mine, owner or agent.	County.	Post-office address.
Tonkin, W. C	Grant.....	Deming.
Trense, Captain.....	do.....	Georgetown.
Treasury Mountain Mining Company.....	do.....	Fleming.
Thompson & Chapman.....	Sierra.....	Kingston.
Tres Hermanos.....	Grant.....	Deming.
Templar.....	Sierra.....	Kingston.
Tender Foot.....	Grant.....	Malone.
Utter, George H.....	do.....	Silver City.
Volcano Mining Company.....	do.....	Evansville.
Virginian.....	Sierra.....	Kingston.
Wynau Mining Company.....	Grant.....	Evansville.
White Fan Mining Company.....	Socorro.....	Socorro.
Wagner, Peter.....	Grant.....	Pinos Altos.
Webster, W. M.....	do.....	Hillsboro.
Wyman & Goodman.....	Doña Ana.....	Gold Hill.
Yours Truly Mine.....	Lincoln.....	Bonito.

MINES OF OREGON, 1887.

Name of mine, company, or firm.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
James and Jerry Basley.....	Baker City.....	Baker.....	
Akers.....	do.....	do.....	
Benson.....	do.....	do.....	
Brown.....	do.....	do.....	John Cabell (Bellevue).
Cleveland.....	do.....	do.....	
James Gordon.....	do.....	do.....	J. G. Ross.
J. Lew & Co.....	do.....	do.....	
Minnesota.....	do.....	do.....	Conter & Co.
Monumental Silver.....	do.....	do.....	John S. Sacks.
Mowe & Co.....	do.....	do.....	
Pocahontas.....	do.....	do.....	L. W. Nelson.
Nover Sweet.....	do.....	do.....	Moses Carpenter.
Palmer & Dale.....	do.....	do.....	
Power & Co.....	do.....	do.....	
Tom Paine.....	do.....	do.....	George L. Hayes.
Virtue Gold Mine.....	do.....	do.....	G. W. Grayson, S. F.
Virtue Quartz.....	do.....	do.....	M. Hyde.
Tabor and Janney Gold.....	do.....	do.....	
Blue Canyon Gulch.....	Auburn.....	do.....	Jesse Jones.
French Gulch.....	do.....	do.....	Duckworth & Littlefield.
Marysville Water.....	do.....	do.....	N. C. Haskell.
Styces.....	do.....	do.....	Sam Lung.
Canyon.....	Humboldt Basin.....	do.....	S. & H. Colt.
Humboldt Basin.....	do.....	do.....	Judd Blair.
Lake Quartz.....	do.....	do.....	George W. Lak
Rich Creek Quartz.....	Malheur City.....	do.....	James Lynn.
John Campbell & Co.....	do.....	do.....	
Bonanza Mine.....	Parker district.....	do.....	
Nesbett.....	do.....	do.....	
Parker & Winters Diggings.....	do.....	do.....	
Green Discovery and Monumental Quartz Lodes.....	Rye Valley.....	do.....	John W. Drew, superintendent.
Macedonia Quartz Lode.....	do.....	do.....	John W. Drew, manager.
Now England and Oregon Lode.....	do.....	do.....	Do.
Mammoth Mine.....	Sumpter.....	do.....	S. R. Baisley.
Monument.....	do.....	do.....	James Riley.
Sumpter.....	do.....	do.....	Young & Kimball.
Whipple Gulch.....	do.....	do.....	Charles Duckworth.
Sumpter Valley.....	do.....	do.....	Joseph Watson, jr.
Fred. Bohna.....	Weatherby.....	do.....	
Poorman.....	do.....	do.....	E. W. Wood, superintendent.
M. W. Porphyry.....	do.....	do.....	Do.
Oriental.....	do.....	do.....	Do.
Now York.....	do.....	do.....	Do.
Gold Mountain.....	do.....	do.....	Do.
Gold Ridge.....	do.....	do.....	Capt. J. Myrick, superintendent.
George Moore.....	do.....	do.....	
Weatherby.....	do.....	do.....	A. J. Weatherby.
Wood, Eastbrooke & Co.....	do.....	do.....	C. H. Williams.

MINES OF OREGON, 1887—Continued.

Name of mine, company, or firm.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Beach	Newport.....	Benton	
Daniel Hastings.....	Waldport.....	do	
D. H. Williams.....	do	do	
Dr. George Elgin	Myrtle Point	Coos	
S. Hudson.....	do	do	
A. B. Green & Co	do	do	
Thomas Green.....	do	do	
Robert Low.....	do	do	
Salmon Quartz Mine.....	do	do	Moore & Knapp.
John Ragsdale.....	do	do	
Beach	Randolph.....	do	James Morrison.
Black Hawk.....	do	do	Abraham Rose.
Coquille Black Land.....	do	do	John Thompson.
Eagle	do	do	A. Preshbacker.
Pioneer.....	do	do	Simon R. Lane.
Randolph.....	do	do	Do.
James Aiken	Eckley.....	Curry.....	
George W. Bailey	do	do	
Crawford	do	do	C. Wilbur, San Francisco.
Doc Ireland.....	do	do	S. Hudson.
James McBride.....	do	do	
McGlone.....	do	do	James McGlone, sr.
Sixes Mine.....	do	do	Thomas Wilson.
W. H. Wilbur.....	do	do	
Big Bend	Ellensburg	do	Max Lavgeain.
John Billings.....	do	do	
Camp Blanco Beach	do	do	P. Hughes.
Charles Fountan.....	do	do	
Gold Beach	do	do	S. P. Gardner.
Hunter's Cove.....	do	do	E. S. Gibson.
Illinois	do	do	J. M. Fry.
Solitude	do	do	John Fitzhugh.
Tichnor's Defeat	do	do	Do.
Gus Walker	do	do	
Woodruff Mines	do	do	J. F. Coy.
J. Geiger	Port Orford.....	do	
North Dry Diggings.....	Canyonville	Douglas.....	Daniel P. Ballenbaugh.
Mitchell Creek	do	do	McWilliams & Asch.
Morgan & Conley.....	Perdu	do	
Texas Gulch	do	do	Joshua Noland.
J. Brandt & Co.....	Galesville.....	do	
Charles Decker.....	do	do	
Thomas Gilmore.....	do	do	
Hogan	do	do	Charles Dwelley.
Green Mountain Mine.....	do	do	Rube A. Jones.
Daniel Levens	do	do	
Peter Payne	do	do	
George Simmons.....	do	do	
L. B. Speaks.....	do	do	
A. S. Whiting.....	do	do	
Green Mountain Ex.....	do	do	A. H. Johnson (Portland).
H. S. Donnell.....	Glendale.....	do	
Orrin Howe	do	do	
Merriam Phillips.....	do	do	
J. G. Fuller.....	do	do	
North Myrtle.....	Myrtle Creek.....	do	J. Fawcett.
Catching Diggings.....	Riddle's.....	do	Catching & Sons.
Nickel Mine.....	do	do	William G. Brown.
Tellurium	Roseburgh	do	A. F. Campbell.
Hillis Mine.....	Canyon City.....	Grant.....	Hillis & Cannon
Humboldt.....	do	do	H. W. Sloan.
Long.....	do	do	John Long.
Thompson.....	do	do	J. A. Whitman.
Belleview.....	do	do	
Cabell.....	do	do	Cabell Brothers.
California.....	do	do	J. B. Cahill.
Humboldt.....	do	do	
Mammoth	do	do	
Monumental.....	do	do	
Odell & Gardner.....	do	do	
Olive Creek.....	do	do	
Olive Viher.....	do	do	
Phil. Sheridan.....	do	do	
Gem.....	John Day Town.....	do	Blake & Metschan.
Hughes & Lane.....	do	do	
Mocking Bird Ledge.....	do	do	Roy & Sloan.

MINES OF OREGON, 1887—Continued.

Name of mine, company, or firm.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
National.....	John Day Town ..	Grant	H. W. Sloan.
Princess.....	do	do	G. S. Leeston Smith.
Prospect.....	do	do	Do.
Black Prince.....	Monument.....	do	
Asche Ledge.....	Prairie City.....	do	N. Asche.
Barrett & Co.....	do	do	
Congar.....	do	do	George Shearer, secretary.
Cromwell.....	do	do	Robert Lockwood.
Grizzly.....	do	do	R. C. Reid.
Keystone, Milling and Mining	do	do	J. F. Watson, superintendent.
Lucky Boy.....	do	do	John Marshall.
Applegate.....	Applegate.....	Jackson	
Armstrong & Bills.....	do	do	
Nes, Arrowsmith.....	do	do	
Ezra Arnold.....	do	do	
Berryman & Co.....	do	do	
Chappelle & Co.....	do	do	
Klippelle & Keaton.....	do	do	
I. T. Layton.....	do	do	
Walker & Anderson.....	do	do	
E. K. Anderson.....	Ashland.....	do	
Anderson & McCall.....	do	do	
Holman Ledge.....	do	do	Harris, Zumwalt & Co.
Hope Ledge.....	do	do	Walsh, Bragdon & Co.
Shepard Bros.....	do	do	
Wagner Creek.....	do	do	Köhler & Brandt.
Albright & Taylor.....	Jacksonville.....	do	Robert Ellovitt, superintendent.
Alford & Willits.....	do	do	
Ankeny & Co.....	do	do	
Barkdale & Cunningham.....	do	do	
Baumle & Kippel Quartz Mining.	do	do	Charles Baumle.
Bell & Moody.....	do	do	
Boss & Luddington.....	do	do	
Blalock, Owings & Co.....	do	do	John Blalock.
H. Carson.....	do	do	
Collins & Thurman.....	do	do	
Craft & Witt.....	do	do	
Dugan & Herely.....	do	do	
English.....	do	do	Frank Ennis.
Elizabeth.....	do	do	Beekman & Kippel.
Gaylord, Bell & Co.....	do	do	
Gun Len.....	do	do	
Granville & Sears Quartz.....	do	do	
Green.....	do	do	
Grob & Brandel Quartz.....	do	do	
Jacksonville Milling and Mining.	do	do	
Keaton & Kippell.....	do	do	
Chris. Kretzer.....	do	do	
E. Manville.....	do	do	
A. D. McKee.....	do	do	
Mee & Carr.....	do	do	
New El Dorado.....	do	do	
Alex. Orme.....	Bolt.....	do	
M. Patton Mining.....	Ashland.....	do	
Steam-boat Ledge.....	Jacksonville.....	do	
Walsh & Bragdon.....	do	do	
Wine's Gold Mine.....	do	do	
Whitney & Cook Mining.....	do	do	
William Griffin.....	do	do	
L. D. Brown & Son.....	Gold Hill.....	do	
Higinbotham Bros.....	do	do	
Dardenelles Mine.....	do	do	B. A. Knott.
H. Klock.....	do	do	
McClendon, Douden & Co.....	do	do	
Ray & O'Donnell.....	do	do	
Jos. Scranton.....	do	do	
P. & William Smith.....	do	do	
Wallace Ledge.....	do	do	
J. W. Cunningham.....	Medford.....	do	
Medford Quartz Mining.....	do	do	J. W. Walsh.

MINES OF OREGON, 1857—Continued.

Name of mine, company, or firm.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Reduction Works.....	Medford.....	Jackson.....	— Chick, superintendent.
Eppes, Kennedy & Devis.....	Phoenix.....	do.....	
Horace B. Seybert.....	do.....	do.....	
Bassett Mine.....	Rock Point.....	do.....	Isaac F. Bassott.
Blockert Mine.....	do.....	do.....	William P. Blockert.
Fasnacht Mine.....	do.....	do.....	Primas Fasnacht.
Hayes & McGruder.....	do.....	do.....	
Pfeil Brothers.....	do.....	do.....	Gustav Pfeil.
William Scott.....	do.....	do.....	
Swinden & Sons.....	do.....	do.....	
Jesse Tyler.....	do.....	do.....	
Oliver Nadan.....	do.....	do.....	
Noah Bowers.....	do.....	do.....	
George Cardwell.....	Sterling.....	do.....	
Kleinheimer, Town & Co.....	do.....	do.....	
Jeff. Matney.....	do.....	do.....	
Queen Mine.....	do.....	do.....	Drake, Ivory & Co.
Rising Sun Ledge.....	do.....	do.....	Turner & Johnson.
Sterling Mine.....	do.....	do.....	
Sturges & Beekner.....	do.....	do.....	
Yandes, Satmarsh & Co.....	do.....	do.....	
R. B. Bannister.....	Uniontown.....	do.....	
Charles Anderson.....	Willow Springs.....	do.....	
Cowen & Gale.....	do.....	do.....	
Dean Brothers.....	do.....	do.....	
Eureka.....	do.....	do.....	
Ingram & Baker.....	do.....	do.....	
Fort Lane Quartz Mine.....	do.....	do.....	James McDonough & Co.
Roter & McDougale.....	do.....	do.....	
Satmarsh, Klume & Co.....	do.....	do.....	George Yandes.
Schumpf, Eagan & Co.....	do.....	do.....	
Swinden Mine.....	do.....	do.....	
Victory & Reed.....	do.....	do.....	
Schumpf & Brothers.....	do.....	do.....	George Schumpf.
M. Bickenbach.....	Woodville.....	do.....	
Boyd & Johnson.....	do.....	do.....	
Elder Whitney.....	do.....	do.....	
Captain Ankney.....	Galice.....	Josephine.....	
Theo. Cameron.....	do.....	do.....	
Galice.....	do.....	do.....	
Green Brothers.....	do.....	do.....	
Henry Powelson.....	do.....	do.....	
Walter Simmons.....	do.....	do.....	
Sugar Pine Ledge.....	do.....	do.....	
A. J. Mescar.....	Grant's Pass.....	do.....	Green Brothers.
Old Jewett Ledge.....	do.....	do.....	
Smith & Everitt.....	do.....	do.....	
William Wade.....	do.....	do.....	
Yank Ledge.....	do.....	do.....	
Brown & Russ.....	Kerbeyville.....	do.....	
California.....	do.....	do.....	
Carson Mines.....	do.....	do.....	Lewis Hayes & Son.
S. C. Carter.....	do.....	do.....	
N. De Lematter.....	do.....	do.....	
Lost Ledge.....	do.....	do.....	
Nanke, Bybee & Co.....	do.....	do.....	
J. Riddle.....	do.....	do.....	
J. E. Yates.....	do.....	do.....	
Silver Creek.....	Silver Creek.....	do.....	T. B. Rogers & Son.
Althouse.....	Waldo.....	do.....	C. H. Beach.
William Bybee.....	do.....	do.....	
Scott's Gulch.....	do.....	do.....	
Simmons & Ennis.....	do.....	do.....	Desselles & Connell.
Skeeler & Walker.....	do.....	do.....	
Williams.....	do.....	do.....	
Henry Smith.....	do.....	do.....	
William Ruble.....	do.....	do.....	
Joe Dysert.....	do.....	do.....	
Gus Barlow.....	do.....	do.....	
Reduction Works.....	do.....	do.....	W. A. Jones.
Tyler.....	do.....	do.....	Honeyman & Ladd.
Anna Gilmore.....	Cornucopia.....	Union.....	
Blue Belle.....	do.....	do.....	
Big Sailor Ledge.....	do.....	do.....	Thomas Fitch.
Companion.....	Huntington.....	do.....	
Contact.....	Portland.....	do.....	Fitch & Co. (Portland).

MINES OF OREGON, 1887—Continued.

Name of mine, company, or firm.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Forest Queen	Cornucopia	Union	Altan, Cox & Co.
Grand Army	do	do	
Keystone	do	do	Ladd, Higgins & Co.
Last Chance	Portland	do	Cary & Howard.
Lilly Langtry	Cornucopia	do	Duffy & Tice.
Lion, Tiger, and Mountain Chief.	do	do	Leep, Osborne & Co.
Lost Horse	do	do	Duffy & Tice.
Lucky Boy	do	do	John Hepburn.
Monte Christo	do	do	
May Queen	do	do	Hawley & Co.
Old Dominion	do	do	Burdett, Burrow & Johnson.
O. R. & N.	do	do	
Pine Creek and Buckeye mines.	do	do	Simmons & Williamson.
Queen of the West	do	do	Udike & Co.
Red Boy	do	do	Leep, Osborne & Co.
Red Jacket	do	do	Burdett, Tice & Duffy.
Robert Emmett	do	do	Cary & Howard.
Simmon's Group	do	do	Simmons & Williamson.
Stella	do	do	Breeden.
J. C. Tollman & Co.	Portland	do	
Torry & Tollman	do	do	
Union	Cornucopia	do	Burdett & Tice.
Whitman	do	do	Joseph Luce.
Yellow Jacket	do	do	
Lilly White	La Grande	do	J. A. Foster (cashier First National Bank).
Nihil Desperandum	do	do	J. L. Curtis.
Dolly Varden	Sparta	do	E. M. White.
Hoggun	do	do	Duncan & Clow.
Calumet	Union	do	A. J. Hopper, superintendent.
Eagle Prospecting and Mining.	do	do	
Pocahontas	do	do	Baird & Ficklin.
Sparta	do	do	R. Perkins.
Silver Wreath	do	do	D. B. Reese.
Union	do	do	Weller & Shinn.
Ochoco	Prineville	Crook	Pitt, Billieu & Griffin.
Martin Creek	Cottage Grove	Lane	George M. Clark.
Rusk, Taylor & Lakin	Eugene City	do	
J. M. Bentley	Pendleton	Umatilla	

MINES OF TEXAS.

Name of mine, owner, or agent.	County.	Post-office address.
Brooks & Thompson	El Paso	Sierra Blanca.
Clifford, H. J.	do	Carrizo.
Davis, L. H.	do	El Paso.
Hand, Jacob	do	Sierra Blanca.
Knight, Geo. A.	Dallas	Dallas.
Noyes, William	Presidio	Shafter.
Osmer, N. A.	El Paso	Van Horn.
Russell, William	do	El Paso.
Stevenson, G. B.	do	Do.
Sancho Panza Mine	do	Do.
Williams, O. W.	Pecos	Fort Stockton.

MINES OF WASHINGTON TERRITORY.

Name of company, mine, or firm.	Post-office.	County.	Name of owner, superintendent, manager, or secretary.
Black Jack	Ellensburg	Kittitass.....	
James Block	do	do	
Black & Boxall	do	do	John Black.
Bob Tail	do	do	
James Boxall	do	do	
Bullion	do	do	
Cascade	do	do	Marshal Blum.
Columbia River placers.....	do	do	Chinese.
William Donohue	do	do	
John Earnest	do	do	
Walter Elliott	do	do	
Evening Star	do	do	
Golden Phoenix	do	do	
Humming Bird	do	do	
North Pacific	do	do	F. Leonard.
J. C. Pike	do	do	
Pole Peck	do	do	Thomas Johnson.
Puzzler	do	do	
Pechastin	do	do	Thomas Johnson.
Schaffer	do	do	Do.
J. A. Schoudy	do	do	
Swank Placers	do	do	Pike & Co.
John Smithson	do	do	
Tip Top	do	do	Richard Price.
Western Star	do	do	
D. Layton	Sprague	Lincoln	(Big Bend, Columbia River.)
Sullivan Mine	Spokane Falls	Spokane	
Young America	do	do	McCartney & Moore.
Caroline Ledge	Colville	Stevens	Schneider & McAlfrey.
Old Dominion	do	do	Kearney Brothers.
Ella	do	do	
Darling	do	do	S. N. Bodge.
G. B. Ide	do	do	
Daisy	do	do	Kearney Brothers.
Portland	do	do	Geo. and Fred. Pfunder.
Calumet	Walla Walla	Walla Walla	Sol Centre, superintendent.
Cle-Elum	Yakima	Yakima	P. J. Flint & Co.

PRODUCING MINES OF THE APPALACHIAN RANGE.

Name of company, mine, or firm.	Counties.	States.
Fisher and Mills Hill mine.....	Guilford	North Carolina.
Hoover Hill mine.....	Randolph	Do.
Portis mine.....	Franklin and Nash	Do.
Arvington	Nash	Do.
Cayle.....	Moore	Do.
Burns	do	Do.
Bell mine.....	do	Do.
Howie mine.....	Union	Do.
Black mine.....	do	Do.
Reed mine.....	Cabarrus	Do.
Joe Lee.....	do	Do.
Phoenix.....	do	Do.
Silver Valley mine	Davidson	Do.
Russell mine.....	Montgomery.....	Do.
Geneseo mine.....	do	Do.
Appalachian mine.....	do	Do.
Reynolds mine.....	do	Do.
Stanley Freehold (Parker).....	Stanly	Do.
Lander mine.....	do	Do.
(Crowell) Concord	do	Do.
Gold Hill mine	Rowan	Do.
Isenhour	do	Do.
Point mine	Mecklenburgh.....	Do.
Rudisil mine.....	do	Do.
Baltimore and North Carolina (Ray)	do	Do.
Dann mine	do	Do.
Henderson	do	Do.
Saint Anthony (Todd) mine.....	do	Do.
Catawba (King Mountain) mine.....	Gaston	Do.
Duffie mine	do	Do.
Reinhardt mine.....	Lincoln	Do.
Shuford mine	Catawba	Do.
J. C. Mills mine	Bnrke	Do.
Hancock mine.....	do	Do.
Marion Bullion Company (Granville).....	McDowell	Do.
Vein Mountain mine	do	Do.
Boilston mine	Henderson	Do.
Brewer mine	Chesterfield	South Carolina.
Haile mine	Lancaster	Do.
Dixie mine	do	Do.
Pacolet mine	Spartanburgh	Do.
J. B. Smith mine	McDuffie	Georgia.
Tatham mine.....	do	Do.
Four Oaks mine.....	do	Do.
Portor mine.....	do	Do.
Columbia mine	do	Do.
Wilkes mine	Merriwether.....	Do.
Santee mine	White	Do.
Hamby Mountain mine.....	do	Do.
Calhoun (embracing Lumsden and other properties).....	do	Do.
Loud mine	do	Do.
Barlow mine.....	Lumpkin	Do.
Ralston mine.....	do	Do.
Hand mine	do	Do.
Lockhart mine	do	Do.
Gordon mine	do	Do.
Calhoun mine	do	Do.
Findley mine	do	Do.
Bast mine	do	Do.
Fish-Trap mine.....	do	Do.
Franklin & McDonald mine	Cherokee	Do.
Cincinnati Consolidated mine.....	Dawson	Do.
May Virginia Gold Mining Company.....	Talladoga.....	Alabama.

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