ITEM 79

BIENNIAL REPORT

OF THE

STATE MINERALOGIST

OF THE

STATE OF NEVADA,

FOR

THE YEARS 1875 AND 1876.



1277

orked at intervals, and for the venty six, about two thousand he Chance has produced conuring the last two years little Flagstaff and Victorine have t, but since my last report no There are other locations in lits have been obtained from

mber of years, until in eighs resumed by the San José shteen hundred and seventyere produced, of the value of ng the first half of eighteen and thirty tons, valued at ninety-one dollars and fifty l of work towards developt will meet with the success inning of the year eighteen was in connection with the of six to seven feet per day. pany owns a twenty-stamp in it from the Cherry Creek C. B. Dahlgren, I am inand seventy-six in the Gilland seventy six feet long to beyond. On entering the t to the old shart, which is another drift west on the ind ground. The mill was two thirds of its capacity. ellious ores assayed thirtytailed ten and twelve one enty-six dollars and two nd one half. The cost of airs on mill, was nine dolksilver was two hundred h of a pound to each ton d one half cords per day. hundred and thirty-eight

I Creek Mountains. The y, eighteen hundred and cated. The Home Stake, her locations, were made ever been worked to any located about four years

later; these have produced some bullion. The burning of the mill at Robinson District was a serious drawback to the mines of this district.

DIAMOND DISTRICT.

This district is situated north of Eureka about eighteen miles, in the Diamond range of mountains. The ores are argentiferous carbonates and galena. About three years ago a smelting furnace was erected, and some bullion produced.

The Champion is the principal location. The ore is found in bunches and pockets. The Curtis and Keeler, Cumberland, and other locations have yielded some ore, but during the past two years no great amount of work has been done on any of them. The district has all the facilities for mining and milling, and should good bodies of ore be developed in the future, it can be conveniently and profitably worked.

ROBINSON DISTRICT.

Since the discovery of this district, a great many locations have been made. It is situated in the Egan range of mountains, about forty-five miles east of Hamilton. Limestone is the formation in which most of the veins occur, and the mineral belt is of considerable length and breadth. Mineral City is the district center, and quite a large population was here at one time.

THE CANTON COMPANY

Has done some good work, and the furnace, since it was remodeled, has produced some very gratifying results. The ten-stamp mill situated just below the town, and belonging to the Watson Company, was destroyed by fire in April, eighteen hundred and seventy-five. This district is the center of an extensive mineral region, and the necessaries for mining and milling are close at hand. On the first of last December the furnace was in successful operation, and during the month previous a great deal of good ore had been worked, producing a large amount of bullion.

WARD DISTRICT.

Quite an advance in the prosperity of this district has been made during the past two years. It is situated near the western border of Steptoe Valley, and in the same range of mountains with Robinson, about twenty miles distant from the latter place. The Town of Ward is already the most populous place in the county. Nearly the whole of it has been built during the past year. The prevailing formations are granite and dolomite, though there are other rocks of less frequent occurrence in the vicinity. The geographical position is good. A natural road connects it with the railroad, while the requisites for milling and mining are mostly abundant and near at hand. Water is

somewhat scarce in the immediate vicinity, but there is plenty of wood at no great distance. It sells at five dollars per cord.

THE MARTIN WHITE COMPANY

Is the principal one operating here. This is a San Francisco incorporation. This company owns a number of locations. The Paymaster is the principal one. This company has now in operation two water jacket furnaces of a capacity of thirty five tons each per day. In addition to the furnaces, the company has just completed and has now in running order a twenty-stamp quartz mill. It is the mill which was formerly erected by an English company in Troy District. The mines belonging to this company, in addition to the Paymaster, are the Defiance, Mountain Pride, Mammoth, Caroline, and Young America. The deepest point reached on the Paymaster is about three hundred feet. The ores are chiefly argentiferous carbonates and galena, though as depth is attained the smelting ores decrease, and there is a proportionate increase of the milling ores. Some of the ore is remarkably rich. One assay gave ten thousand four hundred and forty dollars, of which two thousand four hundred dollars was gold. The furnaces and mill are situated about three quarters of a mile from the Paymaster mine. A tunnel has been started to cut the Paymaster vein at a depth of seven hundred feet below the croppings. It will be two thousand feet in length. It is intended also to be continued on beyond the Paymaster mine, in order to cut the veins existing in that direction.

Ward is already a thriving place of over one thousand inhabitants. More than five hundred votes were polled here at the last election. The Ward Miner is published here twice a week, and in general all the prospects in this district are in the most flattering condition; and if as much progress is made in the next few years as has been made during eighteen hundred and seventy-six, Ward will stand next to Virginia in importance in this State. A new process for extracting the ore from the pulp has been introduced in connection with the mill just started, and so far has given very satisfactory results. This process of leaching or axiviation has been introduced for the first time in this State by the Martin White Company. It is an Austrian process, and was employed in Mexico by Maximilian with some success. It is simple and economical, and if, after a fair trial, it is used successfully at Ward, it will doubtless take the place of the old process of amalgamation. No quicksilver is required, though a little longer time is necessary to extract the bullion. The ore is reduced to pulp in the same manner as for smalgamation. Tanks are substituted for the pans and settlers of the old method. The ores at Ward require roasting. After this operation has been performed in a White furnace, the pulp or dust is allowed to remain four hours in the chambers of the furnace, in order that it may become thoroughly chloridized. It is then drawn out upon the hearth and moistened, preparatory to being put in the tanks. About two tons tro put into each tank, and a stream of water is turned on, which washes or leaches out the base metals. The unequal power of diffusion with which different substances are endowed, furnishes the means of sparating them from the gold and silver which remain in the tanks. A liquid preparation of hyposulphate of lime or hyposulphate of sodium then introduced into the tanks. This solution leaches the gold and alver. By a simple test it is known when the silver and gold have all

been extracted from the pulp. The silver and go wards precipitated by adding a solution of lin liquid is used over and over again in this leach cipitate is collected and strained through sacks tially dried. It is shaped into small bricks, the then it is melted in crucibles and moulded into he ready for shipment. The whole expense of the this leaching process, costs in San Francisco only A very large item of expense in the process of an of quicksilver. Here, no quicksilver whatever longer time only is needed; but the addition of leaching, obviates any difficulty that may be expended these can be furnished for a very small politicksilver.

Mr. Robert Briggs, Superintendent of the Payn kindly furnished the following in regard to the up to November first, eighteen hundred and seven

"PAYMASTER MINE.

"The main shaft had reached a depth of one hun and tunnel number one was seven hundred and tunuber two was eleven hundred and forty feel three, or Mountain Pride, eight hundred feet, an or main Paymaster, was seventy-eight feet. The two, three, and four, were each one hundred and amount of ore produced from this mine since hundred and seventy-six, to November first, was a value, per ton, of two hundred dollars, aggreg twenty thousand dollars. The amount of ore wo was five hundred tons, and the amount of bulk hundred and fifty tons; the value of the bullion lars per ton. There were shipped to San Francis ore, with a value, per ton, of six hundred dollars

THE DEFIANCE.

The developments made in the Defiance mine, to of the Martin White Company, have shown the of a carbonate character, and as such, will produce to keep the furnaces in constant operation. The dred and forty feet deep, and the north and sout one hundred and one hundred and twenty feet numbers one and two show sixty feet each. The depth of one hundred and fourteen feet, while turtwo are in length, respectively, one hundred and hundred and thirty-six feet. The drift from tune enty feet long, and the winze from the same the eighty-three feet. The amount of ore produced tween January and November, was one thousand ton, of thirty dollars. The developments in the resulted in a main tunnel of four hundred feet in

is plenty of wood

rancisco incorpo-The Paymaster is ation two water or day. In addiand has now in mill which was rict. The mines er, are the Defi-America. The ee hundred feet. alena, though as is a proportion. remarkably rich. lollars, of which rnaces and mill Paymaster mine. a depth of seven housand feet in the Paymaster

nd inhabitants. t election. The ral all the prosand if as much le during eigh-Virginia in ime ore from the ist started, and of leaching or State by the was employed and economi-Ward, it will on. No quickry to extract nanner as for settlers of the his operation is allowed to r that it may on the hearth out two tons ed on, which er of diffusion he means of in the tanks. ate of sodium the gold and gold have all

been extracted from the pulp. The silver and gold in this liquid is afterwards precipitated by adding a solution of lime and sulphur. The liquid is used over and over again in this leaching process. The precipitate is collected and strained through sacks, until it becomes partially dried. It is shaped into small bricks, the sulphur burned off, and then it is melted in crucibles and moulded into large bricks, when it is ready for shipment. The whole expense of the machinery required in this leaching process, costs in San Francisco only five hundred dollars. A very large item of expense in the process of amalgamation, is the loss of quicksilver. Here, no quicksilver whatever is required. A little longer time only is needed; but the addition of a few more tanks for leaching, obviates any difficulty that may be experienced on this account, and these can be furnished for a very small portion of the cost of the quicksilver.

Mr. Robert Briggs, Superintendent of the Paymaster, has, by request, kindly furnished the following in regard to the workings of the mino up to November first, eighteen hundred and seventy-six:

"PAYMASTER MINE.

"The main shaft had reached a depth of one hundred and sixty-five feet, and tunnel number one was seven hundred and thirty feet long; tunnel number two was eleven hundred and forty feet long; tunnel number three, or Mountain Pride, eight hundred feet, and tunnel number four, or main Paymaster, was seventy eight feet. The winzes, numbers one, two, three, and four, were each one hundred and forty feet deep. The amount of ore produced from this mine since January first, eighteen hundred and seventy six, to November first, was six hundred tons, with a value, per ton, of two hundred dollars, aggregating one hundred and twenty thousand dollars. The amount of ore worked in the same time was five hundred tons, and the amount of bullion produced was one hundred and fifty tons; the value of the bullion being five hundred dollars per ton. There were shipped to San Francisco one hundred tons of ore, with a value, per ton, of six hundred dollars."

THE DEFIANCE.

The developments made in the Defiance mine, the other main location of the Martin White Company, have shown the ores to be exclusively of a carbonate character, and as such, will produce a sufficient supply to keep the furnaces in constant operation. The main shaft is one hundred and forty feet deep, and the north and south drifts have advanced one hundred and one hundred and twenty feet respectively. Winzes numbers one and two show sixty feet each. The old shaft shows a depth of one hundred and fourteen feet, while tunnels numbers one and two are in length, respectively, one hundred and twenty-five and one hundred and thirty-six feet. The drift from tunnel number two is seventy feet long, and the winze from the same tunnel shows a depth of eighty-three feet. The amount of ore produced in the same time, between January and November, was one thousand tons, with a value, per ton, of thirty dollars. The developments in the Mammoth mine have resulted in a main tunnel of four hundred feet in length.

In addition to the successful operations of the Martin White Company, four other companies are now operating in the district, and all with results more or less favorable. The South Paymaster Mining Company is working the Cleopatra mine, which is a continuation of the original Paymaster vein. The Juno Company is working the Juno vein, which is parallel to that of the Paymaster. While both of these companies are extracting considerable quantities of ore, and are doing much towards developing the resources of the district, neither of them has yet erected works for reduction.

The Steptoe Consolidated Company is working a series of mines, the most productive of which are the Ready Cash, Emily, and Light. The Ready Cash has been opened by a shaft to a considerable depth, and is in a fine body of carbonate ore, which assays in the neighborhood of one hundred dollars in silver to the ton. Not a great deal of prospecting has yet been done, but the vein is a large and strong one, and promises well for the future. The vein of the Emily is also of considerable size, and the working shows some excellent results. The Light has excellent prospects, for the Paymaster is adjoining, and the developing shaft of the former is only a few hundred feet distant from the principal shaft of the latter. Some very rich ore has already been produced, and when the workings have progressed somewhat beyond, some richer developments will probably be made.

There are a number of other locations here, and the croppings in many cases are very favorable, but time is necessary to determine the actual value of the same. On the whole, the prospects are very encouraging, and the district promises to become one of the leading in the State. When the Spring opens out, the work will take an additional start, and the Steptoe Company will increase its appurtenances by the crection of proper reduction works.

OSCEOLA DISTRICT.

Through the courtesy of Mr. George G. Blair we are able to summarize the workings of this district during the last two years, as follows: The Cumberland mine, owned by the above gentleman, was located in October, eighteen hundred and seventy-four. At a depth of forty feet it shows a ledge six feet in width, which carries a very fair grade of free gold and gold-bearing sulphuret ore, which works sixty-five dollars per ton. The ledge runs east-northeast by west-southwest, and stands almost perpendicular. The formation is quartite.

The Osceola ledge, also located and owned by Mr. Blair, has been worked by an incline to a depth of thirty feet, and shows a ledge sixteen inches in thickness. Some of the ore is of an excellent character. The footwall is quartzite, and the hanging wall is slate. The course is east and west, the pitch being south at an angle of seventy degrees.

The Golden Eagle ledge, owned by James S. Matson, stands almost perpendicular, and is worked by a shaft one hundred feet in depth and a drift from the bottom running fifty feet east. The ledge is shown to be thirty-three inches in thickness. Also, one runs fifteen feet to the west, which shows the ledge twenty inches in thickness. The ore of this averages, according to various estimates, from twenty to fifty

dollars per ton in gold, there being free gol phurets in most all portions of the ledge.

The Credit ledge, owned and worked by W almost on the summit of the Snake range, and east, the pitch being southwest at an angle of work is carried on by a tunnel in the mount is eighteen inches in thickness, and produces a

There are other claims in the district which which have not yet had much work done uplittle silver produced, the bullion from the araabout sixteen dollars per ounce. There is certified mines already opened to warrant the erreduction works for reducing the ore on a large by the old-fashioned Mexican arastra. But the these mines are men of limited means, and are ances at their command. Here is a good fie capital, and it is hoped the attractions at Wahitherward.

HUNTER DISTRICT

This district is thirty miles south of Egan, The climate is good, and wood, water, and of plentifully found. Limestone and quartite and considerable work on the Vulcan has be the vein is east and west; the dip is south; character are well defined. An average of one some excellent ore, the product being from sit ton. For a depth of one hundred and eight the way.

SNAKE VALLEY DIST

Some locations were made here shortly and district; but little work has ever been done, effected about three years ago. The prevailing granite. Wood and water are in plentiful stock ranges and ranches are found in the a

SHOSHONE DISTRIC

There has been but little advance here sine three years ago a Salt Lake company purchas cipal locations, and made some developments profitable results have ever been obtained. We some places showed some good ore, yet there amount found to warrant any great expense in

WHITE PINE

Autman 30 \$1,200 00 Battery 73 635 \$1,200 00 Battery 73 635 \$8,286 00 7 1,258 \$1,012 80 42 41 1,151 642 42 63 636 636 63 63 63 63 63 63 63 63 63 6								
Aultman			First	QUARTER.	1 .	SECOND QUARTER.		
Battery	NAME OF MINE OR OWNER.	Tons	Pounds	Gross valu	Tons	Pounds	Gross value.	
Bartlett	Battery	79		\$1,200 0	0			
Caroline	Buckeye State					4 1,15	1 642 42	
Exchequer	Caroline	10						
Trederick William, the Great 130	Exchequer	4			0	970	2,408 42	
Maxeppa.	Frederick William, the Great			975 00	3,821			
Mariposa	Mazeppa		1.035	96.9 06	1		. 168 39	
Rescue	Oro,	16		1,675 00)		505 54	
Sart Aurora A60	Rescue		534	7,360 49	10 48			
Solver Plate	South Aurora				231		6,771 53 29,499 10	
Whippoorwill 5 1,102 00 Alcyone Joker Bobert Emmet Stafford French Boston Consburg Jewitt Ilko ay vellogg Jahogany cellogg Jahogany cewark Co acific derson rince meen paulding	Tencup	67	885	17,000 00	. 12		842 37	
Robert Emmet. Stafford French Boston Consburg. Dewitt. Sko Say Say Say Sewark Co. Sacific Saci	Whippoorwill							
Stafford French Boston Onsburg Dewitt Siko Say Sellogg Jahogany Sellogg Jahogany Sewark Co Jacific Seterson Tince Jacob Sellogg Jahogany Sewark Co Jacific Seterson Tince Jacob Sellogg	Robert Emmet							
Onsourg. Dewitt. Siko Say Sellogg Suhogany Sewark Co. Selicitic Selection Se	rench							
ako da	onsburg							
tellogg lahogany lewark Co. acific eterson rince ueen paulding	ay							
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ween paulding	acilic							
Totals 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ueen							
2,388 589 \$96,690 25 4,827 1,433 \$285,517 07	Total-			•••••			***************************************	
	TOTALS	2,388	589	\$96,690 25	4,827	1,433	\$285,517 07	

COUNTY-1875.

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	THIRD	QUARTER.		Fourt	H QUARTER.	Co. wideler
Tons	Pounds	Gross value.	Tons	Pounds	Gross value	Capacity Security
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********						. 3
********			. 40)	2500 0	. 3
					\$593 33	1
*********						1

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3,399	1,943	\$175,935 87	3,895	1	226,578 51	11
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********		1			***************************************	
2	924	830 96	1	1,808	429 47	. Design
100		500 00			***************************************	. 100
132	1	14,010 00	41		0.504	
54	909	7,020 44	29	010	9,734 80	1 30
		7,020 44	20	919	3,400 36	1 20
**********					***************************************	2
***********			4	210	200 00	
7	1,300	297 65	1		602 89	1 19
281	969	16,889 07	251		15 (20) (20)	1
	000	20,000 07	201	********	15,000 00	1 4
10	1,500	376 00	1 ********	********		1
2	105	187 29	00.	1 101	1 000 00	. 600
	1,676	102 00	36	1,124	, 1,000 00	- 12
24	1,600	297 10			***************************************	*****
10	160			1.050	***************************************	1
4	1,080	393 37 1,464 65	6	1,950	709 65	
-	1,000	1,404 03		1 104	050 00	1 3
***********		******	8	1,124	376 32 82 00	
		***************************************	8	1,500		1
		******	33	1,289	643 20	1
		******	72		1,526 69	-
	********		1	102	5,040 74	1
			18	488	272 53 832 10	200
			11	1,881	832 10 790 18	1
			68	148	4,586 14	9
			1	1,940	157 03	1
			8	1,250	810 00	1
			1	604	204 08	-
***************************************			1	1,050	273 32	-
				1,000	210 04	-
4,031	166	\$218,304 40	4,543	1,840	\$273,703 34	15,

SUPPLEMENT.

WHITE PINE

COND	UARTER.
Pounds	Gross value.
1,258 1,151 1,760	\$1,012 86 642 42 761 00 755 61
970	2,408 42 214,301 00
372	510 00 168 39 505 54
747 446 729	2,000 00 18,973 35 6,771 53 29,499 10 1,391 48 842 37 3,872 00 1,102 00
1,433	\$285,517 07

COUNTY-1875.

THIRD QUARTER.			F	OURTH	QUARTER.	TOTALS.			
Tons	Pounds	Gross value.	Tons	Pounds	Gross value.	Tons	Pounds	Gross value.	
3,399 2 100 132 54 7 281 10 2 24 10 4	1,943 924 909 1,300 969 1,500 1,676 1,600 1,080	\$175,935 87 830 96 \$600 00 14,010 00 7,020 44 297 65 16,889 07 376 00 187 29 102 60 297 10 393 37 1,464 65	40 3,895 41 29 4 251 36 8 8 1 18 18 11 68 11 18 11 11	1,730 1,808 919 210 210 1,124 1,950 661 1,289 102 488 1,881 62 148 1,940 1,250 604 1,050	\$593 33 226,578 51 429 47 9,734 80 3,400 36 602 89 15,060 00 709 65 376 32	30 80 4 482 2 18 43 11,116 130 5 1 16 149 183 2,036 691 9 19 638 5 10 10 10 10 10 10 10 10 10 10	1,893 1,151 1,760 970 1,673 1,673 1,500 1,109 1,500 1,229 1,676 1,600 1,080 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,080 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,124 1,500 1,125 1,	\$1,200 00 9,298 86 642 42 4,424 74 755 61 193 50 720 00 2,408 42 616,815 38 975 00 510 00 168 39 2,029 82 1,675 00 941 00 25,744 80 36,754 64 27,297 53 64,478 10 1,994 37 1,140 02 52,821 07 1,102 00 376 00 1,187 29 102 00 21,464 65 376 32 87 00 643 20 1,526 69 5,040 74 1,790 18 4,586 14 157 03 810 00 204 08 204 08 204 08 204 08 204 08 204 08	
4,031	166	\$218,304 40	4,543	1,840	\$273,703 34		28	\$874,215	

SUPPLEMENT.

WHITE PINE

A STATE OF THE PARTY OF THE PAR						
		FIRST QUARTER.				
Name of Mine or Owner.	Tons	Pounds	Gross value.			
D. H	Ī		1			
Rattery						
Buckeye State						
Eberhardt and Aurora						
Exchequer	438	1 188	\$17,413 43			
fair Play			4-1,120 20			
uity Dagite	1	1				
Josephine						
Paritie	45	1,231	3,226 99			
Paymaster						
Queen	6	1,005	523 51			
Rescue	28	382	1,114 01			
Sath Teeberg						
Nar						
Teacup						
Trench	30	1,579	3,792 18			
Ward Beecher						
America						
Adam						
Larnern & Testora	*************					
iverts & Co						
Rountain Queen						
Siver Plate			***************************************			
Siver Penk			***************************************			
Truckee						
* Grandenver			•••••••			
Star (tailings)						

Totals	510	005				
	549	385	\$26,070 12			
	1					

COUNTY-1876.

Sı	COND Q	UARTER.	THIRD QUARTER.				
Tons	Pounds	Gross value	Tons	Pounds	Gross value.		
27 51 2,627 304 7 58 22 170 60 	1,311 1,076 680 1,085 640 470 1,051 215 1,561 1,500 1,013	\$2,654 11 4,416 95 120,862 91 12,295 77 914 39 2,468 62 2,544 10 6,451 00 28,505 50 	3,797 452 16 5 14 69 78 6 6 6 7 1 7 1 8 8 8 8 6 4 8 8	562 580 665 200 1,244 430 1,140 520 1,387 526 619 1,719 447 273 115 1,740 10 423 320	\$179,364 11 10,854 96 757 37 950 00 2,033 72 2,934 15 1,798 94 1,123 47 943 80 464 47 474 19 527 30 228 35 795 95 548 43 414 88 435 08 189 93 919 54 4,320 72		
3,692	602	\$197,266 42	4,773	300	\$212,419 36	8	

WHITE PINE

	1			
		FIRST	JARTER.	
-	Tons	Pounds		Gross value.
1.				
	438	188		\$17,413 43
	45	1 000		
	30	1,231	1	3,226 99
	6 28	1,005 382	1	523 51 1,114 01
••	••••••		1.	
	30	1,579		3,792 18

•••				***************************************

			••••	
	549	385		\$26,070 12

COUNTY-1876.

SECOND QUARTER.			r	THIRD Q	UARTER.		Totals.		
Tons	Pounds	Gross value	Tons	Pounds	Gross value	Tons	Pounds	Gross value	
27 51 2,697 804 7 58 22 170 60 	1,311 1,076 680 1,085 640 470 1,051 215 1,561 1,500 1,013	\$2,654 11 4,416 95 120,862 91 12,295 77 914 39 2,468 62 2,544 10 6,451 00 28,505 50 1,398 75 5,457 92 4,428 98 2,571 98 992 25 1,303 19	3,797 452 16 5 14 69 78 6 6 7 1 1 7 1 8 8 6 254 4,773	562 580 1,244 430 1,440 520 1,387 526 619 1,719 447 273 115 1,740 10 423 320		27 51 6,424 1,194 7 58 22 231 60 11 42 17 172 249 79 13 81 1 7 1 8 8 2 13 4 8 6 6	1,311 1,076 1,242 1,853 610 470 1,896 1,005 582 1,051 1,244 645 280 20 400 526 619 1,719 447 273 115 1,749 10 423 320	\$2,654 11 4,416 95 300,127 02 40,564 16 914 39 2, 68 62 2,544*10 10,435 36 28,505 50 1,473 51 3,147 73 1,398 75 8,392 07 6,227 92 7,487 63 1,936 05 1,767 66 474 19 527 30 228 35 795 93 348 43 414 88 435 08 189 93 919 54 4,320 72	