

summary of the mill work were given on page 742 of the *Mining and Scientific Press*, May 27.

These figures are given as a service to the public, following the practice of Arthur Winslow in making public his annual reports on the mine. It is hoped that others may derive from them some return for the benefit that the author and his associates have derived from published accounts, letters, and free access to plants elsewhere. Further, it is hoped that the figures may serve as a warning in some cases and a source of encouragement in others. Certainly, one embarking on a new enterprise under sim-

ilarly hard conditions can get some measure of the obstacles likely to be encountered. On the other hand, the great improvement of the past two years shows what is possible. This result is primarily the culmination of many years working toward the re-treating system and concentration of operations in mining; a result delayed principally by the harassing labor conditions of 1902-1908, and, in part, by the lack of sufficient early development.

	Year:	1906.	1907.	1908.	1909.	1910.	January, 1911.
Tons per year:		92,900	102,196	116,353	125,681	137,881	149,760
Tons monthly average:		7,742	8,509	9,696	10,473	11,157	12,450
<b>Labor.</b>							
	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	
Superintendent,	1.47	2.03	1.91	1.98	1.85	1.60	
Heating,	0.90	1.33	1.34	1.61	1.40	2.48	
Electric plant,	1.30	0.76	1.07	1.05	0.76	0.60	
Lubricating,	0.54	0.41	0.24	0.32	0.25	0.26	
Accidents,	0.54	1.33					
Pumping plant,					1.65	1.83	
Watchman,	0.17	0.13	0.85	1.20	1.03	1.00	
Examination and tests,			2.72	0.13	0.30	0.54	
Total general labor,	4.93	6.00	8.56	6.27	7.24	8.33	
Crushing,	2.48	3.16	2.01	4.50	4.80	5.35	
Stamping,	18.04	17.28	16.66	14.31	13.70	10.95	
Regrinding,	4.94	1.46	0.76	0.66	1.28	1.22	
Settling and agitating,	5.20	4.51	4.70	2.75	2.36	2.03	
Filtering,	13.65	7.18	6.18	5.24	4.46	4.00	
Concentrating,	12.11	11.57	12.27	7.02	5.40	5.05	
Amalgamating,	5.71	5.44	4.63	4.42	4.67	5.30	
Precipitating,	6.68	4.43	3.42	2.83	2.05	1.96	
Total labor,	73.75	61.03	59.56	48.01	46.04	44.19	
Pipe lines,	0.61	1.81	0.52	0.43	1.30	0.25	
Bins,	0.89	0.58	0.05	0.87	0.03		
Building,	3.19	2.36	2.72	3.38	3.73	2.79	
Electric plant,	2.79	1.44	1.13	0.86	0.48	0.74	
Pumping plant,	1.93	1.53	1.01	2.46	1.97	3.13	
Heating plant,	4.97	2.80	2.25	2.55	2.58	5.10	
Tools,	1.00	0.68	0.22	0.36	0.47	1.02	
Cyanide,	40.72	34.19	37.10	31.29	33.90	30.93	
Alkali,	5.83	5.91	6.43	5.71	6.45	4.62	
Lead salts,	1.22	3.95	4.09	2.85	2.70	4.18	
Power,	2.15	3.80	2.96	2.71	2.51	2.24	
Light,	1.10	0.42	1.67	1.73	1.65	1.48	
Oil and waste,	0.65	1.15	1.00	1.07	0.81	0.86	
Assays and melts,	4.17	5.64	4.91	4.00	4.16	4.08	
Examinations and tests,		1.24	1.59	0.26	0.17	0.07	
Miscellaneous,	0.23	0.09	0.06	0.04	0.05	0.05	
Total general,	71.37	67.79	67.63	60.24	63.	60.77	
Crushing,	4.66	4.80	2.90	2.22	1.77	1.96	
Stamping,	17.57	16.85	13.00	13.36	17.80	14.25	
Regrinding,	14.89	10.58	8.19	7.05	6.58	6.05	
Settling and agitating	4.95	3.00	3.54	5.20	4.34	5.74	
Filtering,	12.80	10.98	6.00	5.59	7.06	5.88	
Concentrating,	3.69	3.30	2.85	4.59	3.00	1.87	
Amalgamating,	4.93	5.53	4.77	3.42	4.04	2.06	
Precipitating,	7.75	7.76	6.43	5.68	6.43	5.44	
All supplies,	143.72	130.41	115.28	107.35	114.00	104.03	
All labor,	73.75	61.03	59.56	48.01	46.	44.19	
Total operating costs,	217.47	191.44	174.84	155.36	160.	148.22	
Depreciation,	16.	16.	13.	11.	13.	13.84	
Freight, treatment and discounts,	25.	25.	24.	19.	32	32.84	
Total metallurgical cost,	258.	232.	212.	185.	205.	193.84	

OPERATING COSTS, LIBERTY BELL MILL

ilarly hard conditions can get some measure of the obstacles likely to be encountered. On the other hand, the great improvement of the past two years shows what is possible. This result is primarily the culmination of many years working toward the re-treating system and concentration of operations in mining; a result delayed principally by the harassing labor conditions of 1902-1908, and, in part, by the lack of sufficient early development.

Inasmuch as this mine is situated in a part of the West noted for its high freight-rates, living-costs, and wage-scales (in this case the mine and mill averaging \$3.60 and \$3.75, respectively, per 8-hr. shift), it furnishes an interesting comparison with the results secured with the alleged 'cheap' labor of Mexico. This comparison is apt, because

## Telluride, Nevada

By H. C. CUTLER

The new Nevada camp of Telluride is situated in the Battle Mountain range, Lander county, near the head of Willow creek, and some 25 miles from the town of Battle Mountain on the Southern Pacific railroad. There is a good wagon-road to within a mile and a half of the camp, and an excellent trail for the rest of the distance. It is only 16 miles from the railroad by the way of Valmy, and a movement is on foot to construct a wagon-road to this point.

The main property and the only one on which any development work has been done, has recently been incorporated into the Dollar Mining Co. by Thomas Kearns and associates. Some stock has been sold, and prospecting work started on a larger scale. The vein was found in the latter part of 1910 by J. Hutchins, but owing to the heavy snows in that section, little work was done on it, and the discovery was not made public until this spring. The camp is situated at an altitude of about 7500 feet; water is plentiful and wood is scarce.

The neighborhood has been thoroughly staked, and several promising veins, showing fair ore, have been uncovered. With the exception of the main find, little work is being done in the district, the present owners preferring to wait for capital to come in and take the chances. This area was mapped by the Fortieth Parallel Survey as Weber quartzite, and the vein on the Dollar property is apparently a quartzite; in some places altered to a glassy quartz, in others, soft, decomposed, and stained by iron oxides. It shows a width of from 8 to 25 ft. and lies between two belts of slate—a hard black slate on the foot-wall, and a soft, light-colored slate on the hanging wall. The formations dip about 45° to the northwest. A number of cuts have been made on the surface, exposing the vein for 100 ft. In one of these cuts a rock, probably eruptive, was exposed, but its extent and whether it occurs as a flow or as an intrusion, is not now known. It is likely that the ore is due to its presence.

The ore is an altered quartzite carrying free gold, with but little silver and occasional crystals of tetradymite or telluride of bismuth. Frequently free gold is found, imbedded in the crystals, showing that the deposition of the two minerals was simultaneous. Near the surface the tetradymite is more or less oxidized, and the rock shows a greenish stain, which might indicate a trace of copper.

The discovery-shaft was only down some 8 ft. when the present company acquired the property. Since then it has been continued to 30 ft. On the surface, assays ranging from \$2 to \$500 were obtained, and from present indications it seems quite probable that ore of a fair milling grade will be developed. A townsite has been located, but the necessary elements for a Nevada boom are lacking, and consequently the camp is not growing very rapidly. The now nearly deserted camp of Bannock is only five miles distant. The main things needed in Telluride are money and work.

NICKEL is chiefly produced from nickel copper ores. These occur in many places, but the best known desposits are at Sudbury, Ontario. The nickel and copper are separated by smelting with 'salt cake' giving 'top' and 'bottoms,' of which one contains more copper and the other more nickel. The blister copper finally produced contains some nickel and the nickel some copper; their final purification is effected by electrolysis. The nickel and copper together form 'nickel metal,' a new valuable alloy.