

Mining and Scientific Press
April 8, 1905 p. 224

Inyo County.

Work has been stopped on M. Junghandel locations, near Big Pine, until a force pump can be put in to handle the water. The incline is down 50 feet.

San Diego County.

The bondholders of the California King Gold Mines Co., whose property is situated in Picacho basin near the Colorado river, about 30 miles north of Yuma, threaten to foreclose unless the accumulated and overdue interest is paid promptly. It had been expected to raise upwards of \$40,000 from sale of bonds and by other means with which to carry on the more extensive development of this large property. The management of this property has from the start had many difficulties to overcome. It is situated in the Colorado desert, and the only favorable feature of its location is the proximity of the Colorado river, which affords abundant water supply, though every ounce used has to be pumped. B. Moody, formerly chief engineer of the Homestake at Lead, S. D., took the management of the property in the summer of 1904, and after making some changes in equipment succeeded in getting the most satisfactory run ever made at the property, producing, it is reported, \$84,000 in four months. On this showing the directors have hoped to float more bonds to secure funds to clear the indebtedness, and place the mines on paying footing. While no definite plan has yet been adopted as to how the properties will be sold, in the event of foreclosure proceedings becoming necessary, it is understood that the bondholders will apply to sell the property to indemnify themselves, when a new company will be organized. Those holdings bonds of the present issue will secure an interest of some kind in the new company, while all the stockholders who have no bonds will not be recognized in the new organization.

April 22, 1905 p. 257

San Bernardino County.

Shipments of tungsten ore are reported from a number of claims between Randsburg and St. Elmo.

San Diego County.

(Special Correspondence).—It has been reported that the Oro Flamme mine, situated on the east side of the Cuyamaca range, on the road between Stonewall mine and Pine Valley, has been bought by the Cuyamaca M. Co., but this has been denied by the company. About seventeen years ago the Oro Flamme Co. built a mill at the mine, and the difficulties of getting the mill in place were so great, owing to the precipitous character of the mountains, that notwithstanding the fact that the mine did not pay, it was considered inexpedient to remove the mill, as it would cost more than the machinery was worth. The nearest prospects to the Oro Flamme are those in Deer Park and Pine Valley. The formation is mica-schist, mica-slate and eruptive rocks of several kinds, and the ores are mostly high grade, though the veins are generally small.

Pine Valley, April 17.

June 3, 1905 p. 358

San Diego County.

(Special Correspondence).—In Pine Valley district, about 10 miles east of Descanso P. O., the Noble mines have been operated for several years. The veins occur in mica schist and in places are high grade in gold values. Lead ores rich in gold also are found here. A recent development is that of a vein in gneiss. The vein is about 2 feet wide and it carries shoots or lenses of mispickel which is auriferous. In places the vein is 8 to 10 feet wide and outcrops for several hundred feet. It is accompanied by a dike rock. This is the first development of any considerable quantity of mispickel in these mines. This particular vein is about 200 feet distant from the contact of granite and schist. A promising copper prospect has also been discovered recently on the divide between Pine valley and Cottonwood creek, the iron gossan of which is reported to assay 10% copper and \$4 gold per ton.

Kern County.

It is reported that the Yellow Aster Company at Randsburg is to put in 170 more stamps, making 300 in all.

July 1, 1905 p. 13

Kern County.

The experimental deep well of the Santa Fe in the Kern River oil fields is down more than 2000 feet and the drill has penetrated a stratum of light oil of 30° gravity. This is the most important discovery in the Kern fields since the first find of oil, as the oil is so much lighter than that now being pumped. The shallower wells now being developed give a much heavier oil, and during the last few years the output has been gradually decreasing. The work of deepening the old wells will be begun at once.—The Standard Borax Co. of Bakersfield is working near the boundary line between Kern and Ventura counties. J. Werrington and J. A. Flood are interested. J. B. Berges has charge of the work.

San Bernardino County.

(Special Correspondence).—Beck & Body are developing the Sunrise group, 8 miles from Sandy, Lincoln county, Nev. A winze is being sunk in high-grade ore, with values in gold, silver and lead. C. H. Beck has charge.

Sandy, Nev., June 28.

July 8, 1905 p. 30

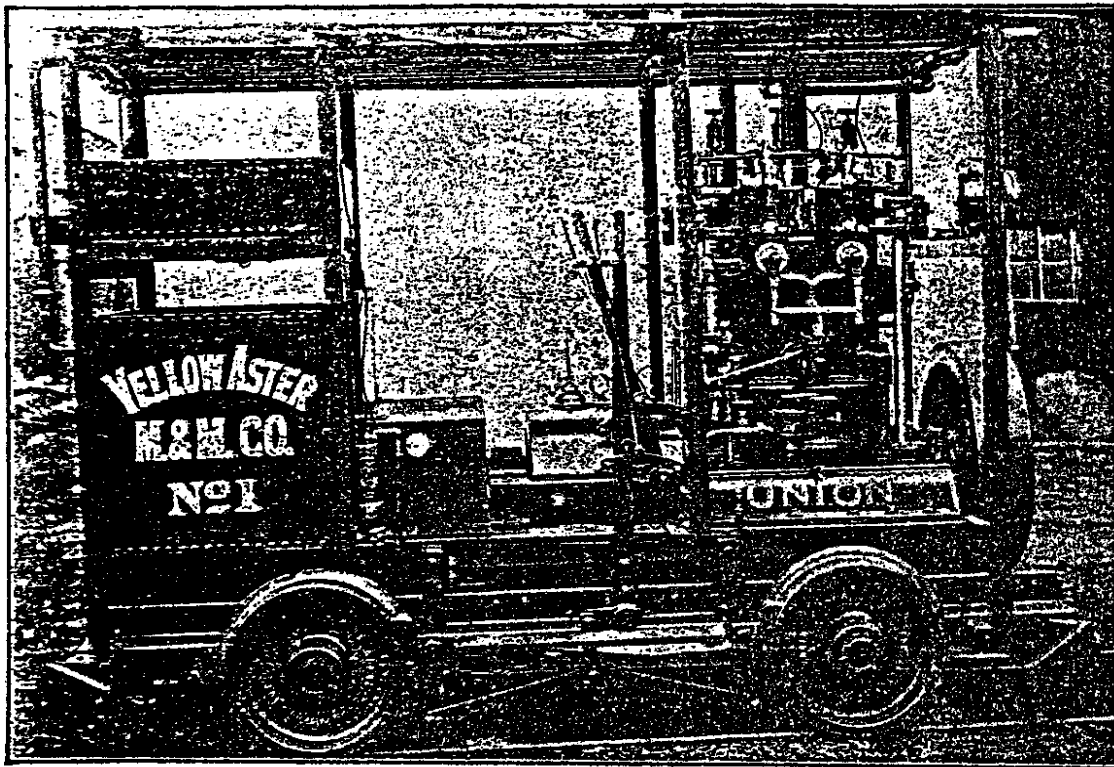
Handling Ore Cars.

Herewith is shown a 15 H. P. distillate locomotive, built by the Union Gas Engine Co., San Francisco, Cal. for the Yellow Aster Mining & Milling Co., Randsburg, Cal. The engine is a 15 H. P. double cylinder "Union" of the 1905 type; all parts are so arranged as to be easily accessible. It is fitted with

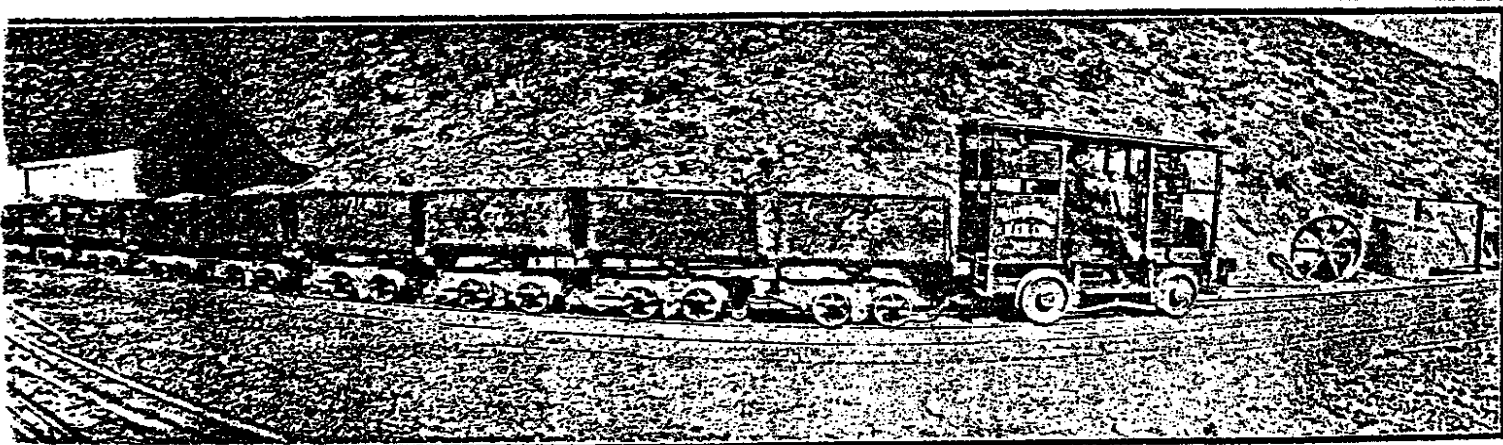
a sensitive governor designed to allow fuel to be used only in proportion to the work performed. It has a speed controller by which the speed can be set at any desired rate and maintained without any further attention. The oil and water tanks are mounted on the rear. The pulling power of this locomotive is stated to be thirty tons gross load 6 miles per hour, on a level straight track, and with a variable speed

that permits of slowing down on heavy grades or around curves. The total weight of the locomotive, with water, is 6200 pounds. The net weight of the engine only is 2085 pounds. The Yellow Aster Mining & Milling Co. have been using five "Union" hoists, one of which is of 130 H. P., for the past five years.

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"Union" Distillate Locomotive.



"Union" Distillate Locomotive and Train Hauling Ore From the Yellow Aster Mine, Randsburg, Cal.

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July 8, 1905 p. 32

Inyo County.

It is reported that John Hays Hammond, acting with the Guggenheims, has purchased the Piper ranch, 23 miles from Tule canyon, and it is proposed to introduce gold dredging in Cottonwood creek.

Riverside County.

G. L. Leonard has charge of the work of the United States Tin Co. in reconcentrating tailings from the Tascascan tin mines. At the same time the tin-bearing and copper-bearing deposits on the property will be developed.

July 22, 1905 p. 65

Kern County.

For the first time since 1897, when, by an act of the Legislature, mining districts were abolished, Kern county is to have an organized mining district, that of Amalie. This district was first organized in 1893, and did not take advantage of the new laws when the Legislature of 1899 repealed the act of 1897. Since that time all locations of Amalie, as of other districts in the county, have been filed with the county recorder.

July 29, 1905 p. 70

Pumping Water for Placer Mining.

There are instances where water may be pumped from a large body of water or a well for placer mining and the operation still prove profitable. Where the height and distance to which the water is to be delivered are not too great, this method of securing a head is perfectly feasible. The accompanying illustration is that of a dismantled pumping plant situated on the bank of the Colorado river, in Picacho basin, California, about 30 miles north of Yuma. Here nearly half a million dollars was expended in pumping machinery, shaft sinking on the bank of the river and the construction of a pipe line. At the head of this line, 5 miles back from the river and 500 feet above it, a wooden stave tank was built, having a capacity of about 4000 gallons. Into this the water was pumped in a feeble, small stream, the pumps being unable to meet the requirements. As a consequence, the entire scheme was abandoned—another failure due to inefficient engineering advice.

Aug. 5, 1905 p. 97

Los Angeles County.

A low-grade gold property in Millard canyon on Mount Lowe is being developed by a Milwaukee company represented by H. J. Pullen.

Inyo County.

The Great Western Ore Purchasing & Reduction Co. is running ten stamps at Keeler and five at Swansea. Slag from Cerro Gordo and the Swansea furnaces is being worked, and Darwin's furnace sites will also be worked.

San Bernardino County.

W. V. Holley and J. Meyer of Los Angeles have bought from J. Nelson and A. E. Moore their claims, near Keswick Springs, on the desert, for \$40,000. The ore showed high values on the surface, and at a depth of 150 feet increased in value. Machinery will be put in.

San Diego County.

Near Julian, the Julian Con. M. Co. is putting up a 50-ton roasting plant and also a 20-stamp mill and cyanide plant between the Helvetia and High Peak mines. New shafts are being sunk on both mines and the old ones are being retimbered, to be used for ventilation and escape. The Julian Con. M. Co. also owns the Warlock mine, between Julian and Banner, on which they are running a crosscut to tap the vein. This crosscut is 800 feet long. W. J. Proud is in charge of the High Peak mine, D. F. Lane of the Helvetia, D. S. McPherson of the Warlock and D. G. Juewitt is in charge of the milling and cyanide plant. W. W. Boswell is the general superintendent.

Aug. 12, 1905 p. 113

Kern County.

At the Butte mine at Randsburg it is reported that a 14-foot ledge has been struck at the 600 level which shows assay values of \$100 a ton.

The Baltic mine, near Randsburg, has been taken over by the Eastern syndicate. E. R. Abadie will be in charge. They have ordered a 25 H. P. gas engine and will sink 500 feet on the ledge. They have also ordered a 50-ton cyanide plant. The water will be pumped from Cuddaback lake.

Sept. 2, 1905 p. 164

San Bernardino County.

(Special Correspondence).—On the Sunrise mine of Beck & Body, in Kingston mountain, two ore shoots have been opened up and drifting is under way. Sandy, Nev., Aug. 29.

The Arizona-Mexican M. & S. Co. expects to have its plant at Needles in operation within ninety days. The preliminary details have been completed and the property of the Fletcher S. Co. transferred to L. D. Godshall, managing director of the new company, who will make changes that will amount to practically building a new plant. The equipment will include an automatic mechanical roasting furnace and sampling works.

Sept. 23, 1905 p. 214

Los Angeles County.

(Special Correspondence).—The Lowell & California M. Co., F. C. Fenner manager and J. L. Witney superintendent, have started their new 10-stamp mill at Bighorn on ore from the No. 6 tunnel, averaging four tons to the head.

Bighorn, Sept. 16.

Oct. 7, 1905 p. 248

Inyo County.

Coso camp is 33 miles from Keeler, the terminus of the Carson & Colorado Railroad. In this district G. D. James of Reno, Nev., recently examined the Green Bay, Calumet, Chicago, Delaney No. 1, Delaney No. 2, Delaney No. 3 and the Wisconsin properties and found a mineral zone 150 feet in width showing values of \$3 to \$10 gold per ton. The belt appears to be valuable for cyaniding. In the Modoc district, along the eastern foothills of the Argus range and 20 miles east of Coso, the veins appear to be narrower and encased in granite and porphyry walls, the granite predominating. Among the properties examined were the Clementina, Isabella, New Year, New Britain, Willie, Lost Hope and Bordel. The veins are about 2½ feet wide, as shown by a 12-foot shaft on the Isabella, a 30-foot crosscut tunnel on the New Year, with drifts each way, and on the Clementina a drift 60 feet in length. The values are much higher. Modoc camp is across the Panamint valley and 18 miles from the old Ballarat camp.

Mining and Scientific Press
Oct. 14, 1905 p. 259

The Borax Industry.

The borax industry, as a branch of mining, is one of which, despite its value and extent, comparatively little is known, and of which, therefore, current knowledge can hardly be arrived at with any certainty, says the London Mining Journal. The industry is controlled by a Trust of European and American producers, under the title of Borax Consolidated, which, with the exception of the Diamond Syndicate, is probably the most powerful and favorably situated of the combinations which control any important part of the mineral industry. The company was registered in London in 1899, and embraced the consolidation of California interests known as the Pacific Borax & Redwoods Chemical Works, the San Bernardino Borax Co., the important Turkish concessions in the hands of the Borax Co. and the Societe Lyonnaise des Mines et Usines de Borax, with unexpired terms of forty and ninety years respectively, Mear & Green, Ltd., the chief producers of Chili and Peru, with a large number of options, especially in South America. The above list indicates shortly the main sources from which the commercial product, borate of lime, is mainly obtained. The United States is the largest producer, but owing to the great internal demand she is also an importer to some extent. The United States Geological Survey's report for 1903 gives the production as 34,430 short tons, six-sevenths of which is 25% ore. The following are the latest statistics we have of the other main producers, arranged as far as possible in order. Chili is the next in importance after the United States, the output for 1903 being 15,732 tons, which H. D. Hoskold, in his investigations into the position of the industry in South America, estimated at 44%. Turkey probably produces some 9000 to 9000 tons, but there are, of course, no official statistics. Peru gave 5055 tons of borate of lime in 1903, estimated by Hoskold at 45.9%. Italy's contribution in 1903 was 2583 tons. Bolivia, according to official statistics in 1904, gave 196 tons, of a percentage, according to Mr. Hoskold, of 38.74%. The output of India, probably the oldest source of borax, was in 1904 only 212 tons. The Prussian production is a similarly negligible quantity, being 135 tons for 1903. Like other portions of the subject the genesis and depositions of the known formations of borax ores does not seem to have been very fully studied, but it is generally believed that the boric acid was liberated from the containing magma, and rising in gaseous form was condensed on contact with air temperatures, being subsequently dissolved by atmospheric waters and carried into the lake and river beds where it is now found as lacustrine deposits. In some cases, also, it is believed that the fissures may have discharged their gases into the water basins. In any case, it is to dry and desert tracts that attention mainly turns for such discoveries, and this fact is, no doubt, largely responsible for the success of the control in checking competitors. The distance of the unworked supplies and the desolate character of the country in which they occur make the construction of railways or some similar medium a necessity, so that they are valueless save to a concern with large capital; thus the combine is easily able to secure options over any new district, which is in this way closed to further operations.

Deposits exist, and have been worked, in Oregon, Nevada and California; the principal active source of supply in the U. S. A. is the Calico deposit in San Bernardino county. The American industry, moreover, owes its existence largely to the import duty, which under the Dingley tariff is 5c per pound, and against any loss from its removal the great interests of the Trust in South America amply secure them. What arrangements they may have with the administrations of Chili, Peru, and Bolivia, is not known.

ite, 49% to 50%; hydroboracite, 41% to 48%; ulexite, 42%; tinkalite, 37%, which derives its name from the material shipped to Europe from the Tibetan deposits in earlier days; pandermite (named from the Turkish port of shipment), and colmanite. The Chilean supplies are derived from the districts of Ascotan, Salinas Grandes, and San Pedro de Atacama. The Trust has a line connecting Ascotan with the Antofagasta railway, and the operating costs are given by Mr. Hoskold as follows: Exploitation and drying, 51s 5d; carriage to Antofagasta, 27s 4d; freight to Europe, 26s 10d; insurance expense, 1s 6d; total, 107s 6d per ton, which, considering that the percentage of boric acid is about 44, is believed to be representative of the most favorably situated deposits. With the growth in production, the price of borate of lime has gradually declined. The price in 1864, when the industry started in the United States, was £150, and in 1899, when the Trust began operations, it was £13 10s, falling to £9 at the end of that year. The retail price of borax, according to Messrs. Sacre's table published at the beginning of the present month, was £12 5s 0d. The policy of the Trust appears to be to restrict the price to a figure such as not to tempt competitors into the business, while relying on reduction in price to broaden the basis of consumption, though if the figures quoted above are representative there is a good margin of profit. The uses of borax are extensive. It is widely employed in glass, tile pottery and enamelled iron work, as a flux in metallurgy, and for solder, as a constituent of soaps and washes, in the textile turning and printing trades, as a drying agent in paints, oils, and varnishes, while as a food preservative and in medicine its use is widespread.

Oct. 14, 1905 p. 265

Kern County.

(Special Correspondence).—The California Mines Co. has bonded the Baltic mine, 1 mile from Randsburg, and is sinking a 200-foot shaft and building a 60-ton cyanide plant. E. R. Abadie, Jr., is superintendent.—C. A. Burschaw contemplates opening up the Phoenix mine in Johannesburg.

Randsburg, Oct. 10.

(Special Correspondence).—The Exposed Treasure M. Co., operating at Mojave, has decided to cease milling operations for a few months, and will deepen their shaft another 1000 feet. High grade ore, unsuitable for treatment in a free-milling gold mill, has been found below water level. The quantity of water has proved very large, and a large pump will be put in. After further development a new plant, suitable for treating the unoxidized ores, will be put up. C. De Kalb has been retained as consulting engineer.

Mojave, Oct. 11.

Mineral and Scientific Press
Oct. 21, 1905 p. 281

Kern County.

B. Ostick, who has a lease on the Merced mine, in the Stringer district, near Randsburg, is taking out rich ore.—J. O. Balschweid and Y. Ray have a lease on the Pearl Wedge, in the Stringer district.—E. Shipsey and J. J. London are leasing on the Napoleon, in the Stringer district, and have uncovered a vein of high-grade ore.—H. Giandoni and C. Taylor are leasing on the Little Butte, in the Stringer district.—Regarding tungsten properties near Randsburg, the Californian states that P. Mertz and M. C. Curran are working on the Opportunity and are taking out some very rich ore that goes as high as 72% tungsten. The ore is being sacked for shipment.—T. McCarthy and C. S. Taylor have received returns from a carload of tungsten ore which they shipped to Germany recently. It netted \$8000 after paying freight and all other expenses.—McCarthy, Taylor and Giandoni are crosscutting at the 135-foot level in the La Cross mine to tap the rich body of ore believed to pass into the La Cross from the Sunshine.—J. J. Osborn & Bro. are sinking a shaft on a fraction claim adjoining the La Cross and Sunshine mines.—A. E. White, owner of the Sydney mines in the southwestern part of the district, which is known as White's camp, is working four men on the Sydney annex. The shaft is down 200 feet and a drift is being run.

Oct. 28, 1905 p. 297

San Bernardino County.

J. T. Kerr and J. C. Button of Colton have sold to the Big Lode M. & M. Co. of Los Angeles the Big Lode No. 1 and Big Lode No. 2, 3 miles east of Rock Springs and 1 mile north of Old Holcomb valley.

San Diego County.

After having been unwatered, the Stonewall mine, east Julian, has been closed down.

Kern County.

Atkinson Bros. are working the Sunshine mine, near Randsburg. They have put in an air compressor and will put in power drills. A 15-ton cyanide plant is being put in to work the tailings, of which there are about 1300 tons now on the dump.—F. D. Mann, superintendent of the Gold Coin and Stanford mines, is working twelve men and is in a good body of ore on the 250-foot level. The ore is high grade and is being milled at the company's mill in Johannesburg, known as the Red Dog mill. The Butte and other mines which have not yet put in mills of their own have their ore worked at the Red Dog mill.—In Mountain Springs canyon, near Randsburg, a Nissen mill has been put in for the Mount Vernon M. Co. The company has sufficient water and is developing more.—The well being sunk by the Yellow Aster Co. at Squaw Spring is down 1200 feet and the prospect for a good flow of water is good.

The California Mines Corporation, which has a bond on the Baltic mine, near Randsburg, E. R. Abadie general manager and superintendent, has two shifts sinking in the main shaft, which is down 185 feet. When the 250-foot level is reached they will crosscut. The shaft will be continued down to the 500-foot level and drifts and crosscuts run at each 100-foot level. A 50-ton cyanide plant to work the tailings now on the dump is being put in.

Nov. 11, 1905 p. 332

San Bernardino County.

The estate of H. L. Drew and J. B. Osborne have sold to the Guggenheims claims in the Ord mining district for \$300,000. The property lies on the western slope of the Ord mountains, 144 miles from Daggett. The purchasers have had experts inspecting the property for several months. The claims affected are the Rio Vista, Plainsville, Bluff, Central, Coupon, Last Chance, Josephine, Modesto, Aztec, Sunflower, Brilliant, Keystone, Climax, Wild West, Cliff, Tehachapi, Atlantic, Conception, Sunset and Empress. The Guggenheims have a large force already employed, and machinery will be shipped from San Francisco.

San Diego County.

(Special Correspondence).—Gold has been discovered near the Sweetwater dam.—Calcium carbonate has been discovered on the El Cajon grant, near Lakeside. A lime kiln may be built.—Calcium tungstate has been found on the road to Yuma from San Diego.—Mispickel has been found near Pine valley, and, from specimens received, seems to be very rich in the compound.—The Stonewall mine at Cuyamaca has closed down indefinitely.

San Diego, Nov. 8.

Kern County.

The Greenback copper mine at Woody is to be worked after being idle for five years. Joseph Werringer, one of the owners, has leased the property.

Nov. 18, 1905 p. 350

Inyo County.

(Special Correspondence).—It is reported that the lead, silver and gold mines at Resting Springs in the southeast part of Inyo county, 100 miles northeast of Daggett, have been sold to the Guggenheim syndicate by J. B. Osborn. About forty years ago these mines were equipped with smelters and extensive operations carried on, but work was discontinued because of difficulties of transportation.

Daggett, Nov. 13.

Los Angeles County.

Capital is being interested in dredging placer ground in Soledad canyon, near Saugus.

San Bernardino County.

Southern Pacific officials state that the engineers and riprappers who have been at work for months at Salton in an effort to check the flow of water from the Colorado river have been successful, and that the waters are now practically under control. Experiment after experiment had proved unsuccessful, and the railroad company has been compelled to build several successive new tracks to get away from the encroaching water. The engineers, by constructing a heavy riprap of re-enforced piling 600 feet long across one channel of the river, forcing the water to back up and flow through the other channel and away from the company's property, have stopped the damage.

Nov. 25, 1905 p. 369

San Bernardino County.

The Arizona-Mexican M. & S. Co. are slowly building their plant at Needles. The dust chambers have been completed and the base of the stack has been placed. The mixing floors are ready for the handling of ores and fluxes. The sampler building is nearing completion.

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Dec. 2, 1905 p. 387

San Bernardino County.

According to a United States Geological Survey report, the main borax deposit of the Borax Con., Ltd., known as the Calico deposit, is that from which by far the largest portion of the product of the United States is derived. This deposit is not found in well-defined ledges, but in pockets which may develop into very large deposits. The mining has not been carried on to any considerable depth — not more than 500 to 600 feet. The ore found is colemanite, and varies in percentage of boric acid contained, but is seldom shipped unless it averages 35% or more. Any lower grade is calcined at Marion, where it is put through a Holthoff-Weshey furnace. At Daggett the company is running its roaster to full capacity. The American Borax Co.'s works at Daggett are connected by rail with the mine 7 miles distant. The ore is a borate of lime, varying in boric acid contents from 7% to 30%, and is treated by a process invented by Henry Blumenberg, Jr. The resultant material is shipped to the Brighton Chemical Co., New Brighton, Pa., and is there converted into borax and refined boric acid. It is now producing from these low-grade ores a carload of boric acid every week. The Columbus Borax Co. owns a mine 5 miles south of Daggett, but is at present only operating the deposit it owns in Ventura county. The mines of the Palm Borate Co. are 6½ miles from Daggett. The ore is a borate of lime in a clay formation. The boric acid was probably formed in the bed of a lake and tilted up during some upheaval of the earth's surface.

Dec. 16, 1905 p. 419

Kern County.

(Special Correspondence).—The Zenda mine, on Caliente creek, is putting up a 10-stamp mill.—Mr. Blood of San Francisco is putting up a 10-stamp mill near Caliente creek, on the Gold Peak M. Co.'s property.—A. D. C. McKay is working the Jeannette claim on Pinte mountain and taking out good ore.—The Barbarosa mine, recently bonded to a French syndicate, is working seven men developing their ore bodies on the lower level.—The Atlas mine, owned by A. W. McRae, has started up again.—The Minnehaha M. & M. Co. have completed a 3-stamp mill and are concentrating their low-grade tungsten and crushing and sacking high-grade tungsten. They intend to start tunnel No. 6 to tap the main ledge at a depth of 850 feet, having to run 900 feet. M. D. Hamilton is general manager; H. B. Ward, superintendent; and H. Wischmeyer, foreman. H. Wischmeyer has bought the Bear claim from Theo. Crees.—E. F. Evans has bought one-half interest in the Golden Rule from James Rayme. Active work will be commenced by E. F. Evans and Judge Dearborn soon, sinking 200 feet on the ledge. This ledge carries \$10 per ton free.—The Initial claims, owned by H. C. Jones, have been bonded to San Francisco parties.

Paris, Dec. 12.

(Special Correspondence).—The Phoenix mine, near Johannesburg, has been closed down, on account of lack of water, by Superintendent Gender.—The Yellow Aster has found water 15 miles from the mine after sinking 1600 feet.—Sulphide ore has been struck at the 550-foot level of the Butte mine, near Randsburg.—Rich ore has been found at the 300-foot level of the Orphan Girl mine, 3 miles from Randsburg.

Randsburg, Dec. 13.

The Francis M. & M. Co. is preparing to start development on the Francis mine, 40 miles north of Mojave. The 700-foot shaft is being unwatered. Besides the cyanide plant, the Francis company has two 2-stamp mills. J. C. Meadows of Kansas City is president.

Mining and Scientific Press
Dec. 23, 1905 p. 429

Notes on Southern Nevada and Inyo County, California.—II.*

Written by H. H. TAFT.

FROM VEGAS TO ASH MEADOWS.—For about 90 miles the road follows a succession of desert valleys. The Las Vegas mountain, north, and the Charleston mountain, south, both of Carboniferous limestone, are little disturbed, but the small spurs west are considerably contorted. About 12 miles northeast of Ash Meadows, north of the road, the limestone beds are tilted and underlain by quartzite, and a little south of the road there is a small area of basaltic lava which has overflowed a recent volcanic tuff. For a distance of from 2 to 20 miles southeast of Ash Meadows there is considerable quartzite. Although prospectors report some lead and copper, the region is unattractive on account of the absence of eruptive rocks. On the northwest slope of Charleston mountain are two old mining districts, the Montgomery (now known as the Johnny) and the Stirling. These districts, abandoned for some years, have now taken on new life. The ore is gold quartz, with a little pyrite and chalcopyrite.

THE AMARGOSA DESERT.—This desert valley is about 100 miles long and forms with Death valley a long, narrow U, extending northwest-southeast. The upper end, 4000 feet above sea level, is formed by the joining of the Grapevine and the Amargosa mountains. The former is the northern boundary of Death valley and the latter contains the Bullfrog mining region. The Amargosa is cut through by the Oasis, a narrow valley, in which are numerous springs and a little running water. Opposite the Oasis the Amargosa is 12 miles wide; farther south it widens rapidly. Between the mouth of Forty Mile canyon and the Funeral range it is 30 miles wide. Here the road is so dry and sandy that freighters have to "double," and then can only travel at half the usual rate of speed. The roadside graves and skeletons of draught animals are mute witnesses of hardships here experienced. An enormous sand dune shows that the contour of the mountains has some peculiar effect upon the winds.

Forty-five miles southeast of the Oasis valley is a series of springs. The general locality is known as Ash Meadows. Here the valley is 15 miles wide from the Meadows to the Funeral range. In a distance of 6 miles there are four springs flowing about 50 miners' inches of water each, and a number of smaller ones. The temperature of the water in the larger springs is 76° F. and in one of the smaller ones 94° F. All these waters carry a large proportion of sodium carbonate, a remarkable amount of aluminum, a little borax and a small amount of sulphates. From the southerly spring a stream flows for a distance of from 5 to 20 miles, depending upon the season. Below these springs there are large areas of apparently good meadow land, but the rushes, salt and wire grass are of little value as fodder.

Pahrump ranch is 30 miles southeast of Ash Meadows, and 6 miles farther is the Mause. These ranches are veritable oases, and the extraordinary market which they enjoyed last winter for fodder, vegetables and fruit was a godsend to their owners.

BULLFROG MINING DISTRICT.—At the head of the Amargosa desert the Grapevine range, 3000 feet above the valley east and 7000 feet above Death valley west, is flanked east by recent volcanic tuffs. Along the summit occur limestones and quartzites dipping east, and a lime conglomerate, carrying granite, diorite and quartz, such as occur many miles north.

The Amargosa range, lying between the south end of the Ralston desert and the northwest end of the Amargosa, is formed by series of tuffs superimposed upon limestone. The various members of the volcanic series occur with the regularity of sedimentary strata, and the upper (consequently more recent) ones are highly colored. They dip 10° to 20° northeast. An extensive block faulting has exposed the edges of the various flows, particularly from the west, the escarpment being on that side. About 2 miles west of the Bullfrog mine is a small hill of gneiss, overlain by strata of chloritic slates, quartzites, limestones and tuffs, dipping flat to the east.

On August 10, 1904, two claims were located as Bullfrog No. 1 and No. 2. From August 10 to September 14, 1904, a large number of claims were located on what are known as Ladd and Bonanza mountains, about 3 or 4 miles southeast.

The Bullfrog Mining Co. was formed to take up a group of Ladd mountain claims, and later the first

mile farther south, aspired to be the metropolis. Out on the desert west of Ladd mountain the same thing was done, and the "town" was named Bonanza. Four miles from the latter place, in the Oasis valley, on the bank of a stream of running water, the town of Beatty, named for a ranchman living a mile above, was laid out, and soon became the most populous place. Three miles below Beatty a group of tents bore the name of Gold Center. In March, 1905, in a cove made by the desert in the Amargosa mountain, between Bonanza and Ladd mountains, Rhyolite was laid out, and Bullfrog and Bonanza moved to it. This place is 5 miles from water.

About 10 miles southwest of where Oasis valley breaks through the Amargosa range, the cliffs are of limestone, which pitches west and is soon buried beneath the soil and the volcanic tuffs that have probably borne it down. In several places the contact is exposed, and there are evidences of a flow of water not accompanied by a siliceous deposition, except in and near the Bullfrog claims. Between Ladd mountain and the Oasis creek there is a place where there has been a considerable spring on the contact. Boulders of granite 3 inches in diameter are scattered over an area 100 feet square. There is no silicification and no mineral. The Bullfrog claims cover an immense outcrop that can be seen for miles, and are only 3 miles from a spring that has been frequented by prospectors for 30 years or more. The white quartz lies like a crescent around a small dome-shaped hill, following the contact, which dips 80° north 60° west into the hill. The quartz has a maximum thickness of nearly 100 feet, and is generally massive, though sometimes there are large slightly amethystine-tinted crystals with a conchoidal base. A later cracking has occurred, and a flow of water depositing copper sulphides and the precious metals. Wherever a green stain occurs visible gold can usually be found.

The other properties of this district are entirely different, resembling somewhat those of Goldfield. There has been a nearly vertical fissuring, followed by a flow of water heavily charged with silica, filling the fissures and soaking into the country rock. One can find all gradations, from pure quartz to slightly silicified country rock. These are the so-called rhyolite dikes. The country rock itself had a slight mineralization, which this silicification did not increase. A secondary and much less extensive cracking and in-

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stained with manganese. There are many of these veins and they were easily found; but to discover ore shoots in them is quite a different matter. The amount of work done in both this district and Goldfield during the past winter has been remarkably small.

An interesting and to the prospector a very important phenomenon is the covering of these veins. The older tuffs are mineralized and the more recent (upper) are not; the older are basic, while in the upper there is a flow of rhyolite. At Tonopah it is quite noticeable that the rhyolite is more recent than the "mineralized porphyry." The regularity of the eruptions and the exposure of the edges of the often highly colored strata make this an ideal place to study this phenomenon.

FUNERAL RANGE.—The Grapevine and Funeral ranges are practically the same. Old-timers do not agree as to the dividing line. With the mountains south they form the eastern boundary of Death valley. There has been much searching in this range for the lost Breifogle mine, one of the romances of the desert. Except in one place, both ranges are poor prospecting ground. The general formation is quartzite and limestone, overlaid by immense deposits of recent conglomerate. In the north end of the Funeral range there is a development of green shales, identified elsewhere as Cambrian. These shales usually carry white glassy quartz, which is rarely mineralized; but in this case there are ore shoots carrying sufficient gold to make the district attractive if wood and water were more available. One property has recently been thoroughly developed under bond in this district.

To the south the range ends abruptly, near where the wagon road from Ash Meadows to Furnace creek crosses. The division along the dry watercourses followed by this road is remarkable; they have large boulders of quartzite and limestone north, and on the other side black and brown lava. South, the topography is broken and mountainous, but not in a distinct range. The Green mountain, still further southwest, is another field for prospectors. One small stamp mill is running at the foot of this mountain on the Death valley side. Still farther south, the drainage of the Amargosa cuts through into the Death valley.

GOLDFIELD.—The tuffs (andesite) of this district probably lie upon limestone, elsewhere identified (e.

enough of the precious metal to make it possible to sort out some shipping ore.

The country rock shows more mineralization than in the southern district, and has been much more disturbed since the mineral deposition. There are three large intrusions of alaskite, and a great many dikes of a green rock, probably decomposed trap, which is closely associated with the original andesite. Standing upon one of the intrusions, Vindicator mountain, one can see, both from the workings and the color of the country rock, that the mineralized area takes the form of a ring. It is yet a question whether the central part will prove of value or not. Outside, the field is completely surrounded by more recent tuffs, overflowed on the west side by dark basaltic lava, which forms a mesa some 4 miles square between Goldfield town and Montezuma mountain.

The topography presents simply hills with higher hills or low mountains around them, except to the north, which opens out to the San Antonio desert. Montezuma mountain (altitude 8000 feet) is 8 miles west. The old Montezuma lead-silver district is on the west slope of this mountain. The castings in the 10-stamp mill and 36-inch water-jacket furnace bear the date of 1886. At Lida, a boiler front recently reset was cast in 1866.

A very prominent geological feature is the reef of silicified country rock, usually called rhyolite dikes, found all over the district, but more numerous to the south and east. They are sometimes very large (50 feet), but generally about 10 feet thick; and they extend in all directions without regularity, frequently crossing each other. They are sometimes 2000 or 3000 feet long, and again but a few feet, and exhibit all grades of silicification. On the surface they are hard and flinty; but underground, away from the weather, the rock, although harder than the andesite, which is quite soft, is not bad for drilling. The phenomenon of blackening, so noticeable in the desert and recently described by Prof. Blake, is very apparent.

The gold was deposited by successive flows of water in or near these reefs, as was the case with the dikes at Victor, Colo., but there are exceptions, as in the Velvet and Tonopah Club claims. Again, as at Cripple Creek, one often hears that the country rock shows value, and not the veins. At the surface the gold is very free, and is fine in both grain and grade. Below the zone of oxidation, the ores are not very thoroughly understood. There is probably considerable difference in the different properties. It is now certain that tellurides are present; but the principal accompanying mineral is, as usual, pyrite. Although there is no copper stain near the surface, there is considerable gray copper at depth. There is rather more antimony than arsenic, but both are present.

It is too early to say what will be the solution of the metallurgical problem. The low-grade ores, of which so little is known now, may be more simple in their composition. The Combination Mines Co. has provided plates, concentrators and a cyanide plant.

It is not at all easy to find the small rich streaks and lenses of ore that have given Goldfield its celebrity, and there is as yet no incentive to develop the low-grade or milling ores, which will later be important ones. The charges for freight and treatment are now \$32 per ton.

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County, California.—III.*

Written by H. H. TAFT.

The Jumbo was sampled many times and "turned down." It was bonded and a shaft was sunk, with no results. On the Quartzite a shaft was sunk and trenching done and the property was given up. On November 10, 1902, H. Stimler and W. A. Marsh camped at Rabbit Spring, where Goldfield now gets its water, and soon after made locations in the Sand Storm section. In the spring of 1904 the Sand Storm and Kendall claims were carefully explored, with no results. In the Jumbo gold was found by panning the soft rich country rock close to the reef which was rich; but the vein was found later in the reef, through which it takes a zigzag course.

After the incorporation of the Jumbo Mining Co., leases were let for the last seven months of 1904, according to the custom of the district, in blocks 200 feet long by the width of the claim, royalties being set at 25% of the gross yield. These leases yielded over \$1,000,000. The best piece of ground, 200 feet long and 200 feet deep, yielded in round figures 2000 tons of \$350 ore and 3000 tons of \$50 ore. The Quartzite and the Sand Storm are now among the active shippers. One lot of 14.5 tons from the Kendall claim of the Sand Storm group yielded on the plates of a stamp mill \$45,785 and is said to have left tailings valued at \$1000 per ton.

The Combination Mines Co. is the only corporation in the district that is carefully preparing for regular future production. Good buildings are under erection, a pipe line has been laid 10 miles to a spring, and a well-built mill has been completed. The principal vein is parallel to that of the Jumbo. Just to the northwest, on a cross vein, is the January, which has a dump of several thousand tons of milling ore awaiting treatment. The Florence mine, one of the best, is on another cross vein east of the Combination. This group of four mines is the most important in the district.

Four miles north of Goldfield town is Diamondfield, about 1 mile north of which occurs another group of promising mines from which some shipments have been made. One of these is the Black Butte, a prominent topographical feature. On this property has been developed ore of probably the lowest grade (\$20) mined in the district. A short distance north, on the slope of the butte, is the Quartzite "fraction," one of the most promising properties now shipping ore. Half a mile north is the Vernal, which has also shipped some ore. To the northwest are two very strong quartz reefs, in which very limited prospecting has not yet developed any important ore bodies.

The explorations near the Sand Storm, 3 miles west of Diamondfield and a little farther from Goldfield, have not been specially fortunate, except in the Tonopah Club, which is in the low ground lying between Diamondfield and the Sand Storm.

Northeast of Goldfield town some important discoveries have been made; and ore has been shipped, notably from the St. Ives, a claim covering a very prominent reef near the Jumbo, and from the Cimerone. The latter was found during the summer of 1904, and the finder literally camped on it, putting his

tent and bed over the rich place, until he had succeeded in buying the fractional claim from the original locator. Then he made the discovery public, and in a few weeks sold out, it is said, for \$60,000 cash.

In March, 1905, the town of Goldfield, lying between the Combination mine and the mesa at the foot of Montezuma mountain, had an estimated population of 10,000, and Columbia, practically an extension 1 mile northwest, had 2000, and Diamondfield about 500. Goldfield and Columbia are supplied with excellent water by two 2-inch pipe lines. The water comes from under the mesa immediately west. The Combination Mines Co. has a pipe line from the Warm Springs. Twenty miles west of Goldfield is the Silver Peak marsh, where there is an open lake.

Both at Bullfrog and Goldfield the situation is somewhat discouraging. In March last scarcely fifty men were working at Bullfrog and about 200 at Goldfield. While actual development was thus neglected, the industry of transferring to new corporations groups of claims, good, bad and indifferent, of selling the stock of such corporations, was active. All American mining districts have passed, and will doubtless hereafter pass, through such a period.

TONOPAH.—The veins in this district are much stronger and more condensed and possess the regularity of silver veins, which they should be deemed to be, since the values are about two-thirds in that metal. The railroad has only been in Tonopah a year and has been overwhelmed by freight for the newer districts. One small mill, owned locally, is operating. The owners of the developed properties do not seem to think that the time is yet ripe for large reduction plants.

About 1500 tons of high-grade ore is shipped weekly to the smelters, and, incidentally, an enormous

TRANS. AM. INST. MIN. ENGS.

one company has \$35,000,000 in "positive ore." In one of the mines 60 feet thickness of \$28 ore is reported. The maximum depth reached is 1000 feet. This district has, therefore, long passed its doubtful stage.

The country rock is andesite, so overflowed by more recent volcanoes that very little of it is exposed. The explorations of the past year have gone through this overflow and found ore by drifting in the "mineralized porphyry" below.

The development of milling, always an expensive and interesting problem, will be unusually so in these three districts. Their ores, though different, are all typically milling ores, consisting of quartz with very little base metal. Should smelting be necessary, there are several flux-producing districts, now idle, which could be drawn upon.

BORAX DEPOSITS.—South of the Funeral range, in the region drained by Furnace creek and on the Amargosa side of the mountain, is a large development of recent sedimentaries—shales, clays, sandstones and thin sheets of gypsum. There are a few intrusions of later andesite and a heavy flow of black and brown basaltic lava. In these sedimentaries immense deposits of calcium borate occur, conformable with the strata. The most common mineral is colemanite. As one might expect from an element possessing the peculiar solubilities of borax, there are many combinations of boric acid, lime and soda under various mineralogical names. There is some question as to the origin of the deposits. The Pacific Coast Borax Co. first obtained title under the placer law, but now favors lode locations. That company has the region pretty well "corralled" for borax. The rocks are highly colored. The country is bare of vegetation and water is scarce.

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The borax deposits are remarkable in size and purity. In one place there is an outcrop of calcium borate 30 feet thick. At the Lila C. mine, on the Amargosa side of the range, 35 miles from and in sight of Ash Meadows, is a deposit, from 3 to 17 feet thick, dipping about 45° E., and explored on the surface for a mile. The underground workings are in the vein (?) for a quarter of a mile. This is the property that will bring a railroad to this section.

DEATH VALLEY.—Much has been written about this valley and a strange amount of romance is attached to it. The prospector could easily find a more promising field and a less expensive place to work a mine in. It is a long, narrow valley, very deep and surrounded by high mountains. The Panamint and Sentinel peaks reach an extreme elevation of 11,000 feet, while Death valley, hardly 10 miles west, is 200 or 300 feet below sea level. A similar difference of elevation occurs 80 miles northwest, between the summit of Mount Whitney and Owens Lake valley.

Under one general name there are three connecting valleys: Death valley proper, Lost valley and Mesquite valley. The upper end of the latter is only about 30 miles from Goldfield. Instead of being the horrible region usually reported, it is the best of the desert valleys. Lying so low and being shut in by surrounding mountains, it is hot in summer; but the winter climate leaves little to be desired, particularly by those who require a dry atmosphere. It is but a few miles west to an elevation in the Panamints, where in the shade of the pines the traveler can be comfortable and look into the sweltering valley below, while a battery of abandoned charcoal kilns might make him fancy he was summering near Lake Superior.

The name Death valley comes from the loss of an emigrant train in the lower end of Lost valley. The party was on the way from Salt Lake to southern California, and, becoming exhausted, stopped to rest in what appeared to be a meadow. The salt and wiry grass is not nutritious; the water is saline and carries enough sulphates to disarrange promptly the human digestive system. The spot, where it is said about fifty people perished, has been dug over for buried treasure, and last winter many of the pits were in brackish water. Some prospectors, also, have lost their lives in the south end of the valley.

At the mouth of Furnace creek the Pacific Coast Borax Co. maintains a ranch, having 200 acres in alfalfa and wheat. Twice a month a 16-mule team arrives from Dagget, 160 miles away on the Santa Fe Railroad. Three miles from the ranch are the old Coleman Borax Works.

Furnace creek and several streams south, usually dry, bring down borax in solution. For a few miles in width and a length of about 30 miles, the lower part of this valley looks like a mud flat with the tide out. These places are locally called marshes, although they have no vegetation. The borax is here a double borate of lime and soda, commonly called "cottonball."

A peculiar phenomenon, better seen in this than in the other valleys, is the "self-rising ground." The soil carries a large proportion of soluble salts, sodium carbonate, sodium chloride and various sulphates and borates. Evaporation is excessive; the subsoil is moist, being constantly supplied by springs; and capillary attraction brings the salts to the surface. This does not go on evenly, but forms hummocks sometimes 2 or 3 feet high, hard on the surface and soft beneath, making a bad and sometimes dangerous ground to walk across. The same natural laws have

caused the surface enrichment of some mineral veins in the desert, particularly veins of copper ore.

The atmosphere in the valley is remarkably clear and possesses the resonance so noticeable above timber line. There is no truth in the story about birds and animals dying in attempting to cross the valley. The Indians and the Borax Co. keep several hundred cattle and some mules and horses about the mouth of Furnace creek, and rabbits, quail and other small game can be found.

PANAMINT RANGE.—This range is unusually high and precipitous, starting at sea level instead of several thousand feet above, as most other high ranges do, and having no foothills. The rock is green slates, mica schist, quartzite and limestone. On the west side is an intrusive granite which has tilted the whole formation, the larger part of it to the east. The green slates carry fine-looking quartz, but so far it has not been found to carry values. On top of the range are large areas of recent conglomerate and basaltic lava.

Panamint City had once 6000 people and is now reduced to a few old-timers, who say it will soon start again and make "the greatest camp on earth." The ores are of silver—refractory and heavy, with a pyritic gangue. The railroad is 90 miles away.

On the west side of the mountain every gulch for 46 miles has some sort of a mining equipment, usually a small stamp mill and owned by some Los Angeles company. The first question asked of strangers is: "Are you from Los Angeles?" It is best to answer: "No."

LEAD MINES.—South of the Amargosa there are some lead ores and two large deposits of iron ore. They are too far from a railroad to have anything but speculative value.

The mountains between the Panamints and the Sierra Nevada were once the scene of great activity in lead-silver mining. Old roads constructed at great expense, smelting plants at the mines and charcoal kilns many miles away in the timbered mountains are mute evidences of this former scene of activity.

Cerro Gordo, Darwin and Modock produced between 1870 and 1880 approximately \$25,000,000. The first-named was the heaviest producer, furnishing the largest quantity and lowest grade of ore, while the last produced the smallest tonnage and the highest grade. They are all at or near the contact of granite and limestone. Unlike the deposits at Monarch, Colo., along a similar contact, these ore bodies are from a few feet to 300 feet away from the contact, in cracks and crevices of the limestone.

At Darwin there is an anticlinal about 6 miles long, the west side of which dips about 45° and the east side more steeply. The latter carries some copper, while the former shows none. The oxidized surface ores contain roughly one ounce of silver to 1% of lead and the galena ores two ounces of silver to 1% of lead. From the old books left at some of the works it would appear that the average ore contained from 40% to 60% of lead. The gangue is iron and lime, with some silica. There are four smelting plants near this place, one of which is in good condition, and twenty persons are still living in the town.

The "on dit" of the country is that the ores became too poor to work at a depth of 800 feet. While these mines were working Mojave, Cal., was the nearest railroad point, and wood and charcoal had to be hauled long distances. From the charcoal kilns in the Panamints to Darwin is 50 miles. The altitude of the kilns is 8000 feet, that of Darwin 6000 feet and that of the intervening Panamint valley 1100 feet above tide. The price of fodder must have been high. The nearest farms are now 50 miles away.

Cerro Gordo is 7 miles from and 3500 feet above Keeler, the terminus of the Carson & Colorado Railroad, 334 miles from Reno, and by wagon road 120 miles from Mojave. Here are located the soda works of the Inyo County Development Co. With diminished treatment charges at custom smelters, lower rates of freight and the flood of siliceous ore now going on to the market, it would not be surprising if these lead ores, with their useful fluxing character, should be again mined with profit.

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OWENS LAKE VALLEY.—Owens Lake valley, about 75 miles long and 20 miles wide, is drained by Owens river, which flows into the lake of the same name, about 18x12 miles in area. The water of the lake is a nearly saturated solution of sodium carbonate and common salt, with a little sulphates and borax. There is no verdure around the edges.

The river is fed by streams from the west, having their origin in the Sierra Nevada, a very high, narrow and well-timbered range. All the older settlements are on these streams, but the railroad follows the east side of the valley. A large ditch has been carried by an irrigation company down the east side of the valley to within 12 miles of Keeler, and the newcomers are settling along this ditch.

While this valley is fertile and well watered, particularly at the north end, the farmers have not as a rule been prosperous, because the market was too distant. Now a sudden change has come. From Laws station, opposite Bishop, in the upper end of the valley, to Tonopah is 113 miles by rail. It is fortunate both for the farmers and the miners that there should be an agricultural region so near.

All the streams coming from the Sierra Nevada

furnish opportunities for developing water power; already a company is preparing to generate and transmit electric power from Bishop creek to Tonopah and Goldfield.

All the grains and fruits of the temperate zone are raised here. The apples, peaches, pears and certain varieties of grapes are better than those raised on the coast side of the Sierra.

SMALLER MINES TRIBUTARY TO OWENS LAKE VALLEY.—In the south end of the Argus range and in the Coso mountains are many veins, usually only a few feet in width, of white quartz in granite, occasionally carrying gold, low in value and in spots rather than in regular ore bodies. Most mining men dislike these conditions. The Congress mine in Arizona is the only large and successful enterprise working this class of quartz.

The Beveridge and Lee districts, northwest of Darwin, have argentiferous ores. At the latter place there was formerly a stamp mill, which, judging from the amount of tailings, did not run long.

The Ubaheba district, lying between the Saline and Butte valleys, is a large, undeveloped region of low-grade copper ores in contact deposits between limestone and some acid eruptive. These valleys are very deep and would be a continuation of the Panamint valley but for an east and west mountain that looks like an enormous dam. The west end is granite; but the larger portion of the mountain is recent conglomerate overflowed by basalt.

In the mountains facing Owens Lake valley on the east side, both in the granite and the chloritic slates, quartzites and limestones, which the intrusive has thrown on edge, there are numerous veins of white quartz, carrying occasional gold values.

Between the stations of Alvord and Citrus, 3 or 4 miles from the railroad at the foot of the mountain, and well located for economic reasons, is a new stamp mill and outbuildings, now idle.

Farther up the valley, at Poleta, there is a plant running.

FROM OWENS VALLEY TO GOLDFIELD.—From Alvord station, 5 miles from Big Pine, 20 miles from Bishop and 54 miles by rail from Keeler, there is a wagon road 61 miles to Lida and 96 miles to Goldfield. This road is now much used by freighters and farmers hauling produce to Lida, Goldfield and Tonopah. Three ranges of mountains and two valleys are crossed. Between Deep Spring and Fish Lake valleys there is a gold-copper exploration near the road. In the mountains east of Fish lake are two old mills.

About Lida and between Lida and Montezuma mountain the formation is light-green slates overlain nonconformably by limestone. In the slates are dikes of porphyry and rhyolite and many quartz veins. At Lida the veins are exposed on the surface and show remarkable persistence in length; but when worked thirty years ago they were found to lose their values at a depth of from 200 to 300 feet. The ore is quartz, with little galena and zincblende. The principal values are in silver.

From Lida east to the Kawich range the rocks are all volcanic, from rhyolite to basalt inclusive, but rarely are there any of the earlier tuffs or andesites.

Gold Center is a small area, similar to Goldfield, but the ores are not particularly high grade or continuous. The soft, aluminous country rock seems to have moved too much after the ore was deposited.

Quartz mountain, 24 miles south, is of rhyolite, with veins similar to those of the Bullfrog district.

It is remarkable that so many mines have been found of late years in the volcanic tuffs, now generally known as andesite. A very large portion of them carry gold. One can not but wonder if there are not more. This is not a formation which prospectors have liked until lately; and as yet it has been but imperfectly studied. The fact that the mineral-bearing tuffs are basic, and are overlain by the acid rhyolite, is perhaps significant. Cripple Creek has a rhyolite mountain in which much money has been spent without satisfactory results. The nature of the veins, too, is new. They may often be called freaks. Mineralizations of country rock are to be expected rather than "text book" veins, such as used to be sought for.

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Tales of the Desert.

Written for the MINING AND SCIENTIFIC PRESS
by GEORGE J. BANCROFT.

By reason of deficient rainfall a large part of the West and Southwest is barren. This region is called the Desert. The lack of water is being remedied, in places, by irrigation, so that many million acres have been won to cultivation. But with all the desert's potentialities as an agricultural region, it is the mineral deposits that always did, and always will, best encourage development.

There is one portion of the desert which seems to have been reserved by some supreme power for the present generation to exploit. This is the most arid part embracing the Mojave, Colorado and Red deserts and the Death Valley country. It seems that every single prospector who made a discovery in this tract prior to the last decade, and tried to work his find, paid for it with his life. There was 'Peg Leg' Smith who set out in 1884 to travel from Yuma to San Diego. He lost his way and found a gold deposit of extraordinary richness; finally, he reached Los Angeles more dead than alive, but with his pockets full of nuggets. Prospector-like, he proceeded to go on a grand spree as soon as he had recovered from the effects of his trip. When the gold was all gone,

he borrowed a horse and slipped away in the night, returning in five days with six tobacco-sacks full of gold, and again went on a spree. He kept this up for some time, and several attempts were made to follow him; all but two men lost his trail in the desert, and those two never came back. Finally Smith agreed to take a friend with him on his next trip. He went on an unusually heavy debauch and died of alcoholism before he could even describe the location.

When the Southern Pacific grading camp had reached a point near Gloster on the Mojave desert a squaw struggled into camp one day with her mouth swollen from thirst and the fever of death upon her. The grading foreman took care of her and nursed her back to life. When she recovered she produced a buckskin bag with about \$5000 in gold and gave it to the foreman. To all entreaties she refused to tell where she got it. She said her 'buck' had died from thirst on the desert and that the Great Spirit did not want the white men to know where the gold came from. At last accounts she was living with her tribe at Yuma and still preserved the Great Spirit's secret.

In 1894 the men who drive the borax wagons picked up a prospector at Six-Mile Station and brought him into Mojave. His name was Golder. He was an old man and he was crazy from thirst and rearing death. In his pockets were three gold nuggets which had a total value of \$3654. He became partially sane before he died and tried to draw a map and show where he got the gold. He said he had been out of water for three days and his burros could go no further, so he unpacked them and turned them loose; he then climbed to the top of a high hill which was just north of where he left the burros. From the top of the hill he saw trees about five miles away and started for them. Just as he left the top of the hill he stumbled over a gravel bed full of gold nuggets. He was too far gone to stop to gather many, but he picked up the

three biggest and put them in his pocket. He went to the water and drank too much and it made him crazy. After that he remembered nothing until he was picked up by the borax team.

Such was his story. Of course there was a stampede and the packs and burros were soon found. The burros were dead. The hill to the north was just as Golder described it, but no trees were visible from its summit and no gold was found just over its crest. There was no water in that direction nearer than Red Rock, which was 25 miles distant. The man had probably been out of his mind part of the time for days and there is no telling when or where he found the gold.

Sometime in the 80's a prospector named Breyfogle came into Austin with specimens of gold-quartz literally hung together with wire-gold. He described a large vein of it as existing near Death Valley. A party of his friends was organized at once and set out for

the find. When Breyfogle got down to the vicinity of his find he became confused and could not identify it. His party lost faith in him and accused him of being an impostor. Finally they left him with a very little food and returned to Austin. Breyfogle continued his search, going into the Ash Meadows ranch occasionally to beg a little flour. One day he came in exultant. He had re-discovered his mine and had a large sack of the fabulously rich stuff. He was sick and famished but insisted on starting at once to carry the good news to his friends at Austin, so the ranchman started with him. Breyfogle became suddenly worse on the third night and died before he could tell the ranchman where to find the mine.

The new camp of Bullfrog is near Breyfogle's country and some recent strikes made in the Funeral range are said to be in the very locality where Breyfogle camped.

About the time of the Breyfogle episode two men came into Keeler and disposed of several hundred dollars worth of coarse gold. They apparently had a great quantity tied up in bags. They said they had had an awful time; that their partner had died; that there was a curse upon the land and that they would tell no one where they got the gold, that they were going to return to their farms in the middle West and never again venture on the desert. They left no names or address.

In the summer of 1869 the party of Abner McKee-

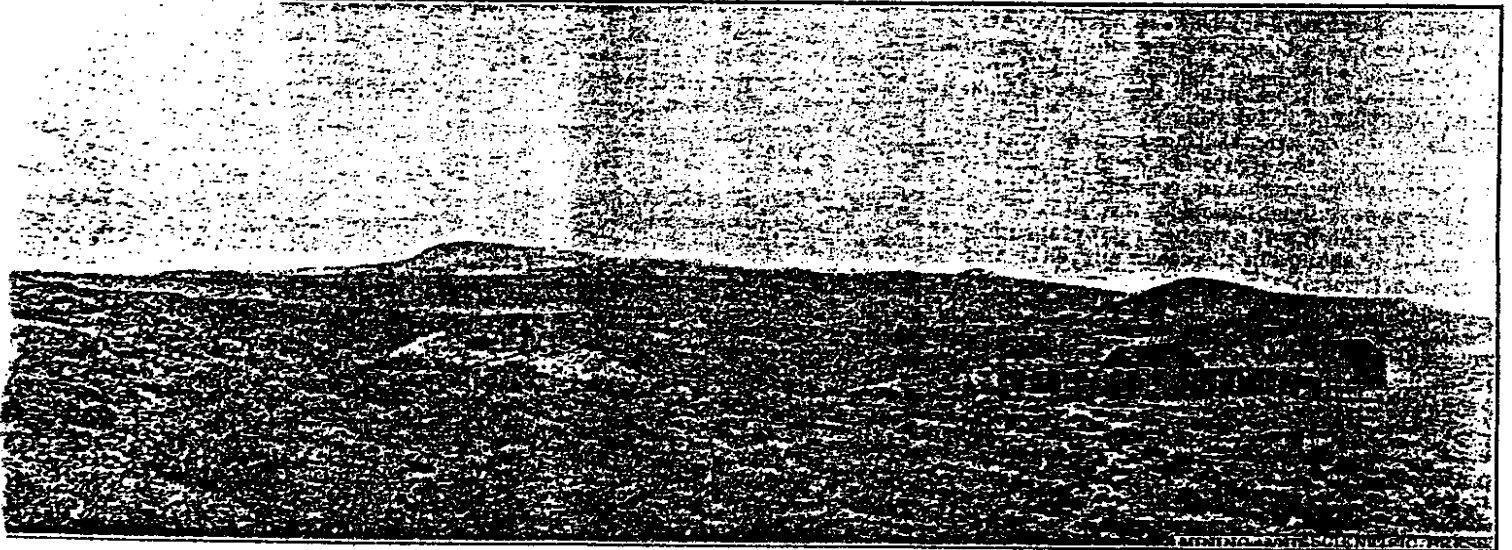
Gila near Camp McDowell, in Arizona. McKeever's pretty daughter, Belle McKeever, was carried away as a captive. A party of soldiers gave chase. The Indians separated in many bands and the soldiers were obliged to do the same. The party taking the most westerly trail consisted of Sergeant Cross-thwaite and two privates, Joe Wormley and Eugene Flannigan. These three men followed the Indian trail till two of their horses perished with thirst and all their provisions were gone. They took some of the flesh of the dead horses and under Flannigan's leadership struck out north for a range of low hills, as they supposed east of the Granite Wash mountains, where

Flannigan had seen signs of water. They found water only just in time to save their lives, but not soon enough to save the reason of Wormley, who had gone mad. Next morning Flannigan went to the spring for another drink and found the gravel was full of large nuggets of gold. He traced the gold to two veins which crossed the gully. One of these was narrow, the other about 16 feet wide, both veins were composed of honeycomb quartz showing coarse gold plentifully scattered through it. The three soldiers gathered all the nuggets they could scratch up with their hands and some of the richest pieces of rock, about 50 pounds in all. They loaded this on their one remaining horse and set out for the Gila river. The last day they became separated. Cross-thwaite

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died on the desert; Wormley reached the river and was found by some officers who straightway set out to find his companions and picked up Flannigan, who was out of his head by this time. Wormley eventually recovered his reason but could never recall anything at all of this terrible trip and the wonderful discovery of gold. When Flannigan recovered his reason and began to tell of the wonderful discovery of gold his story was so hard to believe that it was thought he still retained a mad streak due to his awful sufferings. But a few days later the horse was found dead on the desert with the gold ore still strapped on his back and \$1800 was realized from the sale of the 50 pounds of quartz. Crossthwaite's body was also found, and on it was a map showing the position of the discovery. Flannigan made several attempts to return to his find, but he was always timid about venturing far from the river, and then again he always relied on Crossthwaite's map, which was probably all wrong. Flannigan finally died at Phoenix in 1880.

So go the tales of the desert. Nowadays automobiles and frequent wells make the worst journey of all, that across the Ralston Desert, a matter of a few hours' pleasant spin. Death Valley has several thriving farms and is an ideal place to raise oranges and lemons. Mining camps are springing up all over the driest country; truly this is the day of the desert.



A Desert Mining Camp.

Mining and Scientific Press

Jan. 13, 1906 p-29

Inyo County.

T. W. Webb has uncovered a six-foot ledge of molybdenum ore, the concentrates from which run \$300 to the ton. Mr. Webb and Dr. Croxall, who are interested with him, have located eight claims and are taking out the ore for the purpose of making a test shipment. The claims are in the western arm of Death Valley.

Kern County.

John Singleton, president of the Yellow Aster Mining & Milling Co., owners of the Yellow Aster mine at Randsburg, admits that the mine will probably be sold. W. F. Botsford was given an option on the property and this option has passed into the hands of an English syndicate, which has had the mine examined and is expected to take up the option.

San Bernardino County.

J. W. Green, of San Bernardino, superintendent of the Gold-Park Mining Co., owners of fifty-two claims in Riverside and San Bernardino counties, reports that his company will at once sink a 1000-ft. shaft and will install new machinery, some of which is already on the ground. He reports that the improvements for next year will cost between \$30,000 and \$40,000. Thirty-one mining claims on which tungsten has been found in paying quantities changed hands on Jan. 5th, when papers were filed at San Bernardino. The claims are in the St. Elmo district, in the extreme northwest corner of the county. The purchasers are Edward B. Degolia and Ernest M. Atkins of San Francisco. Development work is to be commenced.

San Diego County.

The 100-ton plant of the Julian Reduction Co. at Julian has been started. In a cave-in at the High Peak mine at Julian, Sidney Pettitt, a miner, was killed and W. W. Boswell, the superintendent, was fatally injured.

Jan. 20, 1906 p. 44

Inyo County.

It is reported from Keeler that the 150-ton smelter that is being put in to treat the tailings of the old Coso-Gorda mine will be ready by the 15th of February.

Kern County.

P. H. McMahon, superintendent of the Butte Lode mine near Randsburg, states that he mined and milled during December 75 tons of ore, which plated at the Red Dog mill \$6,600, leaving in the tailings \$12 per ton. The Papoose Mining Co. has men at work on the Papoose tungsten mines taking out rich ore. They will soon ship another carload. The Gold Coin and Stanford mines, near Randsburg, are working a full force. The ore mined is being milled at the Red Dog mill under the management of Frank Mann.

Los Angeles County.

E. Reid, one of the stockholders of the Borland Mining & Milling Co. at Silverado, 24 miles from Santa Ana, states that his company has determined to build reduction works on its property.

Jan. 27, 1906 p-61

Inyo County.

It is expected that the 10-stamp mill at the Montgomery mine of the Pleasant Canyon Mining Co., near Balarat, will be finished by March 1. The 50-ton cyanide plant has been started on the tailing pile. W. P. McComas has charge.

Los Angeles County.

The Lowell & California Mining Co. has completed a water well at Palmdale. In the spring the company will install a 400-h. p. electric plant. The present 10-stamp mill will be replaced with one of 70 stamps.

San Bernardino County.

The 5-stamp mill of John Carroll near Victorville has been completed and is in operation. The stack on the dust chamber for the roasting furnace at the Arizona-Mexican Mining & Smelting Co.'s smelter at Needles is finished. The company has purchased over 2,000 tons of ore, which is bedded and ready for smelting. Dr. L. D. Godshall, general manager of the company, is at Needles.

James Tisnerat of Long Beach has bought of James Malony the Copper Glance copper claims No. 2 and 4, two miles north of Lane's Wells.

San Diego County.

Orders have been received at Julian to shut down the reduction works, the High Peak and the Helvia mines, pending advices from Los Angeles.

Feb. 3, 1906 p-77

Kern County.

The DeGollia-Atkias Co., which recently purchased the tungsten properties belonging to the McCarthy-Taylor Co., has shipped a carload to Germany from near Randsburg.

In anticipation of the drawing off of the water of Korn river by the Edison Electro Co. upon completion of its works near Bakersfield, many placer mining claims have been located along the banks of the river where the stream will be drained. The power plant will be completed in September.

San Bernardino County.

C. E. Wilbur, manager of the Standard Nitrate Co., is building a reduction plant in the Chimehuevis valley. It is expected that the steam plant at the Vir mine will be completed soon.

The Bonanza King Development Co. of Los Angeles is preparing to build a 10-stamp mill at the mine in the Providence mountains, which it acquired two years ago and which it has been working since last September. The mill is to be running by May 1st.

John O'Donnell has made a strike on his claim in the Grapevine district which has caused a rush from Barstow. The region has been located for miles.

Feb. 10, 1906 p. 94

Inyo County.

The Great Western Ore Co., of Keeler, has notified mining companies that the company's smelter will be ready to receive ore on March 1.

Mono County.

J. M. Bryan, one of the owners of the Pittsburg mine, at Masonic, says that the camp is mostly in the hands of leasees, many of whom are taking out shipping ore. There are two blocks leased on the Pittsburg, one to Whiffley & Eastwood, who have shipped over \$5,000 worth of ore to the Reno Reduction Works, and the other to Smith & Shaffield, who are also taking out considerable ore, which they are holding, as they will put up a mill on the ground in the spring. These leases do not expire until November.

San Bernardino County.

Frank Cram and J. H. Patten have purchased a 25-ton mill to be installed on the Brooklyn Mining Co.'s property at Highland.

Feb. 17, 1906 p-113

San Bernardino County.

Lyman Stewart, J. S. Torrance, F. A. Galbreath, S. have located locations covering over 4,000 acres of land in this county, supposed to contain iron-ore deposits.

San Diego County.

General Manager G. H. Clarke, of the Cuyamaca Ranch & Mining Co., is preparing to enlarge the company's mill at Cuyamaca by the addition of 10 stamps.

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Feb. 24, 1906 p. 131

San Bernardino County.

The Needles smelter was blown in on the 10th and since that time from 40 to 100 tons of ore has been reduced daily, making bullion valued at about \$100,000 every 24 hours. The plant was erected by the Arizona Mexican Mining & Smelting Co., under the management of L. D. Godshall. Mohave county mine owners have a market for their low-grade ores, the rate of new plant being made to allow of the shipment that could not be handled under old conditions. The company has mines in Mohave county capable of producing 25 tons of ore daily. These mines will soon be producing their maximum output, as the mill is about to be erected to handle the low-grade ore from the mine in the form of concentrates. The remainder of the ore will be supplied by custom ores.

D. P. Kendrick is repairing the Sloan mill, four miles from Daggett, preparatory to operating it on ore from his mine near Calico. Samuel Stokum is arranging to open the Edna and Gold Chief mines, near Barstow. The Dry Lake Mining & Milling Co. has begun development at the 170-ft. level on the Fortuna ledge at Dry Lake east of Victorville.

C. P. Dunn, president of the Red Hill Mining & Milling Co., states that the company's mill, 12 miles east of Victorville, will open on March 1. At present he is developing a water supply in the bed of a dry creek near the mine.

San Diego County.

Repair work at the High Peak mine at Julian, which was damaged by the recent cave, is about completed.

Kern County.

The Orphan Girl mine, near Randsburg, has been sold to Chanslor & Canfield, of Bakersfield, who state that they will put in new machinery and begin working the mine.

B. de Golis and other new owners of the tungsten mines, near Randsburg, have arranged to ship the low-grade ore from the mines to the mill at Barstow. The St. Elmo, near Randsburg, has re-opened with C. S. Pillor in charge.

Mar. 3, 1906 p. 149

Kern County.

The Little Butte Mining & Milling Co., at Randsburg, has leased to C. S. Taylor and H. J. Giandoni the Little Butte mines.

San Bernardino County.

L. A. Milligan has sold five claims near Barstow to Henry Mountain and William Schell of New York for \$22,500.

The sampling plant at the Needles smelter is being installed this week by the Arizona-Mexican Mining & Smelting Co. The reported discovery of rich ore by C. H. McClure, 15 miles south of Needles, has resulted in a large amount of prospecting in that locality. A new town, known as McClureville, has sprung up about the McClure claim.

Mar. 10, 1906 p. 168

Inyo County.

Flynn & Levi report having sold their half interest in the Augerbury holdings in Wild Rose canyon near Ballarat. The new owners have guaranteed to expend \$35,000 in development, to put in a 10-stamp mill, and to pipe water to the mine. The tunnel on the Harris claim in Wild Rose canyon, near Ballarat, has been completed to the distance of 150 ft. The Golden Key Mining & Milling Co. has purchased 23 claims from E. F. Kostor, J. R. Ingram and others, in the Wild Rose district near Ballarat. The new owners will continue development on a portion of this property.

The Mt. Whitney Mining Co. is putting its mill in shape, at Lone Pine, near Independence, and will begin operations shortly.

Kern County.

(Special Correspondence).—F. A. Fickert of Bear valley, near Tehachapi, has returned from San Francisco, where he closed the sale of his zinc mine, which has been under consideration for some time. The development of the property will be begun as soon as possible. Tehachapi, March 4.

R. L. Deakins and P. J. Bresnahan, owners of the Fairy claim in Fiddler's gulch near Randsburg are shipping in men and supplies and will begin development. The Zenda mill near Amalie, to which 10 stamps have been added, started up last week. H. H. Blood and others of Bakersfield will begin operations at the mill at the Gold Peck mine about June 1. Twenty carloads of machinery have been taken to the property.

Charles Taylor and Henry Giandoni have leased the 600 ft. of the east end of the Little Butte mine, at Randsburg, to January 1, 1907, including the machinery, shaft and buildings.

The Butte mine is working in rich ore at a depth of 225 ft. The deepest shaft on the mine is over 600 ft. and shows valuable ore at the bottom.

C. S. Pillor, manager of the St. Elmo mine, near Randsburg, reports that they are drifting at the bottom of the 265-ft. shaft to prospect the vein.

San Bernardino County.

Frank Cram and J. H. Patee have returned from San Francisco, where they purchased a 25-ton mill for the Brooklyn Mining Co.'s mines, at Dale. The mill is expected to be in operation by April 1. The Gold Quartz Mining Co. is sinking a 500-ft. shaft on one of its claims, 18 miles from Dale.

The Borland Mining & Milling Co. has contracted to sell its claims in Silverado canyon, 22 miles east of Orange, to C. D. Maze and a French company, who agree to do 1,000 ft. of tunneling within six months. A 42-ton concentrator, operated by gasoline, is now being put in.

Mar. 17, 1906 p. 187

Kern County.

H. H. Blood, who is putting in a 10-stamp mill in the Amalie district, above Caliente, states that the new mill will be completed in 30 days and will be ready for custom ore within 90 days. He has power sufficient to operate a 20-stamp mill, and 10 additional stamps will be put in, if conditions warrant it.

San Bernardino County.

J. Faris, of San Bernardino, reports having located a claim near Banning. No mines have thus far been developed in this vicinity.

A rich gold strike is reported made 18 miles west of the Colorado river, near Needles. Over 300 prospectors are on the ground, and people pouring in from all sections. Saturday morning County Recorder Johnson expressed 500 location blanks to the new camp. A prospector who filed a location states that the strike was made early in February, but had been kept quiet until last Wednesday.

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Mar. 24, 1906 p. 208

SAN BERNARDINO COUNTY.

The strike made by a man named McClure, 17 miles south of Needles, and another near Vontrigger, along the Santa Fe branch line between Goffs and Manuel, are attracting much attention. Both gold strikes were made in February and made public through the visits of locators to the mills at Needles. The facts became public, when there followed a general scramble, and 1,200 prospectors swarmed into Vontrigger, and nearly as many joined the rush to the McClure district. The ore in the Vontrigger district is iron-stained and free milling. Water is hauled from Lucky Dog Springs, about a mile and a half from the original location. At the McClure camp the ore taken from a shallow hole in the ledge assays 5640. The ledge is seven feet wide. At Vontrigger the original discoverers, it is reported, have bonded their claims to a syndicate of Searchlight capitalists for \$150,000. In the McClure field the original locator leased his claims to other miners, who paid \$2,000 for a long-term lease.

Preliminary work was begun on the 20th inst. by the Santa Fe, on a branch line from Barnwell to Searchlight, Nev., and the work of construction will be started in a few days. The new line will follow the route of the present stage line between the two towns, although in places a considerable distance will intervene. The total length will be 23 miles. It will be completed, the officials say, by August 1st.

Mar. 31, 1906 p. 227

MORNO COUNTY.

Charles Taylor, superintendent at the tungsten mines, near Randsburg, says they are working 23 men and taking out high-grade ore. The railroad company has put in a spur and they load cars at the mine. Shipping to the Barstow mill has proved a success and they concentrate five cars of ore into one. The first week in April they expect to ship two cars of high-grade ore direct from the mines to Liverpool or to Germany. They now call the new camp and station Atolia. A new Fairbanks & Morse gasoline hoist has been ordered for the mine and is now on the way.—George and Harry Swartout and B. B. Summers are taking rich ore from the Minnehaha, and expect to have a milling soon. The Minnehaha lies just west of the Yellow Aster mines, and some of the richest ore ever taken out in the camp came from this mine.—Everything is going smoothly at the Yellow Aster mines and mills, where they are crushing 500 tons of ore and working 175 men. The ore is at present running well.—In drilling for water near the wells in Goler wash much difficulty has been experienced in going through the boulders which compose all the drift after getting a little below the surface, and the work is slow. They have one well down over 400 ft. and struck the water 30 ft. before reaching that point. They expect to continue at least another 100 ft. The new deep well east of Johannesburg has never been thoroughly tested, as it is a difficult job to pump that depth, but the company has nearly completed arrangements to test its capacity, which will be done inside of two weeks.

April 7, 1906 p. 248

SAN BERNARDINO COUNTY.

The new mining camp, 20 miles southwest of Needles, has been christened Sunrise. The district, since its first exploration some years ago, has been known as the Sunrise Mountain district, because it lies upon the north slope of the Sunrise mountains. Some years ago a shaft was sunk to a depth of 120 ft. on the Monumental group. From this shaft the present water supply for the camp is taken. The property has been idle, although parties have examined it, but there has always failed to be a transfer, although the reports show the property to have good orebodies. A little farther to the north and nearer Needles, a shaft was sunk some years ago but they failed to find payable ore.

A few months ago C. H. McClure discovered a quartz ledge. Hornings showed it to contain gold. Assays showed better results. This property was located and developed to a depth of 30 ft. Assays have run up into the hundreds of dollars per ton. The claim was named the Gold Dollar. The ledge was ill defined at the surface but with sinking it has developed from a ledge of a few inches to nearly 3 ft. at the bottom of the shaft. The ledge is well defined and dips into the mountain. The ore is white quartz, showing copper and iron stains and here and there particles of galena. There is nothing peculiar about the prospect except that the ledge seems to be divided near the center with a regular streak of finely pulverized, dark-brown substance several inches in width and it is this streak that has carried the higher values from the surface down. It was this property which brought the section to the attention of the public. There resulted an influx of prospectors, and many other good strikes have been made. Mr. McClure located several other properties, and has two groups, upon both of which good ore is found. A great amount of float quartz covers the north slope of Sunrise mountains and an examination of the float shows a similarity in grade and character to that in the veins. Ernest Yarbrough, a partner with Mr. McClure, is prospecting the claims and is making further discoveries daily.

M. L. Shackleford recently located some lead croppings. But little work has yet been done. The lead is associated with dark-colored spar. The croppings are regular so far as they can be traced. B. L. Vaughn, of Needles, is interested with Mr. Shackleford in numerous mining claims in the district.

W. A. Brooks, who is interested in properties in San Francisco district, near Vivian, in Mohave county, Arizona, has a camp at Sunrise and has opened a body of high-grade lead ore.

A. M. Wilkinson and T. Nay have a camp and a number of locations which show good croppings. The work to the present time has been prospecting, as near everywhere else in the district, and they have uncovered some fine-looking ledges of lead ore, which they will develop.

May 5, 1906 p. 301

INYO COUNTY.

(Special Correspondence).—Patrick Clark, of Spokane, has ordered a complete hoisting plant, operated by gasoline, for the shaft on the Copper Bluo claim of the Furnace Creek Copper Co., in Death Valley, California. James Porter reports that the shaft is down 100 ft. and that the bottom is all in 30% ore—malachite and copper glance. It has been decided to sink the shaft 500 ft. and to crosscut at the 250 ft. level. Dennis Clark, vice president of the company, says they expect to have a smelter next summer.

Spokane, April 14th.

SAN BERNARDINO COUNTY.

As illustrating the dangers to those strange to the desert region, Peter Wilson has been taken to Needles to be treated for dementia. While Wilson was unloading machinery at Vontrigger, the new mining camp between Goffs and Manuel in the eastern part of this county, he wandered away and for three days roamed over the sand dunes, in all that time having no water or food. When found he was partially clad, his shoes and stockings were gone and his feet were bleeding from several lacerations received on the jagged rocks. T is the third man who has wandered away in the sand dunes in this manner within the past two weeks, though the first two did not fare so badly as Wilson.

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May 12, 1906 p. 318

YUMA COUNTY.

(Special Correspondence.)—Allan J. Smith, manager of the California King Gold Mining Co. writes to Capt. Polhamus, at Yuma, that he and Mr. Doak will arrive in Yuma the latter part of the week, prepared to start work on the property as soon as the supplies and tools can be moved to the camp. The California King property is a gold proposition at Picacho, and is owned principally by Joe Mendville, Allan J. Smith and Capt. Isaac Polhamus. The ore is low grade, but there is a large body of it, and it can be worked profitably on the scale of operations which the owners have in view. Yuma, May 3.

SAN BERNARDINO COUNTY.

A gold and copper strike has been made near Kelso, along the Salt Lake railroad. Twelve miles southwest of there, in the Winston Basin, among the Providence mountains, several parallel ledges averaging \$40 gold per ton, and running high in copper, have been uncovered.

The ledges for three miles have been located, sixteen prospectors having united their interests in the properties, who propose to develop several of the claims, with the expectation that a permanent mining district will result.

May 19, 1906 p. 333

INYO COUNTY.

In the White mountains the Neylon group comprises nine ledges, ranging up to 100 ft. in width, and many smaller ones. The value of the property is in the large amount of low-grade ore available. The lowest return has been 41 cents, the highest \$17. Many pannings have been made and not one has failed to show gold. The group covers the north and east slope of a hill in Piute canyon, ten miles northeast of Bishop.

The three-stamp mill of the Mount Whitney Mining & Mining Co. near Lone Pine is finished. E. Walker is reported to have found a vein of high-grade ore on Walker creek, south of Lone Pine. The Goldike Reef mine is reported to have opened a four-foot vein at the 100-ft. level, averaging \$200 gold per ton. A strike is reported in the Golden Gate claim in the White mountains.—The Casa Diablo Mining Co., near Bishop, has made final payment for the Sherwin mines. B. F. Braze, of Cleveland, is president of the company. A mill and cyanide plant are to be built and running before October 1. The seven-mile pipe from Rock creek will first be laid. Much will depend on this additional water supply.

SAN BERNARDINO COUNTY.

It is reported that the Rose mine, 60 miles east of Victorville, on the summit of the north range of the San Bernardino mountains, is to be reopened. The Rose mine was worked steadily for a number of years prior to 1897. The ore is principally hematite in limestone, at contact with mica schist. The property has been leased to H. P. Starboard, who will rehabilitate the property.

May 26, 1906 p. 353

KERN COUNTY.

It is reported that ore containing both gold and platinum has been discovered at Linns valley. Thus far only qualitative tests have been made.

SAN BERNARDINO COUNTY.

It is reported that the vein of a new discovery has been traced for 4000 ft. with a surface width of six feet, near Kelso. Samples assay from \$7 to \$120 per ton. Kelso is a station on the Salt Lake railroad, about 15 miles from the Nevada State line, in New York district, a few miles west of Manvel.

June 9, 1906 p. 388

SAN BERNARDINO COUNTY.

The engine and pump to be used in testing placer grounds of the Klinefelter wash, 25 miles northwest of Needles, are being installed.—On the property of the Siam Mining Co., situated near Siam siding, a water station on the Santa Fe railway 65 miles west of Needles, work is being prosecuted day and night. A shaft has been sunk, and two levels run, consisting of 600 ft. of drifts and cross-cuts. Recent development has disclosed free-milling quartz in the upper level running \$100 per ton gold, while in the lower level copper ore assaying \$90 to \$100 gold, with 20% copper has been cut. P. H. McDermott is superintendent.

George Wilson, assistant manager of the Quartette properties at Searchlight, Nevada, has taken under bond a group of copper claims near Cima, in this county. In the district in which the copper claims are situated the principal operating concern is the Standard Mining Co., which is a steady shipper of gold, silver and copper ore. There is a large percentage of iron in the ore, for which the smelters pay a premium. A. B. Hall is foreman of the new mines. Three shafts will be sunk and hoists installed. The property is near the Salt Lake railroad, just south of Nipton.

June 16, 1906 p. 404

SAN BERNARDINO COUNTY.

A copper strike was recently made six miles west of Soda lake, by M. T. Amos, J. C. Amos and Charles Gray. The main vein is from one to ten feet wide, and assays run as high as \$125 copper and gold, of which from 12 to 20% is copper. The locators have staked out 31 claims in two groups. Two tunnels of 1,000 ft. each have been run, which will give 600 and 1,000 ft. respectively, of backs. The mine was worked 30 years ago for silver, but was abandoned.—The Sunrise district is 20 miles south of Needles, the settlement being called Cluresville. The first strike was made in February, 1905, on the Blue Bird. Then the Dollar mine was struck by McClure and his partner. It was on the surface, but they shipped some of the ore to a smelter and none of it ran less than \$100 per ton, and some of it ran \$1,000. The property was bought by the Woods Investment Co. of Los Angeles, which owns 40 claims in the district.—Among the Eagle mountains, six miles north of the McClure mines, is the Big Four, now under bond to Mr. Graham, of Douglas, Arizona. The vein is 20 ft. wide and some of it is rich. The owners are sacking ore, which carries gold and copper. In the vicinity are also lead-silver deposits.

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June 23, 1906 p. 424

SAN BERNARDINO COUNTY.

A rich strike of lead-silver ore is reported seven miles west of Daggett, in an old mine discovered in the early days of Calico. There is very little lead in Calico district, but the hills lying south of the Calico range and extending westerly from Daggett contain numerous deposits of lead-silver ore. Ore from the new strike is to be shipped.—The Paradise Mining & Milling Co. will soon build a mill at its mine near Paradise Springs, 15 miles north of Daggett. The Poliets property will be worked by this company.—It is reported that Samuel Newhouse has bought the New York mine on the northeast end of New York mountains, three miles west of Manvel. This mine is the oldest in that part of the San Bernardino copper belt. It has been developed, and some rich ore found.—New York mountain is dotted with camps, and development of copper veins is active.

June 30, 1906 p. 442

KERN COUNTY.

(Special Correspondence.)—The tungsten mine near Randsburg is operating and shipping the ore. At first the tungsten mineral (scheelite) was found only in detached boulders; now the vein from which these fragments come has been found. It is reported here that \$27,000 has been paid on the purchase price, which is \$100,000, and after paying all expenses, the owners have over \$25,000 in the treasury, all from the proceeds of operation.

Randsburg, June 23.

LOS ANGELES COUNTY.

The Lowell & California Mining Co., operating the Big Horn mine on North Baldy mountain in the San Gabriel range, 50 miles northeast of Los Angeles, is to build a 60-stamp mill. This property was first equipped with a two-stamp mill and later ten stamps were put in. The extensive development of ore reserves has made a large increase in milling facilities desirable. There are numerous mineralized zones in the schists of these mountains, but few of them have been developed.

SAN BERNARDINO COUNTY.

The people who have been prospecting the gravel of Klinefelter wash, 20 miles northwest of Needles, where placer gold has been found, have quit work and shipped their engines and pump. They found such a flow of water that they were unable to get to bedrock, although they found gold in the clay strata above bedrock. While it is believed that there is gold on bedrock in paying quantity, the efforts which have been made to demonstrate it have all failed. The development of water in the wash should be a valuable asset to the owners of the mines, as water in that region is both scarce and necessary.

SAN BERNARDINO COUNTY.

Charles M. Schwab, B. Gilles, H. Ramsey, C. E. Knox and J. Salsberry are reported to have bought 17 claims from Arthur Kunz at the Greenwater copper camp 50 miles southwest of Rhyolite. Ore running 40% copper is piled on the dump awaiting the coming of the 'Borax Smith' railroad, which will pass 12 miles from the camp.

The Arizona-Mexican Mining & Smelting Co. has completed the purchase of 3,000 tons of lead ore from the Humboldt smelter, near Mayer, Ariz., which had been buying lead ore for several months but found itself entirely occupied with copper ore, and sold its accumulation of lead ore to the smelter at Needles. The shipments will continue at the rate of two or three cars per day until the entire amount has been received. The Needles smelter is now the only lead market between El Paso, Texas, and San Francisco. The roasters were started last week and are working steadily now,

treating 40 tons per day.—W. H. Smith, of Vandenberg, has bonded the Desert Queen group, belonging to Green, French and Wallace, and situated eight miles northeast of Blackburn siding, on the Santa Fe, south of Marvel. On these claims is a porphyry dike 180 ft. wide, in which are quartz stringers assaying, it is said, from \$400 to \$500 per ton. The porphyry and talc between the seams prospect in free gold; there is also silver and lead.—The Raven Co. has paid \$15,000 to W. J. Williams for his property. The same company has also bought property from T. Cunningham, for which it paid \$8,000;—Hanson brothers have purchased the Amargosa mines for \$120,000; and Chisholm & Co., of Los Angeles, are negotiating a deal with Boston parties for the purchase of the Riggs silver mine, known as the Alta group.—William Wheaton has discovered gold in San Antonio canyon, seven miles from Upland. For years Wheaton has been prospecting in the San Gabriel mountains, but up to a week ago accomplished little in the way of discoveries. He now is reported to have discovered at Spring hill, ore which assays from \$150 to \$300 per ton. The firm operating the mine is known as the Wheaton-Morgan Mining Co., with William Wheaton and John Morgan as chief owners. At present the ore is being packed to the trail on burros and thence by wagon to the railroad.

INYO COUNTY.

It is reported that the Ratcliff mine, at Ballarat, in Panamint district, is under option to Salt Lake mining men who propose to re-open it. This property has been idle for several years, having been closed down by creditors under foreclosure of mortgage. The mine is equipped with a 20-stamp mill and a pipe-line conveying water from Stone Corral three miles distant.—According to press reports, terrible heat conditions prevail in the goldfields of Inyo county, and several lives have been lost. Mr. W. H. Adams, a mining engineer, who has just returned to Los Angeles from Panamint, says that eight prospectors were brought in dead from the heat while he was in that region. During his stay at Panamint six bodies were brought there, all victims of sunstroke. The heat, he says, is terrible and unabated day or night. At Ballarat, he relates, the thermometer registered 135 deg. at noon, and at midnight following, had dropped to only 118 deg., which was the average for three days. In the desert section lying south of Redlands, he says, the mercury went up to 160 deg. and could record no higher.

SAN BERNARDINO COUNTY.

The Arizona-Mexican Mining & Smelting Co. received the past week seven cars of concentrate from the Humboldt Smelter at Needles. The yard is filling rapidly with ore received. The roaster is handling 30 tons of concentrate per day. The first carload of copper ore from the Valley Well property, recently purchased by the company, is now on the way and teams are hauling more to the railroad. The company expects to start up the lead stack about August 14. The copper stack is being erected as rapidly as possible.

(Special Correspondence).—The Trojan Mining Co., having leased from the Bonanza King Development Co. its mine (the Bonanza King), in Providence mountains, has begun erection of a 10-stamp combination silver mill and expects in the near future to install 10 more stamps. The old workings proved to have a great deal of available ore, and the company that operated the property 20 years ago, and which only discontinued operations when its mill was destroyed by fire, worked little ore that would go less than 40 oz. silver. It is the purpose of the new company to sink below the sixth level, which is at 460 ft. The mill was installed under contract by Elliott & Drescher, of Prescott, Ariz. Power is furnished throughout the mill and pumping stations (except the hoist, which is steam) by distilling engines, of the Western Gas Engine Co. of Los Angeles. The old dumps are estimated to contain 225,000 tons. E. J.

De Lano, former superintendent, having resigned, A. M. Stockwell, late superintendent of the White Gold Mining Co., has assumed charge of the mine and mill, and at present working 75 men, expecting to increase this force when accommodations can be provided.

Fenner, July 28.

Mining and Scientific Press

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SAN BERNARDINO COUNTY.

The smelter at Needles now has in its ore piles \$250,000 worth of ore. With the supply on hand and the ore already purchased and being received, the smelter will run steadily for a couple of months. If the coming season should be one of successful development of the prospects around the county, the smelter will receive custom ores sufficient to keep it in continuous operation. With the receipt of ore from the Copper World property of the company and the completion of the copper furnace, it is thought that one of the stacks will be running all the time, and a great portion of the time two will be in operation.

Sept. 22

p. 342

KERN COUNTY.

(Special Correspondence).—The Tungsten mine, six miles south of Johannesburg, on the branch railroad, is working steadily shipping scheelite to Eastern markets. Some concentrating tests are in progress on this ore at the Bagdad-Chase mill at Barstow. There is said to be a large amount of concentrating ore available in the mine.
Barstow, September 10.

SAN BERNARDINO COUNTY.

(Special Correspondence).—The mill of the Bagdad-Chase Gold Mining Co. at Barstow is in daily operation. The gold ore from the company's mines at Camp Rochester, eight miles south of Ludlow, on the Santa Fe, is not easy of treatment, and although much of it is of very good grade, none of it shows the presence of gold except by assay or milling. The cyanide process is employed with various modifications, made necessary by the presence of copper carbonate and oxide in the ore. In the process, ammonia is employed.
Barstow, September 10.

The new copper camp at Greenwater is reached by way of Ash Meadows. Several properties on the copper belt are being actively developed and plans are being made to test others. One shaft, that on the Clark property, is down 260 ft. There is but one frame building in the camp, but lumber is being hauled in as fast as possible. The lodging houses, restaurants and saloons are in tents. Plenty of water for domestic purposes can be had at \$1.50 per barrel. The water supply is at the Furnace Creek ranch, 18 miles away, but a contract has been let by the Greenwater and Death Valley company for sinking several wells on the wash just below the Kunze camp. The district needs more teams for freighting purposes, more miners, and more carpenters. Miners are paid \$4.50 per day and carpenters \$8 per day. Johnnie is the closest railroad centre and \$50 per ton is paid for freighting from Johnnie into Greenwater, a distance of 50 miles. The Tonopah Lumber Co. is sending 20 teams to Greenwater to haul lumber into the new district, but three times as many more teams could find steady employment at freighting. An automobile service will be started from Johnnie. A fare of \$25 will be made for the one-way trip. At present the stage company charges \$18 for the journey.

Oct. 30 (?)

INYO COUNTY.

The Lucky Jim mine, three miles north of the New Coso mine, has been sold by J. A. McKenzie to the New Coso Mining Co. The Lucky Jim, with the Christmas Gift, is one of the best time properties of that part of the county. A great deal of work has been done there. During Darwin's last visit to the Lucky Jim camp had a population of 300. The last stack smelter in the county was built at Darwin for concentrating ores from the two mines. The hoisting plant shaft was burned several years ago, but was replaced by another by Mr. McKenzie. The deepest mining is now being done below the surface.

SAN BERNARDINO COUNTY.

The American Eagle Mining Co. expects to commence active development work about October 15. H. H. Adams is to take personal charge of the work. The mines are situated in the Whipple mountains, 40 miles south of Needles and have been largely developed. The orebodies run deep in copper and therefore shipping facilities to the smelter at Needles are greatly needed.

Nov. 10

INYO COUNTY.

The Iron Mask group of 16 copper claims, situated 10 miles southeast of Greenwater, has been sold to the Burburg & Greenwater Copper Co. for \$200,000. Mr. McKenzie is general manager.

SAN BERNARDINO COUNTY.

Another discovery of large copper deposits is reported in the Silver Lake region, 50 miles from Ludlow. A number of prospectors are heading for this district and also to the south where a find of native silver deposits is reported. Contractors on the Tonopah & Tidewater railroad are experiencing great difficulty with their employees in the Amargosa cañon. The excitement over copper discoveries is so great that the laborers are leaving in large numbers to indulge in the luxuries of a rush to the new camp.

SAN DIEGO COUNTY.

Kuntzite has been found at Pala. The discovery was made in a copper prospect, and about 15 lb. of the stone was taken from a pocket. Kuntzite is a beautiful variety of spodumene of considerable value.

Mining and Scientific Press
Nov. 24, 1906 p. 619

SAN BERNARDINO COUNTY.

A new mining region is being opened up in the Avawatz Mts., adjoining the westerly edge of Death Valley. Widely scattered arastras, however, show that Spanish miners worked the surface nearly a century ago. The camp has been organized into the Crackerjack district, and is about 86 miles square, 60 miles northwest of Daggett, the nearest railroad point being Silver Lake station, 23 miles distant, to which the Tonopah-Tidewater R. R. has lately been completed. Gold, copper, silver, and lead are found, and the district is generally considered to be a continuation of the Tonopah, Goldfield, Bullfrog, and Greenwater mineral belt. The Crackerjack Co. has four claims, on which a shaft is being sunk all in ore. A three-foot vein assaying \$114 and a two-foot vein running \$128 per ton have been opened up. Adjoining the Crackerjack on the southeast is the Tomboy, a group of claims owned by Los Angeles people. Although but little work has been done on this property, assays are said to run high and the continuity of the orebody is shown by a cañon outcrop 200 ft. deep. The Beck & Wilson group has an outcrop of ore from 6 to 12 ft. wide. The workings yield ore from \$11.55 to \$75 per ton. The district has already had its first milling, the result being a gold brick worth \$4,200, from the Rose & Palmer claims. A townsite will be laid out at once adjacent to the Crackerjack claims, and a stage line is soon to be operated from Silver Lake station.

Mining and Scientific Press
Sept - 29, 1906 p. 372

KERN COUNTY.

(Special Correspondence).—The Kern County Consolidated Gold Mines, Ltd., has bought the Old Piute mine from H. B. Chase and associates, and has commenced to develop the property on a large scale. A new hoist, air-compressor, sawmill, etc., have been installed. Twenty men are working, and more will be added as fast as they can be obtained. The purpose of the company—composed mainly of French stockholders—is to enlarge their scope by acquiring other worthy properties in this district. F. W. D. Gwynne is manager for the company, and Wm. L. Cobb consulting engineer.

Piute, Cal., September 24.

Nov. 3, 1906 p. 529

KERN COUNTY.

J. Frank Walters, of Los Angeles, has bought the Echo mine at Mojave, and will soon resume working the mine and mill with A. M. Peck as superintendent.—The Bob-tail mine has been purchased by the same company. The new group consists of 17 claims and has a 20-stamp mill and cyanide plant.

Dec. 1, 1906 p. 550

LOS ANGELES COUNTY.

T. S. Rodgers, a mining engineer of Los Angeles, has just returned from Antelope Valley and the eastern slope of the Sierra Madre mountains, in the northern part of Los Angeles county, where he has been examining mines for the Original Golden West Mining Co. He reports a heavy snowstorm, and a fall of three feet in 36 hours. He and his men were snow-bound for four days in Deadman's cañon, and barely escaped freezing to death. This is said to be the earliest storm in that part of the country for twenty years.

Dec. 8, 1906

INYO COUNTY.

(Special Correspondence).—John Salesberry, of Tonopah, Nev., has purchased the Sanger copper mine in the Ubertrebe district, and has a large force of men at work. J. V. McConnell, the engineer in charge, reports that the property is looking better as work progresses. There are 14 claims in the group, which have been cross-cut in numerous places on the surface, showing the orebodies to be from 75 to 300 ft. wide. The work at present has been confined to sinking two shafts which have reached a depth of 80 and 90 ft. respectively. The ore is principally carbonate and native copper, and averages from 4½ to 7%. It is the intention of the new owner to continue sinking to the 500-ft. level. There are several other companies in the district that report excellent showings from their properties.

Big Pine, Nov. 24.

Dec. 15, 1906 p. 708

INYO COUNTY.

A rush has set in to a new goldfield in the Sierra Nevada mountains, seven miles south of Olancha. The camp is hidden away in a cañon that opens upon the desert 79 miles from Mohave, 19 miles from Keeler, and seven miles from Hawaii Meadows. The nearest railroad is at Keeler, the terminal of the Nevada & California narrow gauge. Entrance to the cañon is by a wagon-trail already worn from Olancha. There is an abundance of water and timber. On a ridge to the south is the Gilt Edge claim, the original discovery made by W. E. Higgins and partners. The ore contains petzite, a telluride consisting of two parts gold, two parts silver, and one part tellurium. From the last-named metal the new camp derives its name in common with the famous Colorado mining centre, 'Telluride.' A 15-ft. shaft on the Gilt Edge cut a vein 16 in. wide, the ore running from \$180 to \$250.

Dec. 29, 1906 p. 782
(on next 3 pages)

Legends of the Desert.

Written for the MINING AND SCIENTIFIC PRESS
By W. H. STORMS.

No portion of the mining region of the West possesses such fascination for the prospector and adventurer as that vast domain lying between the Rocky Mountains and the Sierra Nevada, and southward to the Mexican border. It equals an empire in extent, and though actually a desert, in all that this severe term implies, it supports many thousands of people who lead an active and happy existence, and who derive not only a livelihood, but generally much more—often a fortune—from the wonderful resources of this sterile and little-known land.

Ever since the days of '49, stories of the marvelous wealth of the desert have been carried into the settlements along its border, and into the cities of the Pacific coast. These stories have, in many instances, been the chief, if not the only incentive for men—yes, and women too—to risk their lives on the burning sands of the waterless valleys and amid the rocks of the wind-swept ridges. So full of reality, and promise of fortune are some of these legends of the desert, that it seems little wonder if prospectors are willing to take any risk in the hope of sudden, and comparatively easy, fortune. Each of these remarkable tales describes the finding of wonderfully rich gold rock, or possibly of silver ore, but the finder, for various reasons, was able in each instance to carry away only a few pounds, at most, of the gold-matted quartz, or silver ore, but almost without exception it was a deplorable fact that they were never again able to find the place where the original discovery had been made.

Without doubt these oft-told tales are in a great measure responsible for the discovery and development of many desert mines. Prospectors, upon hearing for the first time one of these fairy tales, would start at the first opportunity in quest of the illusive wealth, and it is a sad fact that to these same stories is due the sacrifice of many adventurous lives, which might have been utilized to better advantage.

One of the most frequently repeated of these extravagant yarns is that of the 'Pegleg' Smith mine. Smith was a frontiersman and squaw man, who had lost a leg in one of his many scrimmages and had substituted a wooden leg for the lost member. He was widely known 50 years ago, in the Southwest, in Arizona and southern California. Although crippled, 'Pegleg,' as he was called, feared not to tackle the desert alone and single-handed. On a certain memorable occasion, so the story goes, being at Fort Yuma or in that vicinity, on the banks of the Colorado river, and wishing to visit Los Angeles, he started with his saddle horse and pack animals across that terrible reach of desolation and death known as the Colorado desert. A sort of road, or trail, was followed by the west-bound pilgrims of those days who chanced to be that far south. This was known as the Butterfield trail. It was partly in Mexico and partly in California. The fact that there was a road, over which hundreds of men, women and children, in wagons, on horse-back, on foot, had traveled, suggests that the trip across the desert, about 120 miles, to the mountains on the west side of the valley, could not be a difficult or particularly dangerous

water-holes and springs on the route at that time; of these, Indian Wells was the largest and best known.

Pegleg was well acquainted with the desert and its perils, but undaunted he started for Los Angeles over Warner's Pass, and Temecula cañon—almost a direct line. He estimated that he could reach the little desert stream known as the San Felipe, which flowed in the spring-time from the Cuyamaca range, out onto the desert, in four days of hard travel. The second day out, one of those terrible simoons of the American desert suddenly sprang up, nearly suffocating the venturesome traveler and his animals. The air was filled with choking dust, alkali, and sand, the road-way was quickly drifted full of sand, and for a time progress was almost impossible. Imitating the practice of the Arabs on the Nubian desert, he lay prostrate upon the ground, covering his head with a handkerchief, to keep out the suffocating dust. For hours the storm continued. At times he made a little headway, but realizing that he could not determine the direction in which he traveled, gave it up for a time. During one of the intervals of forced rest the pack-horse strayed away, and when the loss was discovered, and it was possible to travel again, the drifting sand had left no trail, and the crippled prospector was alone with his saddle animal and only a short ration in his saddle bags, his provisions being mostly on the pack-horse. During the night the wind abated and Pegleg moved forward, shaping his course by the stars, as he had done many times before. He was in search of water now, but daylight came and he had reached no spring. His little supply of water in the canteen was running dangerously low. He was surrounded by strange low hills—ridges unfamiliar to him. He finally decided to make for three small buttes, which raised a little above the surrounding hills, and there endeavor to get his bearings, for in this trackless waste the traveler, like the mariner, must steer by compass or by landmarks. After an hour's weary tramp through the deep yielding sand—the most tiresome walking imaginable—he reached the nearest of the three conical little hills. His weary horse he left at the foot of the slope, while he ascended to the low summit. As the sun was rising in the east, far across a stretch of unbroken sand, arroyo, and dry mud lake, he gained the summit of the eminence, and gazed around. He saw at once that he was off the main trail several miles. To the northwest lay Warner's Pass. He studied the low ridges and neighboring hills. Many were mere dunes of sand, others were of rock, as could be determined by their clear-cut, rugged outline. The hill upon which he stood was of rock, blackened, and burned by the fierce desert sun, but presenting little of variety. It all looked black, all was coated with that peculiar gloss familiar to the desert traveler. Light-colored rocks and dark, look alike here. With the instinct of the prospector Pegleg glanced around, and knocked off a few chips from what appeared to be a dike or vein. A single look showed gold—a mat of gold in a bluish-black quartz; feverishly he attacked the ledge; pieces were spalled off from a score of places, and gold showed everywhere. He could hardly believe his senses, but the evidence was indisputable. Here was the vein and in it the gold—such ore as he had never seen before, nor dreamed of. Pegleg was a practical man. He had

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possible. He at once descended the hill, taking all the ore he could conveniently carry, and this he placed in the saddle-bags. Mounting, he rode slowly to the northward-headed for Warner's Pass, still many dreary miles away. On and on, hour after hour, he rode or walked, hoping to again strike the trail. His water was now exhausted, his horse no longer able to carry him, and each moment growing weaker. The sun had become a blazing metallic ball suspended in an atmosphere of crystal. Every object viewed across the desert plain was distorted by the radiant heat of the sand. The half-crazed prospector saw, only a mile beyond, fields, beautifully fresh, and amid them a pelucid stream, delightfully blue, and fringed with trees of living green. What a glad sight to both man and horse. Poor Pegleg! To him it was only added torture, for by similar experience he had learned long since to recognize that lure of the desert—the mirage. He knew that where appeared green fields was nothing but sagebrush and griswood—the river, a phantom. He made haste, however, as rapidly as possible, stumbling, falling, crawling. Sharp poisonous thorns of the cholla cactus penetrated knees and hands; he was indeed a pitiable object; nor was his horse in better condition.

At last, when he was about to give up all hope, he recognized some neighboring ridges with their yuccas, and knew if he could only reach them he might obtain water. How gladly would he have given his mine of gold for only a canteen-full for himself. Late in the afternoon he reached a small spring, a short distance from the traveled emigrant trail. He and his horse drank deeply, and after resting until nightfall they set forth once more toward the Cuyamaca mountains, looming darkly in the west. They seemed very near just before night, but it was still many miles to their base.

Painfully Pegleg slowly advanced, and in time he reached the San Felipe and Warner's Pass, and a few days later, Los Angeles. During his journey through the more settled portion of the country not a word of his discovery did he breathe—he dared not—for the merest hint of what lay out on the summit of that low desert hill, would, he knew, send every man in southern California, who could possibly go, stampeding into the wilderness beyond the Cuyamacas.

When Smith reached Los Angeles he was very ill. He took a room at a small hotel, carried his saddle-bags into his room, tossed them under the bed, sent for a doctor, and went to bed. From this bed he never got up. Exposure, hardship, nervous excitement, and old age, each aided in breaking down the hardy desert pioneer. Realizing that his end was drawing near, Pegleg asked the doctor to pull the saddle-bags from beneath the bed. He did so, and drawing forth the golden pile of rock, he looked in astonishment at the man and the ore. Smith, rapidly sinking, laboriously told of his discovery. The sandstorm; the three hills; the gold; the mirage; the battle with thirst; and the final reaching of his destination. "I can't pay you, Doc," said Smith. "I'm going. Take the mine—she's yours. About 30 miles from Smith mountain, southeast from Warner's Pass, and south of the Butterfield trail." Smith died, and left this legacy to his friend, the physician who had attended him.

This is the story of the Pegleg mine as it has been told and re-told a hundred—perhaps a thousand—times in the mining settlements and about the prospectors' camp-fires of the Southwest. Hundreds of men have searched diligently for the Pegleg mine, but it has not been found, nor do I believe it ever will be, for in my opinion it is a fabrication, pure and simple. Started as a newspaper

many variations and modifications until many have believed in it implicitly. It is no exaggeration to say that not less than a score of brave but indiscreet men have laid down their lives in the pursuit of this will o' the wisp. I knew personally five men who died on the desert of the Colorado, and one who lost one of his hands and an eye by explosion of nitro powder—all in search of the ill-fated Pegleg mine. Nor has the search been abandoned. Each year still sees men go forth silently into the desert from the cities of southern California to look again for the mine that has no existence.

About the year 1861, a party was slowly wending its weary way across the desert through southwestern Nevada, not far from the California line. Water was short and in the hope of seeing some indication of water, one of the party, a man named Breyfogle, left the caravan and climbed up a neighboring hillside. He did not find water, nor see any sign of any, but he did find a quartz ledge, glittering with dull gold. He looked carefully about, took his bearings, hid a few small pieces of the wonderfully rich ore in his pockets, and returned to the wagon train. He said nothing of his discovery, for he was 'at outs' with the members of his party. Indeed, all were at outs, each with the other, for travel across the desert, hundreds of miles, had made each man a sordid selfish animal, ready and eager to take any personal advantage of his companions, if it would in a small degree relieve himself of hardship, privation, and responsibility.

After weeks of toil, loss and illness, the party reached San Bernardino, and eventually Los Angeles. Breyfogle made public his discovery, and considerable money was subscribed to outfit an expedition to locate the Breyfogle mine. The fortunate discoverer returned as a guide with the party, but when he reached the Death Valley region near which the find had been made, he was unable to again find the ledge from which he had broken the rich specimens. For days the members of the party searched, but in vain. Finally, concluding that they had been deceived, the angry men decided to give Breyfogle short shift, and informed the unfortunate prospector that he would be given a few minutes in which to settle accounts with his Maker. Breyfogle walked slowly up the hillside, leaving his scowling, muttering companions to decide upon the manner of his death. Overcome at the sorry fate which had overtaken him, he sat down upon a ledge of rock. Chancing to glance at the rock he saw numerous colors of gold. "I've found it, boys!" cried Breyfogle. "Here is the ledge." All rushed to the spot, and, sure enough, here was a quartz vein rich in gold. Locations were made, and eventually considerable gold was recovered from the mine, but few—not even Breyfogle himself—believe that it was the same vein that he had discovered before. It is said by some that the Montgomery mine is where Breyfogle made his original discovery. Others say it was at Bullfrog. As to this I am unable to say.

Some years ago I was one of a party that set out to search for a 'lost mine,' which still remains lost. A well known miner and prospector of the city of San Bernardino, California, had in his home a cabinet of minerals. One day a friend, looking over the collection, picked up a piece of heavy black ore, and asked with interest where it came from. After regarding the rock for some time silently, the owner said: "O yes, I remember this ore. We found it out on the desert four or five years ago."

"Do you know where?" inquired the friend.

"Yes," replied the other. "It was on the edge of a dry lake, not many miles from Rabbit Springs. Is it any good?"

"Good!" said the friend, and he took the ore home with him.

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solid horn-silver, worth anyway \$6,000 to \$8,000 per ton."

The matter was carefully talked over, a sketch map made, and a four-horse outfit with four men, tents, tools, provisions, and every essential might soon have been seen going up the Cajon pass, headed for the Mojave desert. They searched for days, but unsuccessfully. Three seasons in succession, they looked, but in vain. They finally gave up the quest, and the map came into the possession of a friend of mine. Having business on the desert at Silver Reef, a few miles from Rabbit Springs, we decided to look for the lost mine, in the vicinity. By aid of the sketch map, and joined by two other men, we searched the hills and found every detail as described by the original discoverers, but instead of horn-silver we found only black tourmaline.

The conclusion reached was that the owner of the cabinet had become confused in his identification of the original sample, which had come from some other region.

Each important desert locality has its own lost mine. On the Colorado desert it is the 'Pegleg' mine. In the Death Valley region it is the 'Breyfogle,' or the 'Gun-sight.' On the Mojave river, it is the 'Lee mine.'

Lee was an old, erratic German prospector, who owned claims all over the desert. He was supposed to have located a vein in which the native silver cropped out on the surface in abundance. Although there are plenty of descriptions, and bearings, yet the Lee mine remains undiscovered, probably because, like the Pegleg mine, it never had an existence. Curiously, however, Lee had among his numerous locations one he called his quicksilver mine. This was situated about four miles north of Barstow, and about three miles from the Mojave river. Although the rock was various bright shades of mineral red, due to abundant hematite, there was not a grain of quicksilver in the entire hill. Lee did considerable work on this prospect, but appeared to attach no particular value to it, preferring, when rustling for a stake in San Bernardino, to talk of his 'white metal' mine—the one which no one has ever been able to find.

One day 20 years or more ago, Lee was found dead near Old Woman's springs, with a bullet hole through the back of his head. His 'quicksilver' mine was jumped by men searching for the lost Lee mine. It eventually proved to be a rich silver mine from which several millions of dollars have been taken.

The desert teems with story and romance. Many fortunes have been made there, in gold, silver, copper, lead, borax, salt, and other minerals, and far more doubtless remains to be taken from the mines, but no story yet told of early days and lost mines has eclipsed, or even equaled, the richness of some of the deposits found in the Goldfield region of Nevada. No one of the desert romancers, who play upon the credulity and cupidity of merchants and others in the cities, has yet dared to represent having found anything one-half as good as was discovered during the first year at Goldfield. Nevertheless, the fairy stories of the desert have been an important factor in the development of that region, and we may expect to hear of many more 'Lee' and 'Pegleg' mines, and possibly of other Tonopahs, and Goldfields, and Bullfrogs. The desert will long remain incompletely prospected.

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Jan 5, 1907 p. 12

INYO COUNTY.

The great Greenwater consolidation, taking in the Greenwater & Death Valley Co., controlled by the Schwab interests, the United Greenwater Copper Co., and the interests controlled by C. Brock and his Philadelphia associates, is based upon the following distribution of stock. Greenwater & Death Valley Co., 68%; United Greenwater, 15%; the Brock syndicate, 14%. The Schwab interests will control the directorate. The site for a smelter has been chosen at Ash Meadows, Nev., about 30 miles northeast of Greenwater. Work is to be begun next week on the construction of the railroad from the mines to the smelter site. There are extensive deposits of lime and iron, and every requisite for smelting except fuel, and this will be brought in from the petroleum fields of California. Recent assays give the average of the ore as 12% copper, \$6 gold, and \$9 silver per ton.

SAN BERNARDINO COUNTY.

At the Kelso mine, situated on the Salt Lake route, 250 miles from Los Angeles, three well-defined lodes have been uncovered, extending for a length of 2,000 ft. and 300 ft. apart. Surface indications show the veins have highly mineralized outcrops containing gold, silver, copper, and lead. A shaft has been sunk 80 ft. A steam-hoist is about to be installed, and work pushed in order to reach the 500-ft. level, where it is believed the three lodes effect a junction.

Jan. 12, 1907 p. 52

The Greenwater District.

The Editor:

Sir—I had been reading for some time marvelous stories of the great wealth of Greenwater, and I had seen the statement made in many places that it was going to be the "greatest copper camp in America," that the showing in rich copper was very extensive in area, and that the ore was extremely rich. I had come to believe that all this was true, and I felt for some time a desire to get to Greenwater and try to get in on some of this wonderful possibility. Such was my motive in going.

There are two routes from Los Angeles to Greenwater; one by the Santa Fe railroad and the Tonopah & Tidewater (or Borax Smith) railroad, and the other by the Clark road (the Salt Lake route). I went by the Santa Fe. The T. & T. R. R. crosses the Santa Fe at Ludlow, 195 miles from Los Angeles. From there to Dumont, which is the front, is 75 miles. The fare from Los Angeles to Dumont is \$10.60.

At Dumont I took the stage for Greenwater, paying \$10, which is to be raised to \$15. Leaving Los Angeles on Thursday night at 8 o'clock we reached Dumont on Friday morning at 9 o'clock, and the old borax station, 17 miles out, at 4 p. m. There we spent the night, having comfortable beds. Saturday at 3 p. m. we reached Ramsey, 33 miles from the borax station and exactly 50 miles from Dumont. This distance I believe to be accurate, although the stage company attempts to make it longer.

Coming out, I left Ramsey at 6:30 a. m., reaching Amargosa on the Las Vegas & Tonopah railroad at 3:30

p. m., the distance from Ramsey being 48 miles, or possibly 49 miles. At Amargosa I had to remain until 11:30 a. m. the following day, and I could have reached Los Angeles the second morning at 8 o'clock. From Los Angeles by the Clark road one leaves at 8 p. m. (say, Monday), and reaches Ramsey at 1:30 p. m. Wednesday. The fare on the stage from Amargosa to Ramsey is \$16, and on the railroad from Los Angeles to Amargosa it is \$18.15. One has to stay over night at a stage station by either route. The stages are covered wagons, and the rate of progress is painfully slow, they are generally very much congested with animate and inanimate freight of all kinds. The stage from Dumont at present runs every other day, while from Amargosa it runs daily.

Ramsey is now claiming the title of 'Greenwater', which title has until recently been claimed by Kunze, three miles farther from the railroad. The post-office at present is at Kunze, but it is soon to be moved to Ramsey, which is known as 'Greenwater.' The altitude of Ramsey is about 4,300 ft. above sea-level and Kunze is about 4,800. About two miles beyond Kunze is the settlement of Furnace, which is where the men live who work in the Furnace Creek (the Patsey Clark) properties.

At Ramsey lumber sells for \$140 per thousand feet, while flooring costs \$175. Water sells for \$7 to \$10 per barrel, and hay at \$100 per ton, coal the same, and other things in proportion. The lodging houses are of canvas and no attempt is made to heat them. Miners in shaft-work get \$3.50 per day and board; a two-horse team and driver command \$12.50 per day.

I was admitted to the shaft of the Red Boy, 75 ft. deep, and might have gone down the Saratoga, somewhat shallower, had I so desired, but the two are under the same management and I was assured that both were alike, so far as showing went. This showing consisted of a narrow seam of silicious material, carrying some green stains. At the bottom of the shaft there were slips running in all directions and each seemed to carry in places green-stained material about an inch wide. I was not admitted to any other property, nor is it the custom of the district to let strangers see what they have (or have not) got. The Schwab property, purchased from the locators Arthur Kunze and others, is situated on the trail between Ramsey and Kunze. Work seemed to be in progress on three of these locations. At one a gasoline hoist (50 h.p.) was at work and on another one is being erected. These shafts are commonly reported to be over 100 ft. deep, but the exact facts I could not learn. At one of these I saw the vein exposed for a width of perhaps 30 inches. It abounded in green stains, and carried some malachite and a little azurite. The rest might have been chrysocolla. On the dump at this and the Furnace Creek properties a little green-stained material has been collected in separate piles, perhaps a couple of cars of 20 tons each at each dump. This is a generous estimate.

(cont...)

Jan. 12, 1907 p. 53

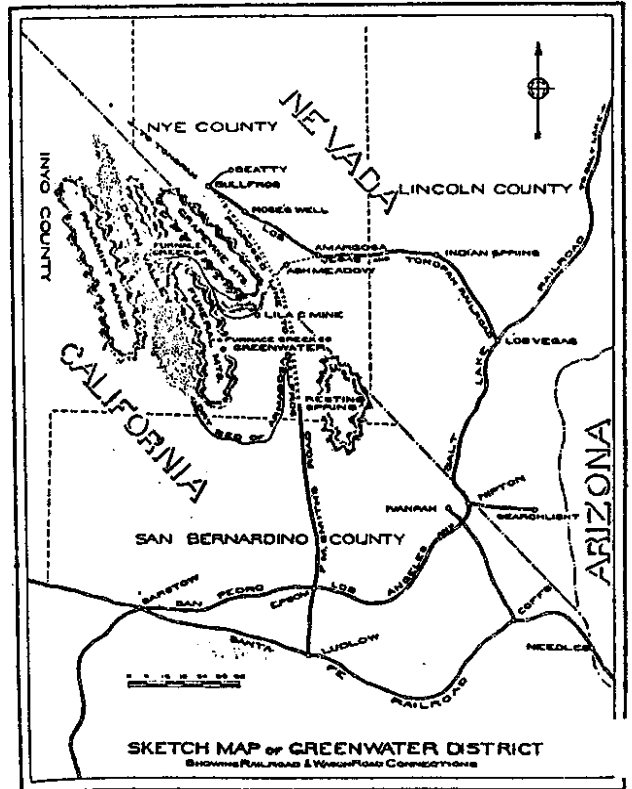
I saw no pyrite anywhere nor could I learn from assayers, or any one else, of the occurrence of any. I did see a minute piece of bornite, said to have come from Willow creek, about fifteen miles from Ramsey. It is my estimate, from what I saw and could learn, that all the properties in the entire Greenwater district, from material thus far taken out, could not contribute together one car (twenty tons) of ore that would run 25%, and that if the stained material now assembled on the various dumps were to be assayed, it would scarcely average 5%. Not a shipment of any size for commercial purposes has been made from the entire district, as far as I could learn, the only so-called 'shipments' being a few burro-loads of samples to beguile speculators.

The Furnace Creek range, in which these deposits occur, appeared to me to be composed wholly of eruptive rocks, rhyolite in various stages of alteration. As nearly as I could learn from what I saw the supposed great veins of the Greenwater district are zones of fracturing of considerable width. I saw none of these zones that was less than 30 ft. wide and in many places I thought them much wider, but the true test must be secured from underground developments. Through the seams in this zone the hot waters circulated and effected a large amount of replacement, the material being much silicified, and more or less impregnated with copper and iron. Everywhere they are highly stained with iron oxide and are locally called 'gossan.' I saw no gossan that was the residuum from pyrite, although I looked for it in many places. The iron that has produced these extensive stains was doubtless originally associated with the very small amounts of copper, which, after oxidation, yielded the carbonates and stained the rock green. I tried diligently to learn of any enrichment by gold and silver in the so-called 'gossan' and near the surface of these veins, but while the assayer at Ramsey

said that some of the samples that he had assayed yielded a little gold and silver, it was clear to me that no gold or silver ore of commercial value had been found.

There are probably less than a thousand men scattered through the district. Many of these do not hesitate to express the feeling that it is high time that some discovery should be made of ores of commercial value if the camp is to justify the extravagant claims that have been published regarding it.

It is my impression that the Las Vegas & Tonopah railroad will be extended from Amargosa toward Greenwater such distance as may be requisite to command the traffic. This can be done cheaply and would be a great boon to the camp in many ways. Much prospecting is going to be done in the hope that discoveries will follow deeper exploration. There is no guide to indicate at what depth water will be struck in any of the workings, disclosing the pyrite that it is fondly hoped to find below the water-level. I learned of no springs along the eastern base of the Funeral range. On the westerly side (the Death Valley slope), I understand that water does occur, but how far above sea-level I do not know. It was impossible for me to go over there without fitting



out an expedition to carry food, water, bedding, etc., and even then I should have required the services of a guide.

To illustrate the expansive tendencies of the Greenwater boom, I may relate the following incident concerning one of the properties now offered to an eager public, with reckless display of printer's ink and glittering word pictures of wealth in store for the fortunate investor who comes in upon the ground-floor. I met the prospector that located and sold this property to the promoters, one of whom is a prominent mining man. The price paid the prospector was one thousand dollars and a small block of stock. This property is now capitalized at \$1,500,000 in shares of one dollar. It was put on the market at 50 cents per share.

JAMES W. ABBOTT.

Pioche, Nevada, December 12.

By ROBERT H. CHAPMAN.

*The area lying to the west and southwest of Salt Lake, as far as the Sierra Nevada, was for a long time known as the Great American desert.

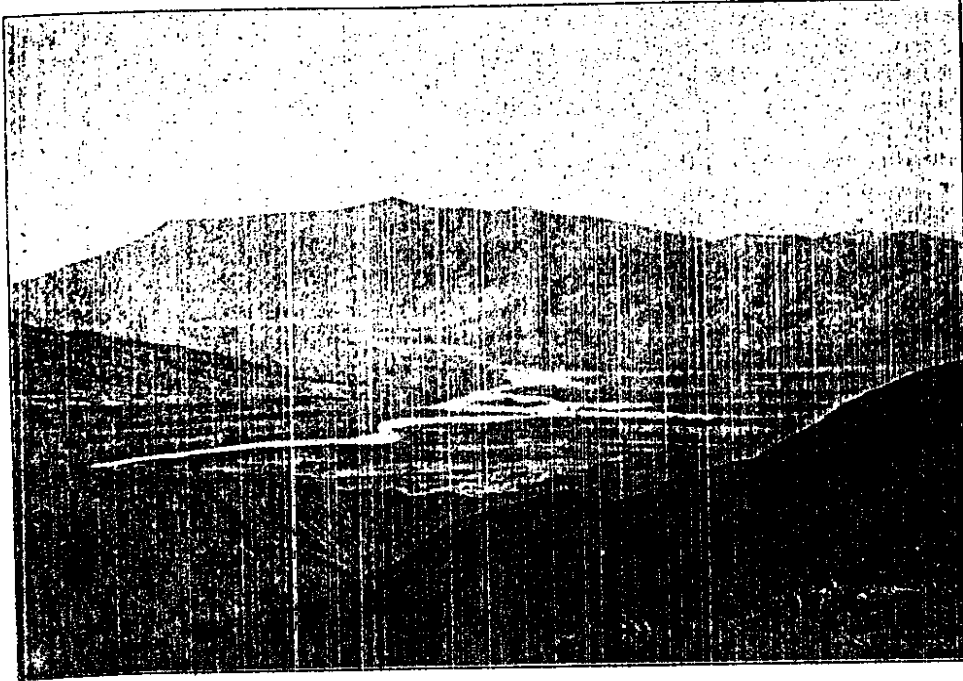
The discovery of gold in California in 1848 was the

of springs and 'tanks' (natural reservoirs), and gradually this part of the desert diminished in area and lost some of its fearfulness.

In the '60s and in 1871-72, government expeditions under Lieut. George M. Wheeler traversed several routes across the desert, making topographic sketches and notes of interest, but few complete maps were printed. In 1865, and several times since then, the boundary line between Nevada and California was run, which cut through much of the most difficult country. The reports of members of these expeditions did not tend to populate the region with great rapidity.

In many instances prospectors were successful, and the camps of Silver Peak, Lida, Reville, and others sprang up, and had their periods of prosperity and decline, becoming completely uninhabited.

During the period of activity many travelers became permanent residents, took to wife dusky maidens from the Indian tribes, and started ranches at various springs and streams, oases in the expanse of



Death Valley.

From the Summit of Grapevine Range.

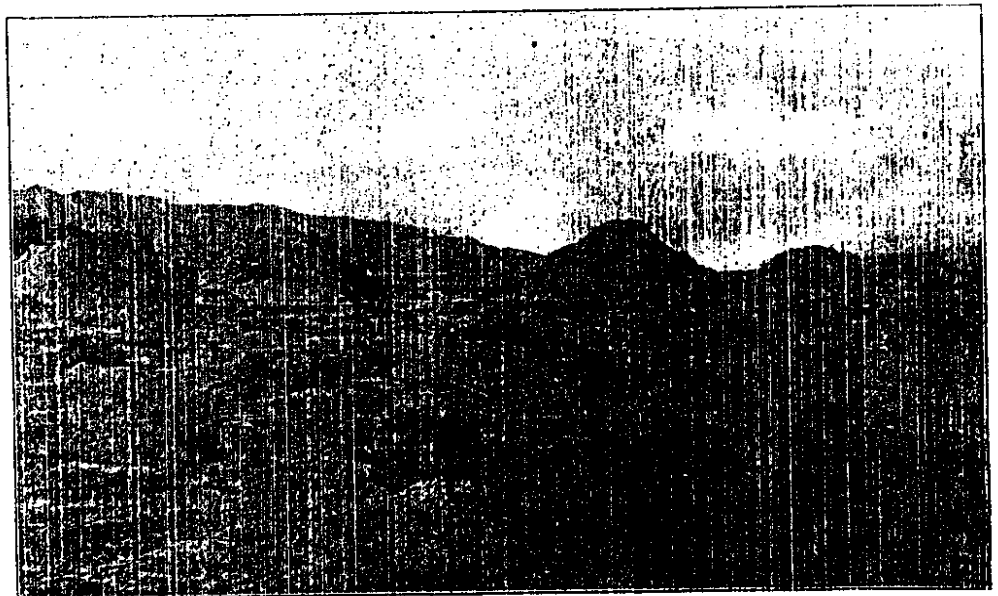
beginning of the conquest of this thirsty region, the direction of greatest travel being but little south of west from Great Salt Lake to the vicinity of the Donner pass in the Sierra Nevada, since used by the Central Pacific railroad in crossing the range. In seeking for better routes to the new El Dorado, parties journeyed southward across the wastes of sand and rock searching for lower passes that would be perennially available. In this direction the number of mountain ranges to be crossed is largely increased, but by going well southward the great wall of the Sierra Nevada is escaped, though the desert journey is lengthened and the hardships encountered by many parties were most appalling.

The desert took frequent toll in the lives of man and beast, and indeed does sometimes today, though the dangers are now comparatively insignificant.

With the discovery of the Comstock mines there came a period of tremendous activity in the search for the precious metals, more particularly for silver, and much of the desert region was traversed by the hardy prospector and his burro. In this way the long distances

waste, where small herds of cattle or horses were maintained.

On the east the Mormons pushed gradually away from



In Death Valley.

Sand Dunes and Mesquite Roots.

the streams of southern Utah and established farms and ranches at such places as furnished water, but there is a belt of country one hundred miles or more in width between these points and the water-fed valleys at the foot of the Sierra Nevada, which is almost wholly barren and very dry.

During the last few years, beginning with the discovery of valuable ore at Tonopah (in May, 1900), the attack

*Abstracted from the *The National Geographic Magazine*. Mr. [Name] was in charge of surveys for maps of this region prepared [Name].

16, 107

Mining and Scientific Press
Feb. 23, 1907 p. 242

In Defence of Greenwater.

The Editor:

Sir—You will doubtless pardon my presumptuousness in daring to intercept your unfavorable editorial opinion on the great "Greenwater Country," but feeling assured that I have men at my back, who perhaps have collectively nearly as much gray matter in their cranium as the somewhat considered erratic Mr. James W. Abbott, I will venture to arouse your augmentive abilities.

Perhaps for your present consideration, it might serve the purpose of refuting the many absurd, unkind, ungentlemanly and unjust statements of Mr. Abbott, for me to inclose a recent contribution of mine to the "Anaconda Standard."

Pardon me for remarking, but you say Mr. Abbott is unprejudiced and a man of ability. After a careful perusal of his article I believe you are wrong. The venom of the cynic, disgruntled and unsociable man crops out in his almost every phrase.

Expecting your gentlemanly courtesy, in the reproduction of my article in answer to Mr. Abbott, I remain,

E. L. HEWS.

Greenwater, February 10.

April 20, 1907 p. 484

INYO COUNTY.

(Special Correspondence).—The discovery of an immense body of colemanite is reported, on the west side of Death Valley. The deposit is over 50 ft. wide in places and will yield about 20% boracic acid. The discovery was made by Clarence Neyman, an old pioneer of the district.

Greenwater, April 8.

March 16 p. 319

GREENWATER may have no profitable mines, as yet, but it has a well-printed clever little paper named *The Death Valley Chuck-Walla*. It is owned by its editors and therefore is possessed of an independence of spirit that we admire, even though it has found cause for objecting to a few of our remarks on Greenwater, and expresses that objection vigorously in the issue just to hand. We hope our contemporary may strike it rich—not green stains of copper, but solid sulphide ore running 25 per cent, at least.

June 8, 1907 p. 708

SAN BERNARDINO COUNTY.

The smelter of the Arizona-Mexican M. & S. Co., at Needles, is receiving lead ores from the Banner and Champion mines at Stockton Hill, in Mohave county, Arizona. Copper ore is coming from the Copper World mine, in this county, all of these properties belonging to the smelting company. The capacity of the smelter will soon be doubled.

The Amalie District of California.

Written for the MINING AND SCIENTIFIC PRESS
By L. H. DYRE.

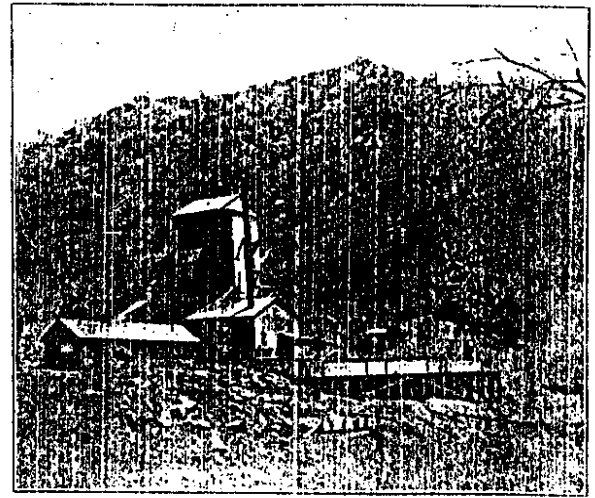
This district is in the central part of Kern county. Amalie, the oldest settlement in the district, is 40 miles east of Bakersfield and 12 miles from Caliente, the nearest railroad point. A daily stage runs from Caliente through Amalie to Piute. There is also a daily stage from Caliente, through Havilah and Vaughn, to Kernville.

During the last year there has been some activity in mining in this district. In July, the Gold Peak Mining Co. began operating its new plant, which is situated in the Caliente cañon, 12 miles from Caliente. The plant consists of a 10-stamp mill, five Frue vanners, and a cyanide plant of six vats for treating sand and two vats for the treatment of slime. The power is furnished by two gas-engines, one being used to run the rock-breaker, stamps, and vanners; while the other runs the pumps, the dynamo for the electric lighting, and the small machinery, such as the sample-crusher and pulverizer and the zinc-shaving machine. The present workings of the mine are half a mile from the mill and 300 ft. above it. The ore is conveyed from the mine to the mill by an aerial tramway operated by gravity. A large and well appointed assay-office completes the equipment.

The plant of the Zenda Mining & Milling Co. is situated 10 miles from Caliente and consisted originally of a 10-stamp mill and a cyanide plant. Last summer, however, the cyanide annex was discarded and a pan-amalgamation plant was installed. As now equipped the plant consists of a 10-stamp mill, three Standard concentrators, four 5-ft. pans, and two 9-ft. settlers. The power is furnished by a 75-h.p. steam-engine. The company

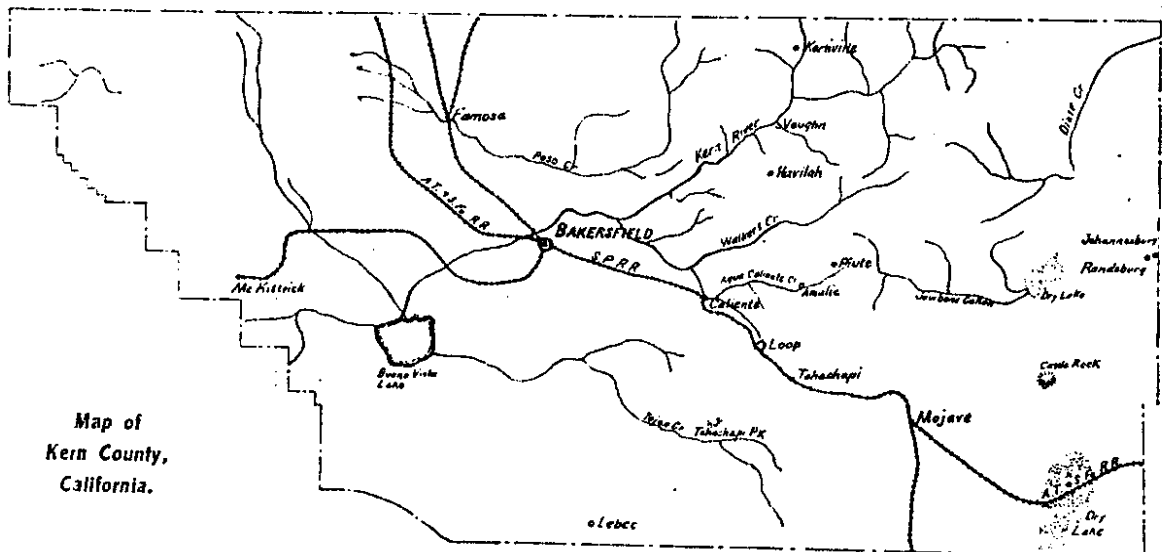
to pumping out the mine and resuming mining. The Amalie is the only mine that has been worked below water-level.

The ore is low-grade. The relative value of the gold and silver is in the ratio of one to four. The principal silver minerals are cerargyrite and argentite. Some proustite is also found. The district is highly mineralized,



The Zenda Mill.

and there are several prospects that appear promising. But the development work and mining have been carried on in such a desultory manner as to fail to reveal what may be in the mines.



Map of Kern County, California.

also maintains a small, but fairly well equipped, assay-office. The Zenda mine is three-fourths of a mile from the mill and 500 ft. above it. An aerial tramway operated by gravity has been built to convey the ore from the mine to the mill. Since the installation of the pan-amalgamation process the mill has been treating second-class ore from the dump of the Cowboy mine, situated about two miles from the mill. After doing this custom work, the Zenda mill was shut down in order to make repairs and improvements. Both the Zenda and Cowboy companies are now engaged in developing their properties.

The Amalie mine, about two miles north of Amalie, is the oldest mine in the district. It has been in litigation for several years, but the difficulties have recently been adjusted and the plant is being re-equipped for

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Mining and Scientific Press
June 22, 1907 p 772

INYO COUNTY.

News comes from Bishop, that S. P. Roberts has sold the Golden Gate and St. Louis groups of claims at Pine Mtn., to W. J. Nelson, of Los Angeles. These groups include 25 claims, situated 20 miles east of Laws, and near the Index group. C. H. S. Morris is the superintendent.—The Inyo Mines Syndicate will begin work on the Red Rose group. The road to the mine is being put in shape.—Two carloads of ore were shipped last week from the Lucky Jim mine at Darwin.—Oglesby & McDonald have just completed examinations of the Black Canyon mine, and the Reward property near Independence.—W. D. Clair has purchased the Stone & Pendry claims in the Sherwin district.

July 13, 1907 p. 36

SAN BERNARDINO COUNTY.

The Orange Blossom M. & M. Co. will erect a stamp-mill upon its property, 10 miles north of Bagdad. Water will be pumped from Budweiser springs. The mill will be equipped with Nissen stamps, will have a capacity of 50 tons per day, and will be in operation by October 1.—H. M. Glidden, of Spokane, has taken an option on a group of 10 claims on the Mohave desert near Amboy, and \$35,000 has been paid, to apply on the purchase price.

Some Ore Deposits in the Inyo Range, California.

Written for the MINING AND SCIENTIFIC PRESS
By JOHN A. REID.

The Inyo range, with the White mountains, its northern continuation, is the first ridge east of the highest portion of the Sierra Nevada. It is separated from the latter by Owens valley. There exist ore deposits in this sierra that possess some unique characteristics.

The structure of the Inyo range, simple in broad outline and very complex in detail, is that of a monoclinical fold modified by faulting and igneous intrusions. In certain portions the monoclinical character approaches that of an overturned anticline with axial plane pitching downward to the west. Intense faulting, both of large and small movements, is everywhere present, and plays a vital part in the genesis of the orebodies. In general, the planes of motion are of two series, parallel and transverse to the range.

In the immediate vicinity of the mineral deposits the sedimentary rocks embrace Palaeozoic (probably Carboniferous) sandstone, shale, and limestone. Intruded into these are two varieties of igneous rocks, of different ages. The older occurs in dikes and stocks, varying in width from 3 to 100 ft. or more, near the axial plane of the range. On the mining ground these dikes show a rock containing a large proportion of perfectly formed zoned crystals of plagioclase set in a blue-gray ground-mass. The ground-mass is too fine to be resolved entirely by the unaided eye, but shows flakes of biotite, and needles of hornblende in a feldspathic paste. Pyrite is present, but it is largely, if not entirely, secondary. This rock will be referred to as a porphyritic diorite, no microscopic examination having been made. North and south of the ore deposits the porphyritic aspect of the dikes passes by gradations into the normal granitic rock of dioritic appearance composing the larger intrusive masses. The essential minerals are hornblende and plagioclase, with accessory orthoclase, quartz, and biotite. Microscopic investigation may prove the stone a granodiorite or a quartz monzonite. The later intrusive occurs in dikes from 3 to 30 ft. wide, none of which, in the mining ground, reach the surface. The color is a medium dark blue-gray, and the grain fine. Well developed crystals of hornblende, plagioclase, and quartz appear in a finer network of feldspar crystals. In some dikes at a little distance from the mine openings, the rock graduates into a hornblende andesite, or the 'porphyrite' of the older classification. It will be referred to as a quartz-diorite. On the low western foothills of the Inyo range is a large dike of andesite parallel to the axis of the mountains. As far as known it has no connection with ores of any sort.

In the mine openings the older dikes of porphyritic diorite strike parallel to the crest of the range and dip west about 50°. The most important one lies between the limestone on the east and the shale on the west, though near the surface the rocks are badly jumbled. (See Fig. 3.) The other dikes of porphyritic diorite cut the shale. All invariably show the effects of intense dynamic action, and are frequently reduced to the consistency of putty. It is often found that cross-faults, and even quartz veins, and quartz-diorite dikes fail to cross them, and cease upon reaching the semi-plastic material of the porphyritic mass. The strongest quartz vein opened underground wedges out entirely upon meeting the largest of these dikes; their prevailing western dip in the interior of the great fold probably indicates that

least of the folding. It also shows, in connection with the dioritic intrusions of the Sierra Nevada, the present Inyo range is of early Cretaceous age. The later dikes of quartz-diorite strike northwest-southeast, and stand vertical, usually cutting the porphyritic diorite. This stone is commonly fresh, even though badly faulted in the immediate vicinity of the orebodies.

The structural details surrounding the mineral deposits are vitally important. Four faults, or groups of faults, of earlier age than the ores, are found in the mine workings. Two of these, about 300 ft. apart, are of the more important series of north-south movements; the other two, separated by about 900 ft., are east-west cross-fractures. The former stand nearly vertical; the latter dip both north and south. (See Fig. 1.) The eastern and the northern faults are the two larger. Many post-

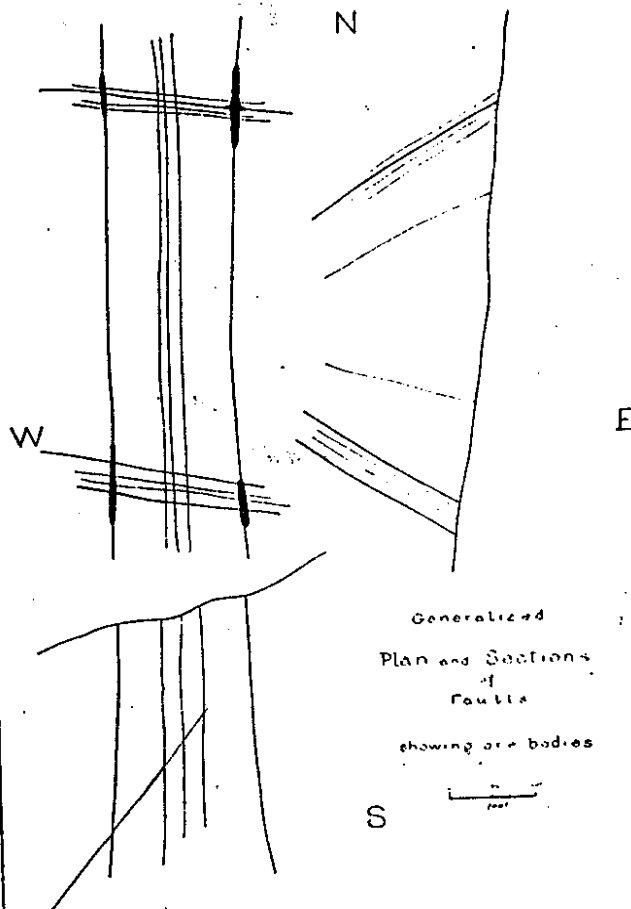


Fig. 1.

mineral north-south fractures are exhibited in the various openings underground.

The orebodies are of three distinct types; in order of relative importance they are: (1) Those deposited in spaces caused primarily by interesting faults; (2) quartz veins filling fissures; and (3) contact deposits in the limestone near the dikes of porphyritic diorite. There is a slight contact zone along the quartz-diorite dikes. Each orebody not a quartz vein shows characteristics of both first and third types. There is a genetic relationship with the two intrusive rocks.

The largest orebody, as well as the most peculiar and interesting, was formed at the intersection of the east and the north faults. The first stands vertical; the second dips south at an average angle of 45°, steepest near the surface. The shoot therefore pitches to the south. The spaces opened by the two movements were greatest toward the surface, due to the fact that given forces of disruption will produce greater visible effects under a lighter load near the surface than at greater depth. Further, because of the later age of the east-west frac-

ture, and a quartz-diorite intrusion nearly parallel to it, the opening along this fault becomes relatively more important in the lower part of the orebody. The quartz-diorite dike cuts the intersection of the two fault-planes 600 ft. below the surface. The form of the orebody may be compared to that of a short piece of tapering pipe flattened at the big end in one plane, and at the small end in a plane at right angles to the first. The length downward along the pitch is 800 ft.; the thickness in a north-south line at the surface is 200 ft., while at the downward end it is two feet; the width at the surface is 20 ft., increasing below to 75 ft. (See Fig. 2.) From the 600-ft. level downward the orebody continues as a contact seam on the north wall of the dike; above this level the seam leaves the intrusive and follows upward the intersection of the two faults. The minerals were deposited not only at the actual intersection, but also in both fault-fissures near-by, to the greatest extent in the larger north-south opening. A cross-section of the deposit is of the shape of a cross with unequal arms. (See Fig. 1.) The ore is an argentiferous galena, with small amounts of antimony as an impurity. It occurs in nodules in altered limestone, some of which, extracted in the past, are reported to have been 4 or 5 ft. in diameter. Cerussite and anglesite invariably surround the sulphide. The only gangue is calcite, or marbleized limestone; quartz is notably absent. The lead in an oxidized condition does not penetrate the surrounding rock for more than the fraction of an inch; the silver exists in an undetermined form at considerable distance from its original position. In the lower portion of the deposit the silver shows evidence of existing in proportionately greater amount than the lead.

The second type of ore deposit is found best developed in the limestone along the foot-wall of the easterly dike of porphyritic diorite. The contact formation always accompanies the dike, but bears ore only where enriched at cross-fractures. The ore of the contact zone proper is pyrite, now found only as limonite, either in large masses or in pseudomorphs after the sulphide. Gold is contained in small amount. The more valuable mineralization is due to the presence of both sets of faults. The west north-south fault cuts this contact within the mine openings; much movement near the dike, and in the dike itself, has occurred, and the largest orebodies were formed at the intersections of the two east-west planes of fracturing with the contact and the north-south fault. Small nodules and lens-shaped masses of argentiferous tetrahedrite with some quartz, similar to that of the quartz veins next described, are found irregularly distributed along the plane of north-south motion. The second orebody in importance in the mine was formed at the north intersection of cross-faults, though the deposit at the south intersection may yet prove the more valuable. (See Fig. 1.) The ore in this latter orebody shows a considerable percentage of bournonite, the sulphantimonide of lead and copper. Argentiferous galena is the chief mineral in both deposits. The length north and south is a few hundred feet; the thickness is from 1 to 10 ft. Dikes of quartz-diorite are near.

The third type of ore deposit, the quartz veins, is that which has furnished the rich silver ores of the Inyo range. These veins are narrow, from one to four feet wide, and are remarkably irregular in local dip. The dip in general is nearly vertical, or about 85° north, but in detail only a zigzag line could represent it. The strike is northwest and southeast. The effects of faulting are less shown on them than on the other deposits. The most important mineral is tetrahedrite, often the argentiferous variety freibergite, and always containing some lead and antimony in small quantities.

Other minerals are galena, sphalerite, and chalcocopyrite. All were deposited simultaneously. Azurite, malachite, smithsonite, and calamine occur in irregular masses in the limestone adjoining the veins. A little linarite has been reported. A number of the sulphantimonides of silver and copper may also be present; the complete mineralogy of the ore is not yet worked out. The only gangue of the veins is quartz.

The lead-silver ores are genetically connected with the intrusions of the quartz-diorite. The solutions set in motion by them found open channels at intersecting faults, and deposited therein their mineral contents. The largest orebody, described first, shows a small contact seam on the north wall of the dike proceeding upward, and opening out into a large orebody above. Further, this contact seam is well developed only where the dike is near the two systems of intersecting faults. At the time of the deposition of the lead-silver ores the ground was badly fractured outside the main faults, so that small amounts of ore can be found scattered in many places, particularly near the surface. The quartz veins are of later age, though from the facts that they strike and dip nearly parallel with the quartz-diorite dikes, and that there is some similarity between their ore minerals and those of the other deposits, it is thought that they may represent the last effects of the dioritic intrusions. The silicious solutions in small quantities penetrated many lesser fractures, as along the east dike of porphyritic diorite.

The relative ages of the three types of deposits are clear. The contact zone accompanying the porphyritic diorite is oldest. A period of north-south faulting followed, accompanied by east-west movements. The subsequent intrusions of quartz-diorite caused more fracturing, chiefly in an east-west direction, and initiated the deposition of the lead-silver ores. The quartz veins, containing antimonial and sulphide ores, filled fissures formed probably as the last results of the dioritic igneous activity. The absolute ages of the deposits are less apparent. The main contact formation is probably early Cretaceous; the quartz-diorite, with its associated ores, probably, is of early Tertiary age, synchronous with the early andesites of the Sierra Nevada; the quartz veins are but little later than the lead-silver minerals.

Not the least striking feature of the orebodies not quartz veins is the variation of richness with depth. In the lower portions of the deposits there is an absolute decrease in both lead and silver values, but a relative increase of silver over lead. A question now beginning to evoke more and deserved attention is the deposition of minerals in vertical range. In the continuous opening of the largest orebody the rich ore of the higher levels gives place to very low-grade material at the bottom. The galena is practically lacking near the dike, but there are several ounces of silver. The limestone of the Inyo range is noted for similar examples, those seen being small. A typical one is shown in Fig. 4. Here a small, but continuous seam in the bedding planes of the country rock, about an inch thick, is barren of all but decomposed calcareous minerals stained by iron. A few vugs containing calcite crystals show themselves. At the top, on the surface of the ground, is a nodule of solid galena, locally (and appropriately) termed a 'blossom.' The galena is tightly held in the limestone with no decomposition products surrounding it. The fissure leading up to the sulphide apparently stops at that mineral. Not sufficient study of the characteristics of the lead deposits has been made to warrant a truly scientific statement of cause. The facts known are as follows: The lead ores are genetically connected with the dikes of quartz-diorite. Most of these dikes fail to reach the surface. In the

y 20, 1907
p. 81

July 20, 1907 p. 82

cases observed the ore-bearing fissures are barren of lead minerals near the intrusive, and rich near the surface of the ground. Silver, when present, is in relatively greater amount near the igneous rock.

To sum up, the Inyo range exhibits three distinct types of mineral deposits: Those

at the intersections of cross-fractures and containing lead-silver ores; ordinary quartz veins carrying antimonial and sulphide ores of copper, lead, silver, and zinc; and contact deposits showing chiefly iron ores, with traces of gold. The lead-silver ores are genetically related to the dikes of quartz-diorite, and the quartz veins are of a slightly later age, probably connected with the last stages of the expiring igneous activity of the early dioritic intrusions. The relative ages of the deposits are, from earliest to latest: (1) Contacts between limestone and porphyritic diorite; (2) lead-silver ores; (3) quartz veins.

The geological ages range probably from early Cretaceous to early Tertiary. The Inyo mountains are notable in the large number of ore deposits, and should eventually become an important mineral region.

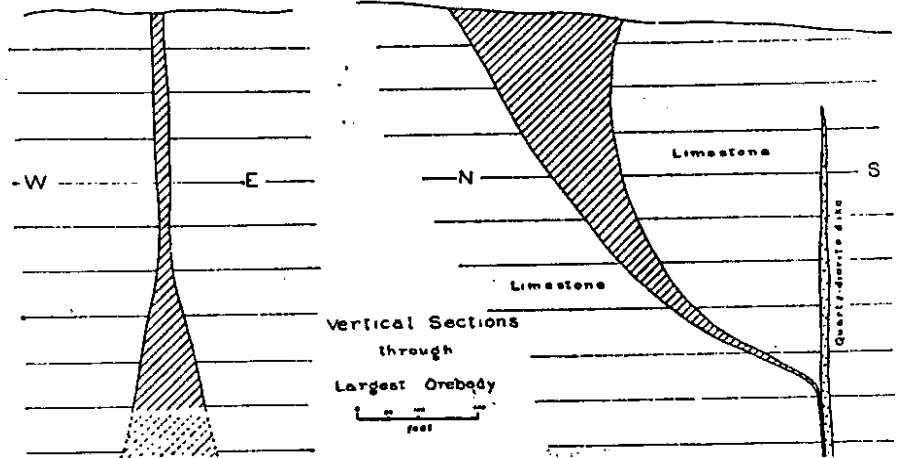


Fig. 2.

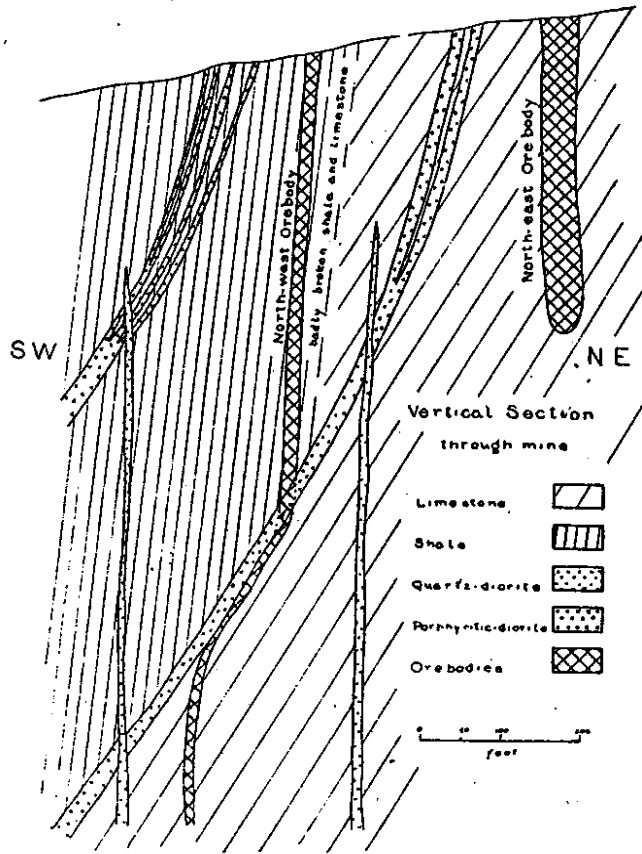


Fig. 3.

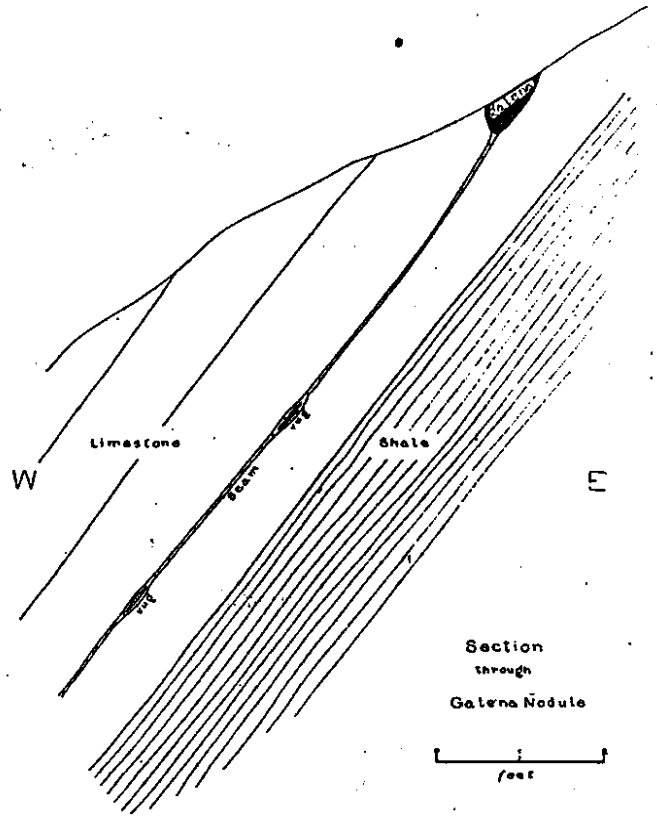


Fig. 4.

Mining and Scientific Press
Aug. 10, 1907

KERN COUNTY.

(Special Correspondence).—A strike of considerable importance has been made on the ridge north of Indian creek, in the Amalie district. This ridge runs east and west, and along its apex is a massive outcrop of quartz and quartzite, in which are found mineralized veins and stringers of varying widths, rich in silver sulphide and antimonide. These veins occur both parallel and at right angles to the outcrop. Several samples taken across them assayed about 40 oz. silver, some of them running as high as 300 oz. The property is being opened up by the locators, who are getting shipping ore from near the surface.

Sept. 14, 1907

Greenwater.

IN THE EARLY PART of this year we referred to the copper mines of the Greenwater district, and ventured to emphasize the fact that the condition of their development and the proof of their value were wholly insufficient to warrant the tremendous amount of mine promotion and stock speculation then in progress. It is not popular to depreciate mining activity of any kind, and it is rendered unpleasant by the comment of papers committed to the encouragement of stock gambling. At the time of our former criticism, a paper at Los Angeles called *The Mining Review*, undertook to lecture us on the supposed unfair treatment of a promising young mining district. It is not with any particular satisfaction that we can state that the logic of events has confirmed our comment on Greenwater. Incidentally, our informant, Mr. James W. Abbott, is wholly justified; the incident is now to his professional credit. During the past 10 months, the work of exploration has been pushed vigorously; many shafts have been sunk, and at least a score of them have reached a depth varying from a hundred to 600 feet. From the bottoms of the deepest openings, cross-cuts and drifts have tested the indications of ore. Despite this energetic exploration, the results have been distinctly disappointing. A glance at the dumps throughout the district will show that no large bodies of pay-ore have been cut, and the present condition of the prospects that were expected to become mines, is depressing. Most of the smaller companies have ceased work entirely, and the larger companies are employing only a few men. At the present time there are hardly 20 men doing work underground in the entire district, as against no less than

(Cont...)

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a hundred a few months ago. Two or three carloads of ore have been shipped, but there is no longer any pretense that large orebodies have been found. Almost without exception, the lower levels from the prospect shafts have cut no ore at all, or material even less promising than that seen at the surface. In consequence, the shares of the various companies are quoted at about one-tenth the price of six or eight months ago. The camp is losing its population, and is likely to become almost deserted in a few weeks. The larger companies controlled by Patsy Clark and Schwab are said to be looking for mining claims in other localities, with a view to giving their stockholders another speculative opportunity and incidentally of adjusting matters so as to avoid the expostulation of those that have suffered by putting their money into these unfortunate schemes.

Oct. 12, 1907

INYO COUNTY.

Considerable work has been done this year at the mines near Big Pine and most of them look quite encouraging. As the owners are not trying to sell their mines, little is heard about the camp.—Twenty miles east of Big Pine is the Eve copper mine, where 30 men are working. Schwab is supposed to be the real owner of this mine. The main shaft is 250 ft. deep and will be sunk to a depth of 400 ft. Developments indicate that the vein down to the 250-ft. level has a width of about 80 ft.—Further to the southeast is the lead prospect which was located four months ago by J. P. Fitting. The vein-filling is six feet wide with a streak 12 to 16 in. wide, rich in gold, silver, and lead.—Twelve miles down the valley from Big Pine is the Poverty Hill mine of the Buckeye company. The shaft is 157 ft. deep and the development indicates a wide vein of free-mill ing ore.

KERN COUNTY.

The well being sunk by the Yellow Aster Co. is 425 ft deep at present and a large amount of water is flowing from it.

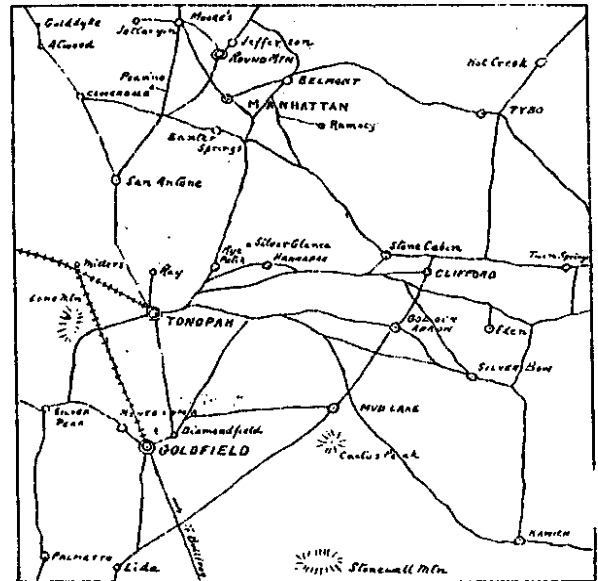
Mining and Scientific Press
 Feb. 16, 1907 p. 194

Greenwater Again.

In referring again to Greenwater it is not to do that camp an injustice, but to justify a recent criticism, which certain local papers have ventured to impugn. From information just received, we learn that the generalization published in our issue of January 12 was as correct as any general statement can be. There is a good showing of oxidized ore on the surface at several places, and there is a belt extending from twenty to thirty miles that is marked by scattered occurrences of copper ore. In the Greenwater district itself there is as yet no sulphide ore, except for a little chalcocite occasionally found with the copper carbonate—an association that suggests secondary enrichment, itself not encouraging, since this ore in bulk runs less than 10 per cent. There are a number of veins, one or two feet wide, with others, on the Schwab property, that are four or five feet wide, containing ore that, after sorting, will yield some 5 to 8 per cent stuff. It is oxidized ore, and therefore not amenable to concentration. There is no ore in the camp that it will pay to ship at this time, in fact, as we said previously, there is not a carload of 10 per cent ore obtainable. There is no sulphide ore at Greenwater, but at Willow Creek, 18 miles southeast, there is pyritic ore from which some three per cent stuff can be sorted. It amounts to this, that there is a large showing of ore too low-grade to be profitable now and in quantity insufficient as yet to warrant any reduction plant. There are many good-looking prospects, but no mines. Even the Greenwater-Death Valley consolidation, known as the Schwab property, is at the best a hopeful prospect, worthy of development, but not in a condition warranting the sale of stock on the basis of a proved mine. About \$3,000,000 has been taken from the public in the name of Greenwater; the fact is, the camp warrants the expenditure of \$250,000 in legitimate prospecting; it does not justify the selling of a single share to the public until a thorough test has been made by means of intelligent exploratory work. What reputable mining engineer has reported favorably on the prospects at Greenwater?

Feb. 16, 1907 p200

(Special Correspondence).—Crescent is fortunate in the matter of transportation. The Salt Lake system has a station at Nipton, Cal., five miles distant, while the Santa Fe system, which is rapidly building into Searchlight, will have a station on the east of the Crescent hills, from which terminal a road is being built to Crescent, a distance of 11 miles. The cost of transportation of ores to the Salt Lake smelters is \$5 per ton, while on the Santa Fe the rate from



Part of Nevada.

Ivanpah to the Needles smelter is \$1 per ton.—Water for milling and domestic purposes has been developed and the building of an electric light and power plant is under discussion by Los Angeles capitalists.—The Golden Crescent Co. is running an adit on the vein that crops on the north side of the Crescent hills. The adit is now in 225 ft. Over 500 ft. of work has been done on the vein and good milling ore is opened. A. J. Waddleton is the superintendent. This mine has been working for the past two years.—The Red Star group, consisting of three claims, situated two miles south of Crescent, has been purchased by Samuel McMillen and associates, of Goldfield.

Crescent, Feb. 2.

Mining and Scientific Press
Oct. 19, 1907 p. 477

INYO COUNTY.

(Special Correspondence).—Inyo county is at present experiencing quite an activity in the various mining districts. The warm weather being over the prospectors are getting out into the hills again and many new finds are being reported.—J. V. McConnell has just returned from

Eureka Valley, where he has been making an examination of the Grand View group of claims owned by Geo. F. McPherson and others. In an interview Mr. McConnell stated that Mr. McPherson's property looked very well at surface. On one of the claims he has followed the vein down for 35 ft., at which point Mr. McConnell's sampling shows that the ore averaged \$48 per ton in gold and silver. It is the intention of Mr. McPherson and his associates to push the development work this fall and winter.—M. H. Crane reports a new find about 12 miles east of Big Pine in the White Mountains of between 3 and 4 ft. of lead carbonates which run very well in lead and silver.—J. W. Wright is pushing development work on his lead property east of this place and expects to make a shipment of high-grade lead-silver ore this week. Mr. Wright is doing no stoping, but is simply shipping the ore that is taken out in development work.

Big Pine, Oct. 10.

Oct. 26, 1907 p. 509

KERN COUNTY.

A telluride ore has been found on the 500-ft. level of the Sunshine mine at Randsburg. The ore is of high-grade and there appears to be considerable of it.

Nov. 2, 1907 p. 541

INYO COUNTY.

A good strike of ore is reported in the tunnel of the True Fissure mine.

(Special Correspondence).—The past few weeks has seen a great deal of development work on the various lead-silver prospects and mines in this district.—J. P. Fitting, who is developing a property in the Saline valley has struck a large body of rich galena ore which runs also well in silver.—G. W. Oberholtzer, who is associated with E. W. Smith of Tonopah and L. S. Bishop of Big Pine, reports a promising strike of lead ore in some claims that he has located about one mile east of the Bunker Hill property. He will start further development work in the near future.—Eastern parties have taken a bond on the copper property belonging to J. S. Simmonson. This property adjoins Joe Wright's copper claims which are opened up by a tunnel 50 ft. long, the entire face showing an average of 6½% copper with some gold and silver values; the ore is oxidized. Mr. Wright expects to do further development work this fall and winter. These properties are situated at the head of Mazourka canyon and about 13 miles northeast of Independence in the west slope of the White Mountains.—The Montezuma Extension Mining & Milling Co., with G. M. McCollough as manager, is now working in silver ore which assays about 254 oz. in silver to the ton.—W. H. Uhlmeyr is working his property four miles southeast of this place and reports that he has found some very good

(CONT.)

(Cont.)

ore. He has been driving a tunnel and is in about 50 ft. and will start to cross-cut from that point.

Big Pine, Oct. 27.

Jigging by Hand.

Written for the MINING AND SCIENTIFIC PRESS
By ARTHUR C. NAHL.

Hand-jigs can often be effectively and advantageously used in treating dumps of low-grade material, without crushing, and with but a very small amount of water, when the material is too fine to be economically sorted by hand. Such material was found to be available in some of the dumps on the property of the Progreso Mining Co. at Triunfo, in Baja California, Mexico, and was worked at a good profit for three years with hand-jigs.

After six months of experiment, and after several single hand-jigs of different designs had been constructed, and their action studied, the design of jig which appears in Fig. 1 was gradually evolved. It was adopted as being the most serviceable and the most economically constructed. It required little or no repair except change of screens. As the drawing is to scale, little description is here necessary.

Since the drawing was made, a change has been adopted in the matter of counterbalancing. The diagram shows shoes of a large Blake crusher, bolted to the ends of the lever-frame, to balance the weight of the jig-box; but it being almost impossible to have the weights exactly equal, the lever-frame was subject to torsional strain. This, with continued jigging, soon twisted it, and threw the jig-box out of its horizontal position. A much simpler device was arranged by nailing a box of inch boards, 1 ft. wide and 11 in. high, to the back ends of the lever-frame. This had to be hung about two feet below the top of the frame, so as to clear the bottom of the chute, and braced with two straps of iron, which were fastened to the ends of the lever-frame, bent down around the counterweight-box and up again to the frame close to the bearing, and screwed to the box and frame. The two end boards of the box were long enough to be nailed to the ends of the frame. The straps of iron prevented the swinging motion from loosening the nails. The jig-box could be exactly balanced by filling the counterweight-box with rocks or scrap iron. This is the only change that has been made in the jigs, and it proved most effective in strengthening the lever-frame and preventing it from twisting and throwing the jig-box from its horizontal position.

It was found advisable to have a false bottom, with slanting sides, inside of the jig-tank, for the purpose of facilitating the discharge of hutch, at intervals, through a two-inch nipple at the bottom. We tried first to discharge the hutch at the front of the jig-tank, by means of an elbow and short piece of pipe, but, of course, this was impossible on account of choking at the elbow. So, in place of the elbow, a flange was screwed to the two-inch nipple, about two inches from the bottom of the tank. A groove three inches wide and one-quarter inch deep was cut across the face of the flange. Into the groove was fitted a movable piece of sheet iron 12 in. long by 3 in. wide, and a scant $\frac{1}{4}$ in. thick, having a 2-in. hole bored toward one end and held in place by a similar flange and a couple of bolts. This made an effective and simple hutch-discharge gate, and could be opened and closed from the front of the jig-tank. The movable piece did not have to fit very tight, for the hutch which accumulated on it kept it from leaking. To discharge the hutch, the gate is opened gradually, and it is scraped down with a shovel, and runs to launder in front of the jig-box, whence it is thrown into a wheelbarrow or one of the cars.

Though the drawing shows only two jigs together, we used them in units of five. We used 2 by 12 in.

plank, 24 ft. long, thus effecting an economy of space and lumber. At first we used old wagon springs for spring-boards, as can be seen in the photograph; but these were an endless source of trouble, and gave way to the simple form of board shown in the drawing. The spring-board is a most important part of the jig, and the cheapest, most satisfactory and durable kind for a five-compartment hand-jig is the one shown in the design.

The bearings used came from old cars; they were babbitted to fit a shaft of 2-in. pipe. The weight of lever-frame, jig-box, and counterweight-box holds the shaft in place in the bearings without caps.

Each jig was fed from a chute. The material was carried through the chutes in wheelbarrows. In the single jigs no chutes were used, but it would have been almost impossible to fill the boxes in the five-compartment jigs without the chutes.

It will be noted that the jig-box, when it is raised out of the water, swings under the chute, but the top of the box does not quite touch the bottom of the chute, and the weight of the counterbalance when the box is empty is held by the cross-piece on the lever-frame which rests against the top of the chute. This is an important piece of construction, for if the jig-box were allowed to hold the weight of the counterbalance, by hooking to the bottom of the chute, it would soon be strained and twisted on the hangers out of its horizontal position. It is necessary always to keep the jig-box perfectly horizontal.

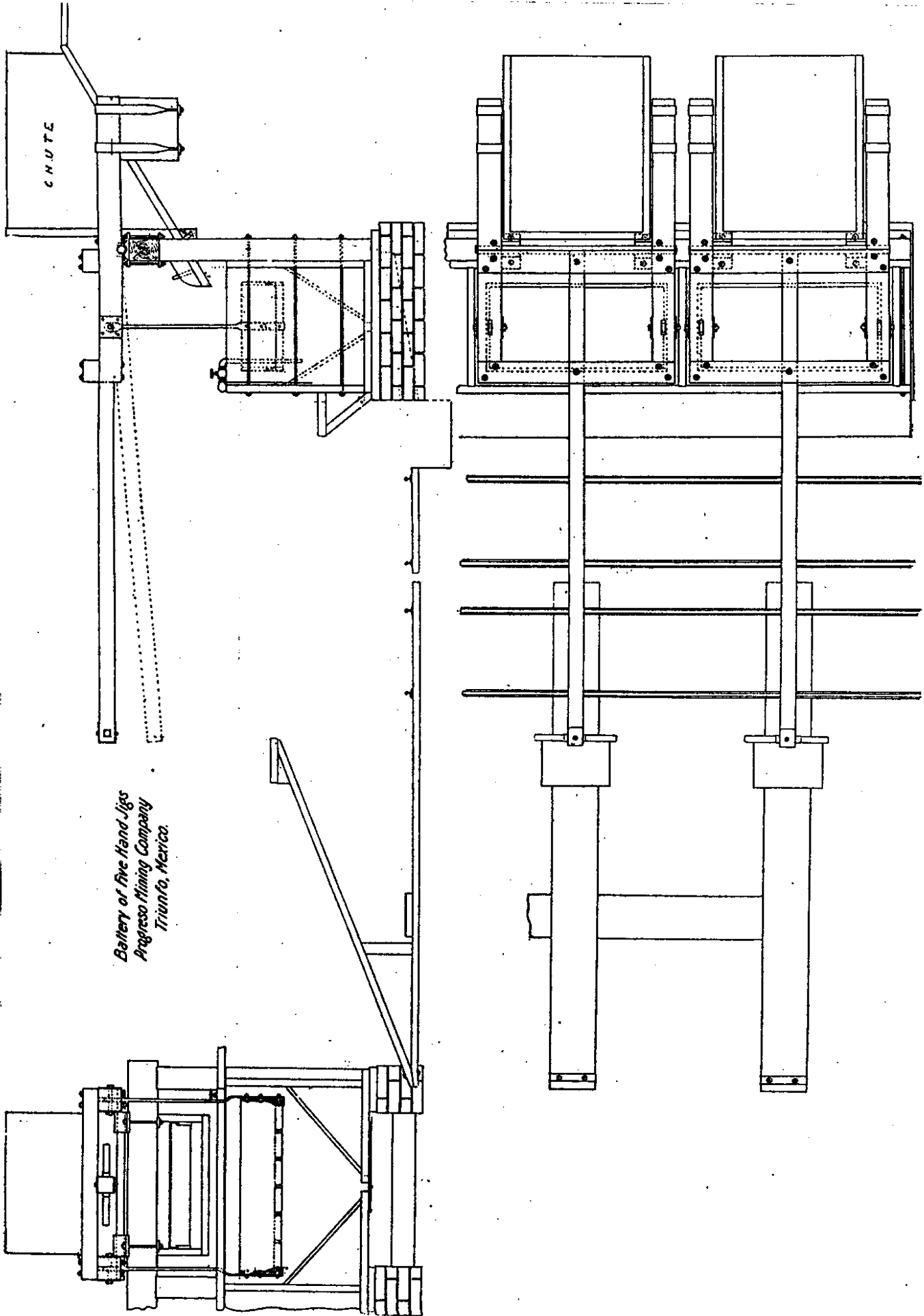
The treatment of the dump was as follows: The material was sized by hand on a steel wire screen, the size of the opening being about 25 millimetres, or 1 in. What passed through was re-screened by shoveling into a 10-mesh No. 18 wire screen, at a slant of about 45°. This was done to eliminate the fine dirt which greatly interfered in cleaning the ore and made thick muddy water, which had to be changed often. As water was scarce, it was preferable to rid the material of the fine in this manner. In the rainy season, when the dump was wet and screening was impossible, everything that passed through the coarse screen was sent to the fine jigs. Both coarse and fine jigs made more hutch in the rainy season, and the results were not so good. The oversize from the inch screen was sent to the coarse jigs, and that which passed the 1-in. screen and remained on the 10-mesh went to the fine jigs. What stayed on the inch screen and would not pass a 3-in. ring was picked out by boys. It was usually waste. The coarse jigs then treated everything between three inches and one inch, and the fine jigs, between one inch and the 10 mesh. Of course it was impossible to do perfect screening in this way, so the coarse jigs received some material that could pass an inch screen, and the fine jigs received a great deal of material that could pass a 10-mesh screen.

The coarse jigs required two men on the spring-board to give sufficient motion for separation. The length of stroke was from two to three inches, and about 90 per minute. A 10-mm. screen was used. After about 200 strokes, the waste was removed from the top with a shovel and scraper and thrown into the waste-car, and the concentrate, if sufficient to warrant, was thrown into the concentrate car. If the bed of concentrate was too thin, the jig-box was re-filled without discharging. No attempt was made at jigging on a bed in the coarse jigs. Heads to these ran about 8 oz. silver; concentrate, 23 oz.; tailing, about 3½ oz. Very little hutch was made. Two men on a jig could treat from 6 to 7 tons per day in 10 hours, and concentrated five tons of material into one of concentrate. Each man was paid P1.25 per day. The cost per ton of concentrate was P2.75.

The fine jigs were operated by one man on a spring-

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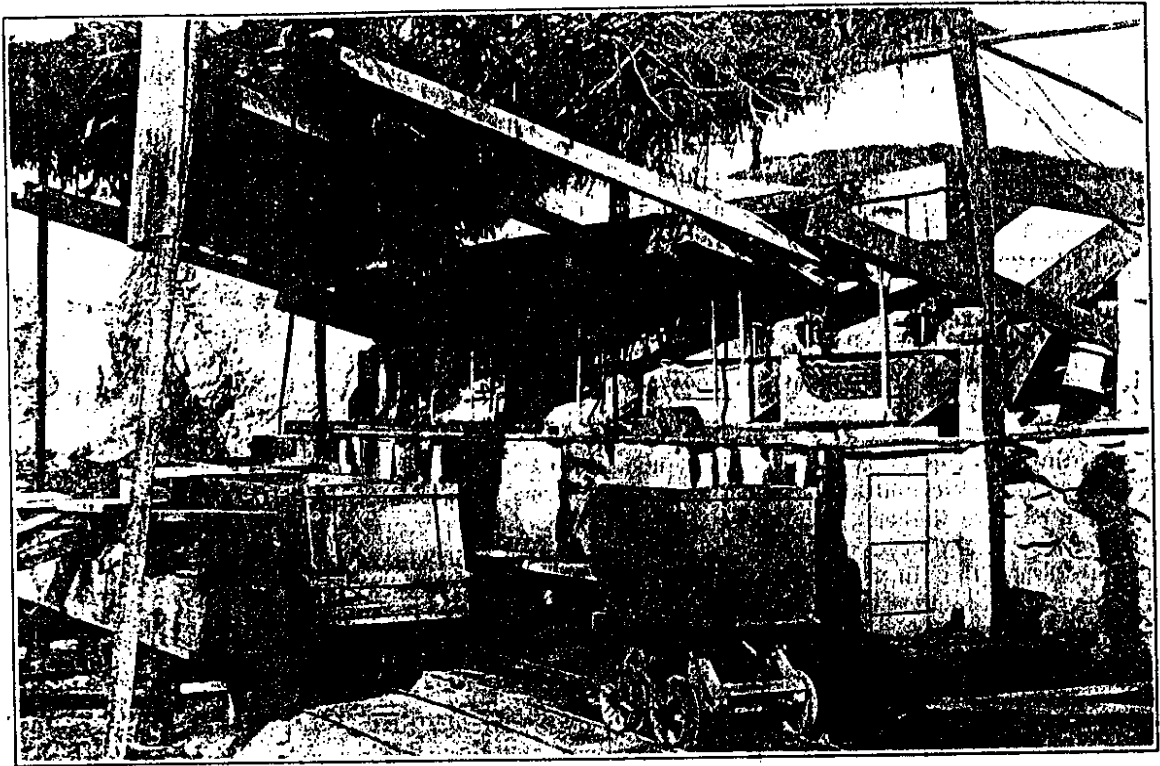
Nov. 2, 1907



*Battery of Five Hand Jigs
Progreso Mining Company
Triunfo, Mexico.*

.2,1907

p.558



Front View of Jigs, With Cars.



Men Operating Hand-Jigs.

Mining and Scientific Press
Nov. 2, 1907 p 1560

Nov. 23, 1907 p. 635

board at 112 strokes per minute; length of stroke, 1 in.; size of screen, 8 mesh No. 16 steel wire. The boxes were not cleaned out entirely, but two inches of concentrate was usually left as a bed, and when this was removed, some second product was used for a bed. Hutch was jigged through this bed, and considerable was made. The average material handled ranged in size from 15 mm. down to fine grit. Value of heads, 9 to 10 oz.; waste, 2.5 to 3 oz.; concentrate, 30 oz.; hutch, 16 oz. About 4 tons of this material was concentrated into 1 of concentrate and hutch, in the proportion of about 1,500 lb. concentrate and 500 lb. hutch. Each fine jig could handle about 4 tons of material per day. Wages, \$1.25 per day.

Two sets of five jigs were in operation, and usually six jigs were working on coarse, and four on fine, material. Ten men and boys did the screening and filled the chutes, at an average pay of one peso. Wages have recently been raised considerably.

While operating, the jig-box was kept wholly under water. In this manner, very little splash was made and the values in hutch were higher. The dump material consisted of ores from the stopes that were thrown over the dump with the waste from the mine. The ores consisted of iron pyrite, and almost all the silver minerals in a quartz gangue. The waste was quartz schist, quartz, and some cyanite.

The advantages of hand-jigging can be summed up as follows:

1. Need of a very small amount of water.
2. Low cost of installation.
3. Facility for moving from one place to another.

The advantage of the jigs here described is the economy and simplicity of construction, use of chutes, design of spring-boards, and convenience of the cars on tracks in front of the jig-tanks. •

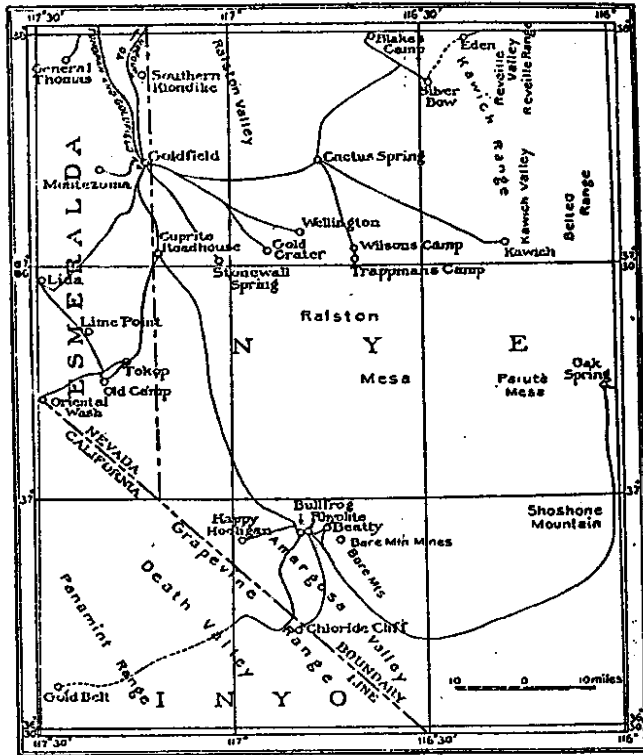
INYO COUNTY.

(Special Correspondence).—The present money stringer does not seem to have any great effect on the development of the prospects and mines in this vicinity. Reports of discoveries are coming in from the White Mtn., about 10 miles east of this place, and some very good bodies of ores, principally carbonate, are being opened up.—Cr and Forbes are pushing development work at their prospect as rapidly as possible. They have a body of high grade carbonate ore; as yet they have not reached the hanging wall.—A. A. Casler, general manager for the Buck M. & S. Co., which is operating a property at Poverty Flat about eight miles south of this place, reports that ground is now being broken for the new two-compartment shaft which is to be sunk to a depth of 500 ft. This company has a large body of medium-grade gold and silver ore; it is the intention of the company to thoroughly block out this ore before erecting a reduction plant. Mr. Casler states that the company intends to keep a large force of men at work until the two-compartment shaft is completed.—C. Cady, who is associated with Colorado Springs people, has a force of men at work on his copper prospect, which adjoins the McAfee mine. This property is opened by an adit over 400 ft. long, which has developed a body of copper ore from 5 to 25 ft. wide, carrying from 3 to 7% copper, and from 4 to 16 oz. silver. It is the intention of the management upon the completion of the present work to purchase the property. This is considered one of the best copper properties in this section.

Big Pine, Nov. 15.

The adit at the Killian mine is now 300 ft. long. Everything is in good shape for the winter and the company expects to double the force at this mine soon.—Some rich silver-lead ore has been found on the claims belonging to Bishop and Ellis in Marble Canyon; these are situated between the Black Canyon and Silver Cliff properties.

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Nov. 23, 1907 p. 637



Part of Nevada.

The Prospector and His Friends.

The accompanying photographs we owe to the courtesy of Mr. John Daggett, Lieutenant-Governor of Cali-

ornia on his way to Graham Gulch. He did not have a cent, trundling his wheelbarrow for 40 miles from Aetna to Grand Gulch. There he struck a pocket from which he got \$6,000 worth of gold, and thinking that he had ex-



Fig. 1. Ace High.



Fig. 2. A Full Hand.

fornia from 1882 to 1886 and superintendent of the mint in San Francisco from 1892 to 1896. The photographs represent various types of prospectors. The Governor has labeled them with an eye to terms that are used in

hausted it, he sold his claim for \$148 to some half-breed Indians, who have taken out \$30,000 since then. On his return from the diggings, Zalinsky slept in the day time and traveled by night, being in fear of losing his money, which he deposited in a San Francisco bank before returning to work. In 'One Pair' the prospector is better equipped than the wheelbarrow man or the single pros-



Fig. 3. One Pair.



Fig. 4. Two Pairs. 'Jacks and.'

a certain well-known game. For instance, the first is called 'Ace High,' and represents a surveyor named O. J. Milton on his way up Black Bear creek in Siskiyou county. It will be noted that he is carrying a complete outfit including a frying pan and blanket, a gold pan, pick, and shovel; other cooking utensils and grub are enclosed within the blanket. The picture labeled 'A Full Hand' represents a Pole named A. M. Zalinsky, who is

pector, for he has his faithful burro with him to carry his tools and utensils. In the illustration labeled 'Two Pairs' there appear a couple of prospectors accompanied by two jacks or donkeys. The men are Germans of some experience. They are carrying rifles and the photograph shows how heavily burros can be loaded. In 'Threes' there is a picture of an old prospector named Dunlap on his way to New River in the roughest part of Trinity

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range. Note the characteristic attitude of the prospector, who is a good specimen of the kind of man that has always lived out of doors. Mr. Dunlap came to California with Gen. John Bidwell, and at the age of 73 he is still exploring in the mountains. His valise is on the front horse and his coffee pot on the other animal. He is evidently well 'fixed.' 'Fours' shows more burros, in

this case not heavily loaded but in splendid condition. The photograph is a snap-shot taken as they passed. Taken together these snap-shots of Gov. Daggett illustrate the type of men to whom the West owes so much of its development.



Fig. 5. Threes.

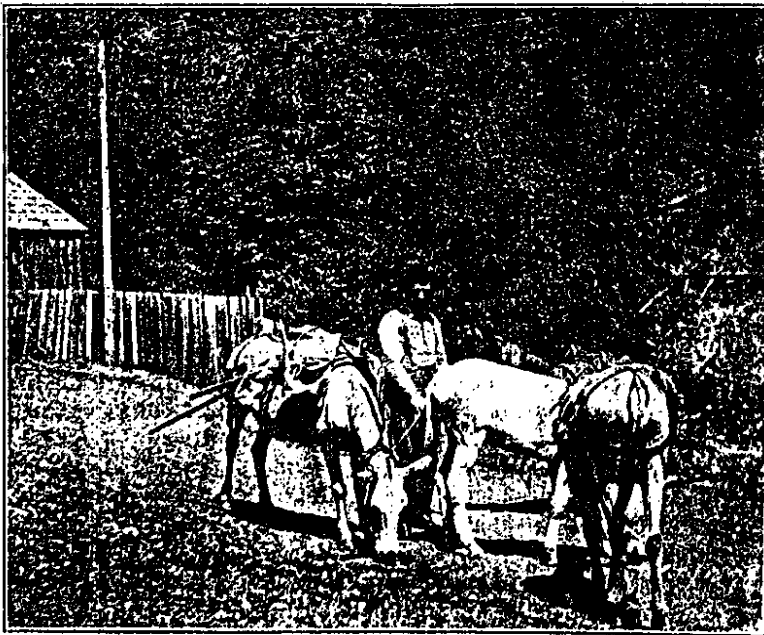


Fig. 6. Fours.

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Dec. 21, 1907

INYO COUNTY.

A group of claims in Black Canyon, being developed by Chas. Bishop and J. B. Ellis, has yielded some ore of shipping grade. Copper and gold are present in some of the ore, but the earlier specimens displayed contained much silver and lead. The work done so far has been little more than location requirements, but has shown the existence of strong lodes.—The owners of the Gold Bug and Gold Dollar groups at Snyder's Camp, near old Chrysopolis, recently visited the property and expressed the intention of providing working facilities on a large scale. The principal opening is a shaft 50 ft. deep, from which a drift 50 ft. long has been run on a vein averaging six feet of ore. The ore is said to carry considerable gold. Another shaft 40 ft. deep exposes a vein eight feet wide, carrying gold, silver, and copper.

Dec. 28, 1907 p. 797

INYO COUNTY.

The mines of the Ballarat district are quite active. The machinery for two new reduction plants is on the ground; one is for the Snow Canyon Mining Co. and another for a property at the south side of the district.—D. D. Johnson has secured a bond on the Neylon group of mines in the White Mountain range.—At the Dunlap mine an ore-body has been found at the end of an adit 600 ft. long.—At the Red Rose mine ore of great richness is reported.—Development continues at the Black Canyon mine.—At the Gray Butte mine the adit has been driven 100 ft. and in its face has ore 6 in. wide; this is said to assay \$80 gold per ton.—The recently built Keane Wonder mill, on the edge of Death Valley, has made its first shipment of bullion, amounting to \$16,000, the result of 12 days' run.

An adit is being driven at the Black Canyon mine to develop at depth a large lode of milling ore recently discovered near the surface.—At the True Fissure mine the main vein has been cut in the adit at a depth of 200 ft.; it is 15 ft. wide and is said to assay about \$12 per ton.—A large amount of development work has been done during the past summer at the Bishop Creek mine; in the upper workings a large tonnage of fair-grade ore has been exposed.—At the Killian mine the adit is in 300 ft.; several well defined veins carrying fair values have been found.—High-grade silver-lead ore has been opened a short distance below the surface at the Bishop-Ellis mine in Marble canon.—The Buckeye M. & S. Co. has begun sinking a double-compartment shaft at its mine on Poverty hill; it will be 500 ft. deep.

SAN BERNARDINO COUNTY.

A discovery of mica of commercial quality is reported to have been made by J. D. Ball near Ivanpah. It is stated that the vein can be traced on the surface 500 ft.; the owner displayed a sample 12 in. wide, 14 in. long, and 1 in. thick; from this he split off, without cracking, a plate one-sixty-fourth of an inch thick.

Jan. 11, 1908 p. 52

INYO COUNTY.

The new mill at the Casa Diablo mine is practically complete: F. J. Girard of Berkeley, Cal., has been engaged to take charge of the cyanide plant. A large body of good ore is said to be exposed in the Dry Bone drift.—At the Red Rose claims, near Bishop, active operations for development have begun. Very rich specimens have been secured from the outcrop of the lode; some on exhibition in Bishop are estimated to contain \$50 per lb.—Zinc ore has been found by H. M. Gibson and P. W. Forbes in developing a silver-lead lode in Black canyon; its quantity has not been determined but it is wider than the adit.—Near Chrysopolis a number of locations have been made on presumed rich placer ground.—A big strike of ore is reported from the old Cerro Gordo mine near Keeler. It was found in sinking from the 550 to the 900-ft. level. The old smelting plant is being rebuilt.

Jan. 18 p. 84

INYO COUNTY.

The Ubehebe Lead Co. is developing several small ore-bodies at its mine in the Ubehebe district. On the Wednesday Stake claim the adit has a face of lead-silver ore; on the Cora claim a 3½-ft. vein of lead ore has been found.—At the Emerald and Valley View mines, J. P. Hughes has found ore rich in gold, silver, copper, and lead.—At the Salsberry mine a contract has been let for the driving of an adit 500 ft. long.—The Keane Wonder mill has yielded \$16,000 as the result of two weeks' run on ore from the Keane Wonder mine; the mill is now treating 75 tons of ore per day, the ore varying in value from \$12 to \$25 per ton.

—The Greenwater & Death Valley Copper Co. has let a contract for additional sinking of its shaft; it is intended ultimately to reach a depth of 1600 ft.—H. T. Whitworth intends soon to begin developing the Surprise group of claims in the Coso range; mines were worked there by slaves about 1860.—At the Good Hope mine near Skidoo eight men are at work; Edward Hamlin is superintendent.

KERN COUNTY.

A company has been formed in Los Angeles to work the Cottontail placer mine, in the Red Rock Canyon district. Pumps of large capacity will be installed and an effort made to sink shafts to bedrock. Dry washing machines, operated by gasoline power, have been tried on the ground, but the subsoil was found to contain too much moisture for good results; it is now hoped to develop enough water for sluicing purposes.—The Yellow Aster mine and mills are working to their fullest capacity; the supply of water is abundant.—Barney Ostick is keeping a little mill running on ore from the G B mine; the orebody is 5 ft. wide.

SAN BERNARDINO COUNTY.

It is stated that many prospectors and others are hurrying to the site of a new gold strike in the desert country near Manvel. The discovery of a vein the ore of which assays \$2200 per ton is the cause of the stampede. Many people have left Needles and Searchlight in automobiles, buggies, and wagons, and on bicycles and burros.

Jan. 18 p. 96

BORAX IN CALIFORNIA.—San Bernardino, Inyo, and Ventura counties in California yield all the borax produced in the United States. The total output of crude borax for the year 1906 was 58,173 short tons, valued at \$1,182,410. This was an increase over 1905 of 11,833 short tons in quantity and \$163,256 in value. The most productive mine was that of the Pacific Coast Borax Co. near Marion, in San Bernardino county. The workings extend to a depth of about 600 ft. in veins of colemanite. However, about the close of 1906, the mine was abandoned and the entire force of 200 men was transferred to the Lila C mine in Inyo county. The Western Mineral Co. near Daggett, produced a small output by dissolving in material and evaporating to dryness in solar vats, yielding boric acid. The American Borax Co. at the same place mined a low-grade deposit and produced boric acid concentrate which was refined at New Brighton, Pa. In Inyo county, the Western Borax Co. is working 'mare mud'; this is concentrated by boiling and the solution is then crystallized. Near Griffin, in Ventura county, colemanite is mined by the Frazier Borate Mining Co.; it is refined by the Stauffer Chemical Co., at San Francisco. The Lila C mine in the Death Valley region is expected to be the heaviest producer of borax in the State for several years. The deposit is a colemanite vein known to be about 2000 ft. long and from 6 to 18 ft. wide. It is a high-grade ore, that shipped in 1907 having a boric acid content of about 40%. The production is expected to be at the rate of 30,000 short tons annually. This will be shipped to the Pacific Coast Borax Co.'s refinery at Bayonne, New Jersey.

Jan. 25

SAN BERNARDINO COUNTY.

The Orange Blossom Mining Co. expects to install a stamp-mill at its property near Bagdad.—C. Ferguson has bought eight mining claims 3½ miles west of Klinefelte station, and he proposes to commence work on them at once.—B. A. Jennings on Jan. 19 brought to Hart a sack of rich ore from the new strike at the Big Chief mine every piece fairly glistened with free gold. Seventeen lessees are working on adjacent properties. A water-line is being laid from Malapai springs, four miles distant. Telephone wires connecting with the Western Union wires at Barnwell, have been strung.

See 9/25/09

Mining and Scientific Press

Jan. 25, 1908 p. 112

INYO COUNTY.

(Special Correspondence).—J. V. McConnell is developing his group of six claims, 18 miles easterly from Big Pine; there are several shafts and an adit 60 ft. long. The lode is 2 to 4½ ft. wide and is exposed at intervals for the length of six claims; it is at a contact between porphyry and granite. The ore from all the openings varies between 5 and 30% lead and \$66.50 and \$148 gold and silver per ton.—Colorado parties are pushing development work in a very systematic manner at Chrysopolis.

—R. H. Blake is developing his silver-lead mine near the Montazuma mine; the lode is found larger as work progresses.—Joe Wright, in doing his assessment work on his silver-lead property, has found the silver increasing as depth is attained.—Systematic work will be commenced in the spring at the Priscilla Hill gold mine.—

J. W. Tracy intends to erect a 10-stamp mill and concentrators at his mine on the west side of Gold mountain; the mine is developed by a 285-ft. and a 275-ft. shaft connected by a drift 280 ft. long. The ore in the bottom of the shafts is 6 ft. wide and carries \$20 gold and silver per ton. This property produced much high-grade silver ore in the early days.—A number of prospectors left recently for Deep Spring valley and most of them are reporting good finds. Johnson & Epperly have an 8-ft. lode with a 10-in. streak of high-grade gold ore.

Big Pine, Jan. 18.

Feb. 1 p. 144

INYO COUNTY.

P. Calderwood and H. Scott have 12 men driving a 500-ft. adit at the Ubehebe mine; this adit will cut the vein 760 ft. below the outcrop.—At the Black Canyon mine an orebody has been cut by a drift 25 ft. long; it carries more gold than any other in the mine.—Al Stevens has a small force of men at work on his lease at the Brownie mine at Buena Vista.—Stocking & Denison are employing 15 men.—The 3-stamp mill at the foot of Queen canyon is running on ore from a lease in the Buena Vista district; this ore carries \$30 to \$40 per ton.—The Bishop Creek Gold Co. spent in 1907, \$91,107.33 in labor, machinery, and material.

KERN COUNTY.

B. Ostick and associates have secured \$1200 in a three weeks' run of the Kinyon 2-stamp mill on ore from the G B mine.—Peter McMahon has taken a new lease on the Butte mine and has some men at work.

Feb. 8 p. 181

INYO COUNTY.

A 600-ft. adit is being driven under contract at the Skookum mine near Benton; C. T. Jullha is superintendent.—A contract has been let for the Keeler-Skidoo road.—Chicago capitalists have purchased a property in Pleasant canyon near Ballarat; they intend to begin development soon.—It is reported that at Anvil Springs a strike of considerable importance was made recently by a Mr. Rush, who claims to have a vein 14 in. wide of ore assaying \$275 gold per ton; the ore is being sacked for shipment by way of Johannesburg.

Feb. 8 p. 182

SAN BERNARDINO COUNTY.

The development of the new camp at Hart continues; excitement is running high. Thirty-five leases have been let and 200 men were expected to begin work Feb. 1. Foster Bros. in their cross-cut on the Oro Belle mine have found a small orebody a foot wide that is said to carry at least \$1000 per ton; a burro train is packing it in sacks down to the office. Specimens covered with gold will assay at the rate of \$10,000 per ton.—At the Todhunter, Felix, and Aldrich leases ore fairly covered with gold is being taken out in small quantities.—Hart & Hitt are sacking ore from the original discovery and the Oro, Lee Foster, and Goldfield Big Chief companies are shipping ore.—A contract has been let for the daily delivery of 8000 gal. of water into the town of Hart; the pipes for the waterline are at Barnwell.

Feb. 15 p. 211

INYO COUNTY.

A vein 2 ft. wide has been uncovered on the Poppy group of claims at Skidoo. The find has created excitement in the camp because a sample from half the width of the vein assayed \$1568 per ton and a sample from the remainder assayed \$261 per ton. Walter Wright, S. W. Cline, and J. Frank are the owners.—At the Skidoo company's property, the main shaft is 400 ft. deep and between 4000 and 5000 ft. of development work has been done, not counting lessee's operations. There have been developed three veins 1 to 3 ft. wide of relatively high-grade ore. One of them which is 2 to 2½ ft. thick has been exhaustively sampled and is said to carry \$68 per ton. The construction of a mill is in progress.—Work is being pushed on the Yellow Garter group of claims and it is now thought that the Gold Standard lode has been found on it.—The final touches are being put on the Casa Diablo mill and on the repairing of some electric transformers that were unable to withstand a test. Development work in the mine has exposed an orebody 40 ft. long and 28 in. wide; this ore is said to carry \$100 per ton.—Samples from the 700-ft. adit of the Dunlap mine assayed \$5.47 per ton; they were from the country rock and the vein has not yet been reached.—The erection of the new 30 stamp mill for the Snow Canyon company is proceeding rapidly.

Feb. 29 p. 275

INYO COUNTY.

(Special Correspondence).—The Keane-Wonder mine and mill are situated on the Death Valley slope of the Funeral range, 25 miles southwest from Rhyolite, Nevada. The property is managed by Homer Wilson of San Francisco. The original workings were carried on through adits, but at present the bulk of the ore is quarried from open cuts. The strike of the vein follows the trend of the range and has a dip to the south. The country rock is a schist and the vein material consists of a ruby quartz, carrying free gold running from \$10 to \$30 per ton. An aerial tramway about a mile in length conveys the ore from the mine to the mill, making a descent of 1300 ft. in that distance. The

cont. . .

Mining and Scientific Press
Feb. 29, 1908 p. 275 (Cont.)

longest span between towers is 1200 ft. The rock crusher, stationed at the upper terminal, is operated by the power generated by this gravity tramway. The mill, which handles 100 tons per day, has 20 stamps, amalgamating plates, concentrating tables, and equipment for cyanidation is being put in. The tables serve the purpose of taking up the small proportion of lead that occurs in the ore. Water for mill work and other purposes is pumped from wells by gasoline engines. Steam power is used for the mill, crude oil being used as fuel under the boilers.

Keeler, Feb. 22.

March 7 p-310

INYO SAN BERNARDINO COUNTY.

High-grade ore is being sacked at McGuire and Mahana's lease on the Oro Belle No. 1 claim at Hart. A 4-in. streak of high-grade ore occurs by the side of a 3-ft. vein of shipping grade. The shaft-sinking will continue to the 100-ft. level.—The Hitt & Hart tunnel of the Oro Belle No. 1 is disclosing the best ore in the camp. The ore-bearing zone has not yet been cut through, but the adit has been in ore for 40 ft. Drifting as well as cross-cutting are being continued.—A discovery of copper ore is said to have been made at Florence, a new camp twenty miles west of Death Valley Junction, on the west slope of Funeral range. Plenty of water occurs five miles away, at Miller's springs.

April 4 p. 440

SAN BERNARDINO COUNTY.

(Special Correspondence).—Finds of valuable ore continue in the claims that are being worked, and last week the men working in the Sloan lease on Jumbo ran into high-grade ore at a depth of about 35 ft. An assay has not yet been made, but the pannings from the bottom of the shaft give about \$250 per ton. Many of the claims are in ore, and prospects on claims to the west and north of the main range have resulted in good surface indications. Hart and Hitt's Foothill and Foothill No. 1 showed good pannings, averaging from \$5 to \$50 for a distance of 200 ft., while the Gray Horse claim, owned by Jennings and Goodwin, showed high-grade ore on the surface. The Ross and Blackburn lease has developed some more rich ore. There was a meeting of the Business Men's League of Hart held at Norton's hotel Saturday evening, at which all of the representative owners, lessors, and operators were present to discuss the conditions of the camp and the action of the several committees. H. S. McCallum, president of the league, who has been busy with the affairs of the camp in Los Angeles, made a lengthy report which created an impression. The Salt Lake railroad will aid in the establishment of an automobile stage line from Leestalk to Hart, making the rate equal to that of the Santa Fe, which runs closer to the camp. A siding will be built at Hitt, on the Santa Fe, four miles from Hart, and a freight-house erected at once. The commissioners of San Bernardino county have appropriated \$1000 for a road from this station to the camp, which has already been surveyed, and upon which work will begin at once. Better time and connections are also promised.—On the Big Chief property the 500-ft. adit was started last week, and will pierce the mountain from west to east, cutting three known veins at depths varying

April 4 (Cont.)

from 350 to 500 ft. The shaft is down 25 ft. and continues to show high-grade ore. On Oro No. 1, Hart and Hitt are driving their 350-ft. adit which is expected to cut four veins, the last at about 150 ft. depth. Hall, superintendent of the Quartette Mining Co. of Searchlight which recently bought the Jumbo group, is in Hart with a shipment of timber and tools for the main shaft, which is being sunk with three shifts, in good ore all the way. Ore from this mine will probably be shipped to the Searchlight mills within a few days.—Twin Peaks continues to develop new finds, and in what was thought to be the foot-wall some high-grade ore was found last week. The double compartment shaft in this claim is down 40 ft. and cuts milling ore all the way.—The Todhunter lessees are still driving, and will raise for the shaft after going about 25 ft. more.—On the Stumpher lease, Piute Belle, the shaft is down 50 ft. and they are now driving north and south, with the latter drift showing good ore. Maguire and Mahana are in 60 ft. with their adit on Oro Belle No. 1, and have a well defined vein assaying about \$100 per ton. They will come farther down the hill, sink, and cross-cut for the vein.—Four claims owned by G. A. and W. L. Foster have been incorporated, as the Hart Con. Mining Co., and work will begin April 1. The officers of the company are: George A. Foster, president; H. S. McCallum, vice-president, and W. L. Foster, secretary-treasurer and general superintendent.—The Pfunder lease on Oro No. 1 is cross-cutting from the 50-ft. level, to catch a well defined vein east of the shaft which traverses the Pfunder ground and the Big Chief. They will sink to the 100-ft. level as soon as they cut the vein.—Bever, Barrow, and Furrow have started a shaft on the Rambler, which adjoins Jumbo and Clapper No. 3. Trenching showed good ore on the surface.—From 10 to 15 new people are coming in every day, and the demand for real estate and mining property is strong.
Hart, March 30.

The town of Hart is growing rapidly. A good two-story hotel is nearly finished, police and fire regulations are enforced, and a daily mail service is established. There are about 1000 people, and a large area has been systematically prospected. The best ground is on the Oro Belle claim where a fair body of ore assaying about \$90 per ton has been found.

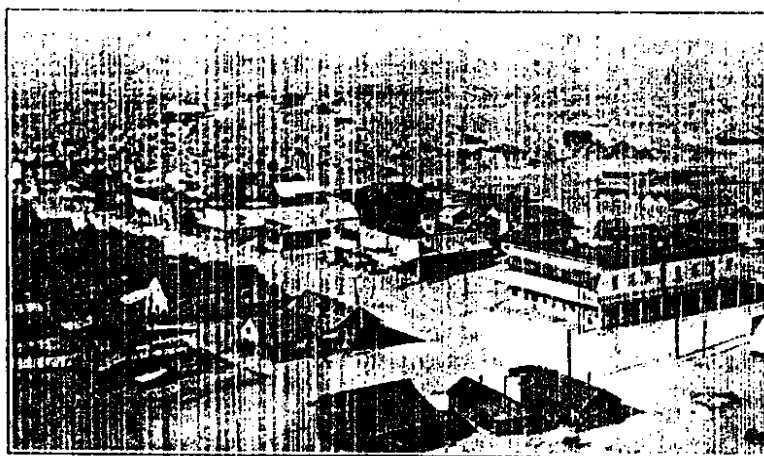
SAN DIEGO COUNTY.

Increased activity is reported from Dulzura, the new mining district. Prospecting is being carried on over an extensive area, and some rich ore has been found at several points. About 1000 prospectors are in the vicinity, and several claims have been sold. The best property is three miles southeast of the little mountain town of Dulzura which is situated among the foothills of the Otay mountains, close to the Mexican border line in San Diego county. Rich ore has been found over an area 7 or 8 miles in length and several prospectors have gone to Mexico to obtain concessions over the line. Hotels and stores are being erected and a good sized town is springing up in the centre of the district.

SEARCHLIGHT, NEVADA.

Hart, California.—Active Development.—Water-Works Installed.—
Jumbo Shaft Being Sunk by Quartette Co.—Big Chief Adit.—
Development in Signal District, Arizona.

The Hart district occupies the southern portion of the detached Piute range of hills, 25 miles west of the Colorado river, situated mostly in San Bernardino county, California. The town of Hart is at the base of this range, 25 miles south of Searchlight, Nevada, and is three miles from Hitt station on the Santa Fe branch that extends from Barnwell to Searchlight. Stages and automobiles meet all trains at Hitt, and an automobile line has been established between Searchlight and Hart. The town is supplied with water by pipe-line, through which it is pumped from wells at Barnwell. This was put in by the Rock Springs Cattle Co., which controls the wells and pumping plant. The water is discharged into storage tanks at Hart, and at present it is delivered in barrels to consumers. The town has about 400 people and the usual representation of business houses, among them a good hotel. A business men's league has been organized, which has done effective work in many directions. Its avowed purpose is to encourage legitimate mining. This league has also a law and order committee



Searchlight, Nevada.

to assist in the maintenance of a quiet camp. The claim-holders and lessees seem to be a conservative lot of men.

The first locations in the district were made on Dec. 19, 1907, by J. H. Hart, Bert Hitt, and Clark Hitt; after these came the Foster Brothers and Andrews & Marsh.

This detached range trends north and south and is about five miles long and three miles wide. It consists of a series of peaks and spurs, some of which are connected by saddles and others are divided by deep ravines, exposing the formation. The country is rhyolite and rhyolite breccia, with three parallel zones of altered rhyolite running in the same course as the trend of the range. The gold is in the free state, disseminated through the gangue in finely divided particles. Much of it is so fine as to be invisible except with the aid of a magnifying glass. In some places there are fairly well-defined veins within these zones, but as a rule the diggings, which extend from 10 to 60 ft. deep, show the gold-bearing rock to be in masses of irregular shape. While many specimens run phenomenally high, it is believed that a general average of the ores of the district will not be far short of \$20 per ton. The locations controlled by Hitt & Hart, Geo. A. Foster and associates, and Andrews & Marsh quite thoroughly cover the three parallel zones above referred to, but these parties have given a number of leases running from 1½ to 2 years, and under these the greater part of the exploring and developing of the district are being done. There are not less than twenty places in which lessees are at work, sinking and driving on outcropping lodes. The Big Chief Mining Co., controlled by the Foster Bros. and some Goldfield associates, has a lease

both sides of a prominent spur. To open the lode outcropping on the crest cross-cuts are being driven from both sides, whereby a depth of 300 ft. will be gained. A shaft being sunk at the east side of this hill has struck what is reported as high-grade ore. The Pfunder and Todhunter leases, in the same locality, have encouraging showings. Andrews & Marsh, controlling the Oro Belle Mines Co., have ground which they are developing adjoining the Big Chief.

The Quartette Mining Co., which operates the Quartette mine and mill at Searchlight, has a bond and lease from Foster Bros. on the Jumbo group, situated on the west zone. This company has installed a gasoline hoist, erected a head-frame, and is sinking a shaft, which is down 60 ft. They will continue to 100 ft. and then do some driving. G. F. Sloan has a lease on a block of Jumbo ground, on which he has a 50-ft. shaft in ore that is a good average for the district. Hitt & Hart, who are themselves developing a block of their Oro Belle No. 1, report rich ore in various workings, which include a 160-ft. adit and one or two shafts.

John D. Shaffer has some promising locations at the southern end of the district, and John O'Keefe and associates of Goldfield have claims covering Twin Peaks, situated half a mile east of the Big Chief ground. This is leased to J. F. Smith, J. C. Howe, H. W. Lauck, and F. L. Earll, who have sunk a 50-ft. shaft, in which free gold is found in a saccharoidal quartz. Hart, Hitt, and Foster have installed a Little Giant quartz-mill, made in Portland, which is now operating. It is run by a gasoline engine, the ore being crushed by a rocking muller. The Hart Mining & Leasing Co. has been organized by G. A. Marsh, W. B. Andrews, and others, and has taken several properties for development.

H. M. Banfield, manager of the Garyanzo Mining & Milling Co., is making arrangements for the building of a 25-ton reduction plant, which is expected to be in readiness within 90 days. Sinking has been resumed at the Sunrise, where a 7-ft. body of medium-grade ore has been opened up the past two days while driving on the 50-ft. level. The property has been leased to Goodwin Felix & Todhunter. G. F. Sloan is in Los Angeles purchasing for his lease

on the Jumbo. At a depth of 50 ft. cross-cuts have been run east and west, and the lode prospected for a width of 45 ft., which is all of milling grade. Phelps & Eagan, lessees of Block 3, Oro Belle, have started a new shaft 100 ft. north of the Big Chief adit on the west side of Big Chief Mtn., cutting an 8-ft. vein.

The opening of the Norton house, Hart's new first-class hotel, was celebrated last Friday evening with a banquet and ball. An elaborate menu was served, and with Harry S. McCallum as toastmaster the affair proved a huge success. The furnishings in the Norton house are first class. Another two-story business block was started this week by Martin & Nance.

The McCracken Hill mines, situated in Signal district, Arizona, 40 miles from Yucca station, are owned by an eastern company, of which John L. Witney is manager and Albert Burch consulting engineer. Extensive development is in progress on a great silver-lead vein whose outcrop is traceable for a distance of 10,000 ft. through a gneiss and grano-diorite country. The vein is of great width. The ore consists of lead carbonate and silver chloride near the surface, and of galena and silver at greater depth. A 400-ft. incline three-compartment shaft has been sunk on the vein and further sinking is in progress, with horizontal workings on the vein. Gasoline engines, using distillate as fuel, furnish the power. The company is putting in a 20-mile pipe-line, through which a water supply will be brought by gravity. A force of about 75 men is employed. This locality is 14 miles north of the Bill Williams fork and 70 miles by road from Parker.

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SAN BERNARDINO COUNTY.

The new hoist for the Quartette shaft was installed last week and the shaft is being sunk with three shifts at work. ---The mill for the Big Chief Co. is now on the ground and the erection of it is started. The Quartette will also build a mill as soon as water is developed on the property. ---The Big Chief lease is sinking with four feet of \$50 ore in the shaft, and a vein has been found in the adit which is being driven from the west side of the mountain. The vein is two feet wide and is of good milling grade. The upper adit is in 130 ft. and the vein is now being cut, the ore being about \$20. ---The Sloan lease is working in 30 ft. of ore, a portion of which averages \$50 per ton. Nearly 300 sacks of high-grade ore is now piled on the dump, and the lessee is preparing to make a shipment. After cross-cutting three feet from the 50-ft. shaft, which was sunk 30 ft. from the mouth of the adit, the lessees on Piute Belle No. 1 broke into four feet of good milling ore, averaging \$25 per ton. Andrews & Marsh are the lessees of this block. ---J. D. Goodwin has made a rich find on the Sunrise. At a depth of 50 ft. a cross-cut was run last week, and five feet of \$30 ore is showing in the face. The Sunrise is a mile and a half from camp. ---The Hart Con. Mining Co. will begin operations next week. The company owns the northern extension of the Oro Belle group, where Hart & Hitt made their original strike. The adit on Oro Belle No. 1 has reached a distance of 125 ft. ---Two carloads of ore are now on the dump at the Stampher lease. At a depth of 50 ft. the lessee is driving in the vein. The ore averages \$24 per ton, and as work progresses the ore-shoot has every indication of being large. ---The Twin Peaks Co. are beginning operations next month on an extensive scale. A hoist and compressor will be installed and a double-compartment shaft will be sunk 200 ft. The Four Tramps lease on Twin Peaks have opened up an immense body of medium-grade ore, averaging \$25 per ton. A hoist will also be installed at this lease.

May 9 p. 613

INYO COUNTY.

A syndicate of Indiana men has purchased a two-thirds interest in the Red Rose group, near Bishop, and taken a lease and purchase bond on the Ivanhoe and the Gem group of claims. J. E. Wernecke will have charge of the development of these claims. ---The hoisting plant for the Bishop Creek Gold Co. arrived last week and will soon be working. ---Rich specimens of ore were found on the Chicago property. A shaft is being sunk.

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May 16, 1908 p. 649

INYO COUNTY.

The Golden Gate has let a contract to George Stevens to drive their adit 400 ft. farther. The Golden Gate property is southwest of Buena Vista, and the railroad has established a flag station there, to be known as Russell.—The Stewart mill is treating a shipment of six tons of ore from the Brownie mine at Buena Vista.—Robinson & Wells report a rich strike on their property about four miles from Beveridge.

June 6.

INYO COUNTY.

The two-compartment shaft of the Bishop Creek Gold Co. has reached a depth of 50 ft. A new hoist and a Leyner drill have been installed. The diamond drill which is working in the canyon recently struck at 150 ft. two feet of sulphide ore which assays \$34 per ton. This hole is over 200 ft. from the first, in which similar ore was found.—The Southern Belle mill is running on ore from the Bullion, which is being taken out by the tramway in the New York adit. Eight miners are stopping in the 325-ft. level of the Bullion.—A contract has been let to advance the Index adit, near Pine Mtn., 250 ft. farther. It is expected that three veins will be cut before the Bull Domingo is reached.

June 13

SAN BERNARDINO COUNTY.

The Hart Florence Mining Co. is being incorporated to work the Florence group of claims, at Hart. The new company guarantees an expenditure of \$15,000 for development purposes and expect to be working 10 men by June 20.—The first shipment from the Sloan lease on the Jumbo has been sent to the Cyrus Noble mill, at Searchlight.

June 20 p. 826

SAN BERNARDINO COUNTY.

The Fremont M., M. & D. Co., at Barstow, has recently installed a new engine and hoist and is now hoisting ore. The management proposes to erect a 10-stamp mill in the near future.—The new custom mill, at Daggett, is running at its full capacity.—A quantity of placer mining machinery is being shipped to the Coolgardie mining district, 20 miles north of Barstow.

July 18 p. 71

SAN BERNARDINO COUNTY.

It is claimed that vanadate of lead has been discovered on the North View claim, 7 miles south of Hart. The vein is 20 ft. wide and also assays \$93 per ton in gold.—The Hart Florence Mining Co. has started work on its Florence claim, and the Oro Belle Mines Co. will start some time during July.

July 25 p. 107

SAN BERNARDINO COUNTY.

A recent strike in the upper adit of the Big Chief Co. exposed a large body of ore assaying about \$20, in which there is an 18-in. streak that assays \$40. This strike was made at a depth of 100 ft. and the ore very strongly resembles the richer specimens found on the surface.—The adit on the Bishop & Martin lease has almost reached the intersection with the 50-ft. shaft. The dry concentrator, heretofore used, has been abandoned and the entire dump is being sorted and sacked for shipment.—Active development will be started at the Oro Belle property about August 1. It was planned to start earlier, but definite word has been received to the above effect. The property will be fully equipped with machinery.—The town of Daggett was completely destroyed by fire last week, resulting in a property loss of \$45,000 or \$50,000.

Sept. 5 p. 810

INYO COUNTY.

An 'Exposition of Mineral Resources of Inyo' will be held at Bishop, October 13 to 16 inclusive. The committee, of which W. Gillette Scott is chairman, announces that it will be glad to receive specimens of ore representative of Inyo county and adjacent territory. Opportunity will also be given for the exhibition of machinery and other devices relating to mining.

SAN BERNARDINO COUNTY.

J. H. Reynolds, of San Diego, has been examining the Long Shot claim, at Hart, for a new San Diego company, recently promoted by A. L. Gottesburen. It is reported that Mr. Reynolds will advise his clients to not only proceed with the development of that property, but to also purchase the Bishop & Martin lease on block 3 of the Oro Belle No. 2. It is probable that hoists will be installed at both properties, and work started at once.—The Oro Belle and the Oro Belle Fraction claims have recently been surveyed for patent. The Oro Belle Mines Co., the owner of these claims, is being financed in Duluth, Minnesota. W. B. Andrews, who has charge of the sale of stock, reports that he expects to have sufficient funds to start work some time in October. The Company plans to spend about \$30,000 in sinking a 300-ft. shaft and doing lateral work.

Sept. 12 p. 339

SAN BERNARDINO COUNTY.

Gold Valley is the name of a new mining camp in the Gold Belt mining district, about 28 miles southwest of Hart and 14 miles southeast of Cima, on the east slope of the Providence range. Last winter a number of Hart people made several locations in that vicinity, and everyone who has visited the district declares that the showing there is good. Quite a rush is now on at the new gold camp, and it is said everything for miles around has been located. A townsite has been laid out and over 50 tents have been put up. At a depth of 100 ft. Warfield & Neumayer have opened a 16-in. streak of free-milling ore which gave \$130 returns on two tons of ore worked through an arastra. A two-stamp Nissen mill has been ordered.

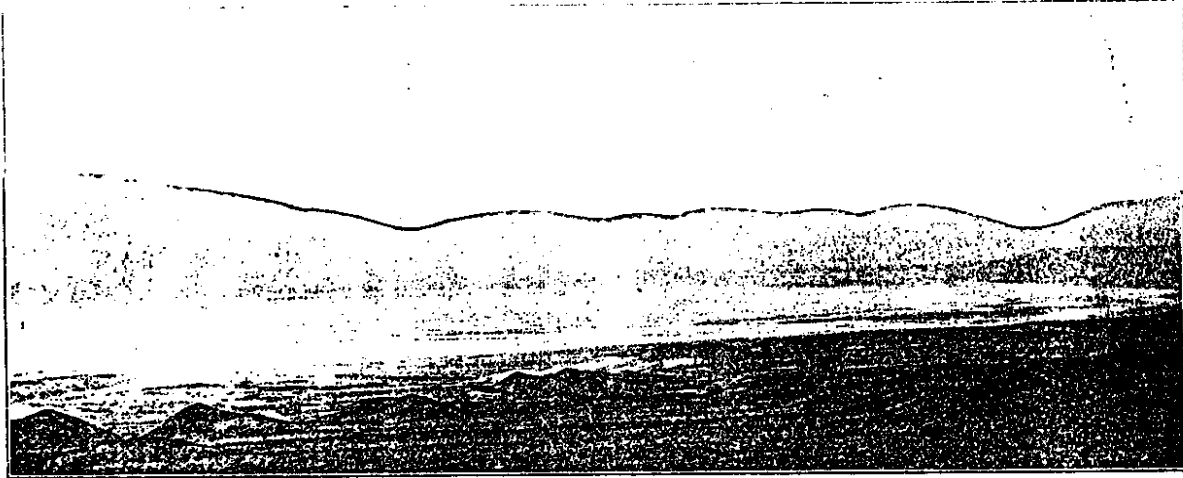
MINERAL PROSPECTS AROUND DEATH VALLEY.

Written for the MINING AND SCIENTIFIC PRESS
By ROBERT E. RINEHART.

Mining activity in the vicinity of Death Valley, which in the heyday of the Greenwater and Skidoo excitements was booming, has sunk back to the dead-level of the lonesome days following the farewell of the twenty-mule borax teams. The inhospitable re-

gion is practically abandoned to chuck-a-walla, side-winders, and a few burro-men camping about the canyon springs and desert wells. The panic of October bore down on Death Valley and cast a gloom that has not lifted. There is not a 'wild-cat' meowing loud enough to be heard above the desert stillness. Veterans living on the scant bounty of grub-stakers

in the quest of the rich silver lode of Bennett's Gunsight Lead or the wonderful gold butte of crazy Breyfogle? If he has, let him write it down to the debit side of Death Valley's account. Rash desert rats used to find even the Peg Leg mine as far north as Death Valley and dispose of it to simple strangers from the settlements. The region has been a bonanza for desert tramps. But the valley's age of mystery has come to a close. With motor cars honking across the salt-marsh and the Tonopah & Tidewater



Upper End of Death Valley.

gion is practically abandoned to chuck-a-walla, side-winders, and a few burro-men camping about the canyon springs and desert wells. The panic of October bore down on Death Valley and cast a gloom that has not lifted. There is not a 'wild-cat' meowing loud enough to be heard above the desert stillness. Veterans living on the scant bounty of grub-stakers

Railroad on its fringe, Death Valley has shut the book of its romance and is now looking forward to actual operation in mining.

What the region will amount to in future is largely a matter of conjecture. Some regard the surrounding mountains as a land of promise; others consider prospecting in the Panamint and Funeral ranges



Mt. Blanco, the Largest Borate Deposit in the World.

are reduced to half-rations or are going to work at the Lila C., the prize mine of the Pacific Coast Borax Co. Nothing can do justice to the depression except the dirge of the lone store-keeper at Stove Pipe Well. This collapse of Death Valley mining would not be worthy of much consideration did it not mark the exhaustion of the most fertile field in America for mining fairy-tales. For a good half-century the mysterious hidden riches of Death Valley have been used to lure grub-stakes from men easy with their money. In more recent years they have been the capital of many a million-dollar capitalization. Has any one ever attempted to recoup the money spent

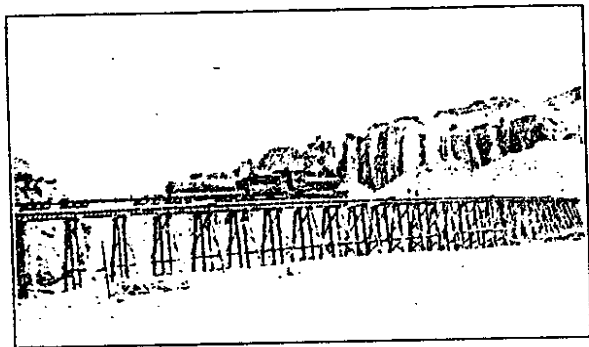
a waste of time. Many old prospectors assert that the hills have been 'raked for ledges with a fine-tooth comb', while others are equally certain that the ground has no more than been scratched over. This much, however, can be taken as sure—the days of fake mining are gone.

From the time when pioneer desert-men came into the valley hunting the Gunsight Lead, until the discovery of Tonopah, the Panamints have been alive with prospectors. Plenty of water is found on the Telescope side of the valley in most any canyon. Snow stays the year round in the gullies of Telescope peak yielding excellent drinking water to the

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foothills below. Consequently the locality has always swarmed with 'desert-rats.' Moreover, during the years of the rush caused by the discovery at Surprise canyon, and for many years after, the Panamints came in for careful scrutiny. Funeral range likewise, as far up as the Grapevines, has been thoroughly ransacked. This range contains many borax deposits. In fact, it is the field from which the Pacific Coast Borax Co. plans to draw its supplies in future. Practically all the mounds and foothills of Furnace Creek 'wash' are now the property of that company. To secure these borax deposits the company for the last twenty years has had experts scouring Funeral range. Its hills have been tramped over by every sort of prospector. It is pretty good reasoning to infer that, were there any gold, silver, or copper deposits worth while in Funeral range, these scouts would have encountered some of them. As a matter of fact, the Pacific Coast Borax Co. does not own a gold, silver, or copper property anywhere in the vicinity of Death Valley.

This criticism does not hold good of the north end of Death Valley, which is sometimes variously called



Amargosa Canyon.

Lost valley and Mesquite valley. The mountain ranges that wall in this hollow of desolate sand-dunes have never been disturbed to any extent by ore-hunters, because water-holes and springs are few and far apart, and a base of supplies has to be set far away. Thus only flying trips have been possible into this district. The Tin mountains, along the west side of Lost valley, are perhaps the least explored desert mountains in this country. The upper end of the Grapevines, the east rampart of Lost valley, though much better known than the Tin mountains, will bear more careful prospecting. This is the reputed location of the Breyfogle butte. On the side favoring further prospecting around Death Valley it should be said that the prospectors have previously been the laziest lode-hunters in the desert. Much of the alleged prospecting has been done by 'desert-rats', those half-mad desert tramps who never made more than a pretense of looking for ore. Their search was generally confined to trails between water-holes. It is significant that the real prospector of Death Valley is ferreting for ore down in the Panamints. He is Johnny Seity, or 'Cytty', or 'Cyttee'. 'Death Valley Scotty' will give a gold mine to anyone who can figure out the correct spelling of the patronym of the wizened Austrian prospector

'Johnny-behind-the-Gat,' which is short for 'Johnny-behind-the-Gatling-gun', a sobriquet bestowed out of respect for the prospector's Mauser automatic combination pistol and carbine. Seity prospects. After he has been over a hill and left it, one can with easy conscience pass that hill. When necessary to examine a ledge the little Austrian will go up a canyon wall which any mountain sheep with an ounce of caution would avoid. As a result, Johnny has made three good strikes in his life, a fine record for any prospector's career. His last discovery was the Big Belle, a property in the Grapevines, which looks rich. Johnny has been 'promoted' entirely out of the Big Belle. For that reason he is down in the Panamints looking for another. His presence is considered a good recommendation for the Panamints as prospecting ground.

Death Valley has one actual mine with which to begin its new era. It is the Keane Wonder, a wonder if for no other reason that that it is the only producing property of the region. While not a bonanza, it is paying. Forty miners are busy supplying \$20 ore for a 20-stamp mill. Now and then a gold bar finds its way to Rhyolite, and figures in the press dispatches. Skidoo, on the west slope of the Panamints, disputes the Death Valley's supremacy. From Bob Montgomery's camp come reports of forty miners delving into 'picture-value' ore. Skidoo's mill of 10 stamps is completed and at work. The monthly output is said to be \$10,000. Skidoo insists that it is part and parcel of Death Valley, though it more properly belongs to the Panamint valley.

Not far from Saratoga Springs, at the extremity of the south arm of Death Valley, the hustling little supply-camp of Silver Lake is kept alive by a large mining district that extends from the Shadow mountains on the east to the Avawatz on the west. Greenwater is still trying to keep itself from utter collapse. Following the New Year, when rumor had it that Panamint Tom, an ancient Shoshone warrior, with his squaw, was hibernating on the Greenwater bank, a force of men, about a half a dozen miners, went to work in the copper properties. Occasionally the long-silent telephone wires to Rhyolite dropped whisperings of fancy 'strikes' at Greenwater. These found their way into print, but Greenwater failed to sustain the promise of its earliest boom days for anyone to take much interest in these later murmurs.

Scotty's Death Valley mine has moved up into the Tin mountains. This mine, of the ilk of Peg Leg and Breyfogle, when it sprang into the lime-light, was down at the lower end of the Panamints, near Hidden Spring. Since then it has zig-zagged back and forth across the valley in a northern flight. First it skipped to Funeral range; next to the Panamints near Emigrant Spring. Later it flitted over to the Grapevines and rested till the work of the Keane Wonder made the district too busy. Now it has taken refuge in the isolation of the Tin mountains, probably for the reason that last spring four human skeletons and the bones of six burros, grim relics of a prospecting party, were found in a Tin mountain canyon.

The Borax company has planned an unusually

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large amount of assessment work for this fall on its Death Valley properties. It is probable that 50 or more miners will be taken over to Furnace Creek canyon. Each year's work adds thousands of tons of colemanite to the already immeasurable Death Valley store. Meanwhile the Lila C. mine is turning out sufficient borax to supply the American market. Since the transfer of operations from Borate to the new borax camp, Ryan, which is named after John Ryan, who for years has been the company's field representative, the company has kept more than a hundred miners following the extensive colemanite veins of the Lila C. The roaster, begun last spring, is now completed and running with a good force of men. The cabins and bunk-houses have been moved to Ryan from Borate. The Tonopah & Tidewater railroad has opened up the territory east of Death Valley. This region in three years has become quite well known. The soda lake, on the Mojave desert, near the ruined fort on the overland trail, which was once worked for its soda, is receiving the attention of two groups of capitalists, now that a railroad touches its very edge. Along the walls of Amargosa canyon nitrate beds have been discovered. They are low-grade deposits. Nevertheless, they look promising enough for someone—rumor says it is the Borax company—to take up the ground and do considerable assessment work. Death Valley's final contribution to the world's wealth seems more likely to come from such minerals as borax and nitre than from precious metals.

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Sept. 26, 1908 p. 407

SAN BERNARDINO COUNTY.

A strike of rich ore was made last week in the adit on the Oro Belle No. 1 at Hart. A streak of \$300 ore, from one to three feet wide, has been uncovered for a distance of over 50 ft. In addition to this rich shoot there is six feet of milling ore, assaying \$15 to \$20 per ton, which will be sacked and sent to the Little Giant mill, at Searchlight.

Oct. 3

INYO COUNTY.

The Bishop Creek Gold Co. reports that the drift being driven from the 160-ft. level of its new shaft has cut an orebody which assays about \$170 per ton in gold. The drift is in only 15 ft. The shaft passed through good ore nearly all the way down, and prospects for a producer seem to be bright. The accidental discovery of bonanza gold ore near Silver Lake at the head of Rush creek, about 30 miles from Bodie, last week, has started a stampede into that district. Over 300 people are already on the ground and others are arriving daily. Stores and saloons are going up and business is flourishing in the new camp.

Oct. 17

p. 512

INYO COUNTY.

The Inyo Cose Co., a Portland, Oregon, concern, is putting in a 2-in. pipe line $3\frac{1}{2}$ miles long from the Howard springs to its group of claims about 17 miles south of Darwin. A small mill will probably be built in the near future. Considerable development has already been done and good ore is exposed in a number of places in the property.

SAN BERNARDINO COUNTY.

Work has been started on the Flyer property and shipments will be started to the Little Giant mill at Hart. A bunk-house is being erected and the existing 30-ft. shaft is being sent down. Milton Munday is owner. The foundations of the Little Giant mill are being re-built and the plant overhauled. A rock crusher has been ordered and it is planned to operate the mill continuously hereafter. William L. Foster is superintendent.

Oct. 31

SAN BERNARDINO COUNTY.

A syndicate of Goldfield mining men has purchased from William C. Lacy, H. C. Emert, and H. J. West a group of three claims in the Old Woman mountains, about 40 miles southwest of Hart. The consideration is \$15,000, a portion of which sum was paid down, and the remainder comes due on November 15. A force of six men has been started to work and a number of good stringers have been cut. A vertical shaft has been started on the property of Millbank Johnson, known as the Sundown. It is said that a hoist and compressor will be purchased in the near future. The adit on the same claim is in 200 ft. and has exposed a body of low-grade ore averaging about \$7 per ton. The Hart Florence has found \$168 ore in its shaft at a depth of 180 ft. A cross-cut has been started at the 180-ft. level and will be run 100 ft. before drifts to the east and west are started. A hoist will be put in and the shaft sunk to

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the 400-ft. level. J. C. Popper is manager. The Flyer shaft is being deepened and the material taken out is being sent to the Little Giant mill. A depth of 50 ft. will be attained before cross-cutting or stoping is started.

Nov. 7

SAN BERNARDINO COUNTY.

Hart & Hitt have sold their Oro Belle No. 1 and No. 2 claims, at Hart, to a Philadelphia company for \$100,000. The Eastern concern is represented by A. B. Hall, who has now gone East to complete final arrangements. It is said that on his return, in three weeks, 75 men will be started on the mine and that a large stamp-mill will be erected. A nominal cash payment was made and a large installment is due within 30 days. It is reported that the Big Chief Mining Co., of which George A. Foster is president, is considering the building of a stamp-mill on its property near Hart. The working force at the Jumbo has been practically doubled during the last week. The work is centred on driving on the 100 and 200-ft. levels, the showing on the latter being particularly encouraging. George Wilson, of Searchlight, is superintendent.

Nov. 21

INYO COUNTY.

(Special Correspondence). The shaft at the Cerro Gordo has been sent down to the 1100-ft. level and a body of rich silver ore has been cut at that point. During the summer a large quantity of ore was developed in the upper

workings. Levels have been cut at the 90, 192, 400, 700, 800, 900, and 1000-ft. points with considerable driving at each level. The shaft is near the summit of Cerro Gordo peak, at an approximate elevation of 8500 ft. above the sea. The two veins are fissure contacts containing silver, lead, and zinc. To transport the ore from the mine to the smelter, a 200-ton aerial tramway was recently completed. The Keeler smelter comprises one furnace with a capacity of 150 tons per day. The company also owns excellent water rights at Lone Pine and is erecting an electric power plant at that point. E. O. McGrath is general manager. The Tecopa Mining Co. is shipping about 50 tons of lead ore to the Salt Lake smelters and expects to increase the output about the first of the year. The Gunsight vein was recently recovered on the 600-ft. level. At both the Gunsight and Noonsday shafts much development work is going on with satisfactory results. About 75 men are employed. The management is planning to erect a large concentrating plant early in 1909. Under present conditions the ore is hauled by mule-teams to the Tecopa siding on the T. & T. railroad. J. H. Lester is manager. The shaft at the Bishop Creek mine is going down steadily on a vein that assays about \$150 per ton. The property is capitalized at \$25,000,000, a circumstance that has invited much criticism. To pay dividends this property must naturally develop into a stupendous producer, and at the present time it is little more than a prospect. Gaylord Wilshire, editor of *Wilshire's Magazine* and a noted Socialist leader, is at the head of the enterprise. Associated with him are a number of American and English Socialists. The mine is at an altitude of about 9000 ft. and during the winter seasonal work must necessarily be performed under shelter. Prospecting has been done with diamond-drills and several bodies of fair-grade ore struck at a depth of several hundred feet. The shaft is being sunk as a result of these

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Nov. 21, 1908 (cont.)

borings. Water power for all purposes is available.—Some rich ore has been struck in the bottom of a 40-ft. shaft at the Black canyon. A large quantity of milling ore, which assays \$10 to \$20 per ton, has been developed in the mine. Local people are interested.—The Southern Belle mill is running on ore from near the 325-ft. level of the Bullion shaft. Extensive developments planned by this company for the past summer were indefinitely postponed owing to the financial depression. San Francisco people are interested.—The 10-stamp mill at the Skidoo mine is reported to be turning out about \$10,000 per month, with considerable development work going on in the mine.—The Killian M. Co. is sinking a shaft at its property near Fohrman and erecting buildings and cottages. Fifteen men are employed.

Bishop, November 6.

Dec. 12.

INYO COUNTY.

T. L. Oddie, of Tonopah, has taken a bond on the Jim Wright property in the White mountains, 12 miles from Big Pine. Six men are now at work and the ore is to be shipped to the smelter at Keeler. The lease and bond requires the sinking of 160 ft. in the present shaft, and a certain amount of cross-cutting.—Recent developments in the McAfee & Logan lease on the Cady property east of Big Pine, have resulted in arrangements for more extensive development in the immediate future. In preparation for the work which is to be done during the winter, a large amount of supplies have already been shipped to the camp to avoid any delay during the winter months in case the bad weather should make it impractical to come out. About six tons of ore is already on the dump, sacked ready for shipment. This ore has been carefully sampled and assayed and averages well over \$100 per ton.—The Goldfield lessees, Stevens & Horn, have taken a lease on the old Montezuma mine and expects to be starting regular shipments to the smelter at Keeler before the end of the year. The Montezuma, which has yielded some of the richest silver ore in the district, is in the foothills of the White mountains a few miles distant from Big Pine.

Dec. 26

INYO COUNTY.

(Special Correspondence).—The Buckeye M. Co. has awarded a contract for the erection of a 50-stamp mill on its property at Fish Springs. The Company has opened up good reserves of low-grade free-milling ore and is employing a large force of men. At the 150-ft. level of the shaft a 56-ft. vein of \$6 ore has been cut. Approximately \$50,000 has been expended in developments. Mansfield, Ohio, people, are interested. A. A. Cusler is superintendent.—The new adit at the North Inyo Con. mine is in 1300 ft. A 20-ft. vein of low-grade ore was recently cut. M. T. Stovall is manager.—A small vein carrying gold and silver has been struck in the Nichols mine at a depth of 12 ft. It is proposed to install a mill and cyanide plant. The mine lies near the Indian Queen.—A small quantity of high-grade ore has been found in the surface workings of the Red Rose mine. A lower adit is being driven to cut the vein and is in about 250 ft.—The Four Metals Co.

(cont.)

has practically completed its electric light and power plant at Lone Pine. Ore from the old dumps at the Cerro Gordo is being sent to the Keeler smelter.—Two shafts are being sunk at the Flier, the deepest being down about 65 ft. The vein is four feet wide and runs about \$10 per ton in silver and lead. Arrangements are being made for a large shipment to Keeler.—The Christmas Gift mine has shipped some silver-lead ore to Keeler and is arranging to push more extensive work. Dan McLeod is owner and manager.—Archie McMahon is operating a dry place near Darwin with good results. A placer outfit including dredge and washer, has been installed.—Arrangements are under way to re-open the Indian Queen mine. This property is said to have produced \$6,000,000 and has never been worked below the 300-ft. level.—Rich placer discoveries in Crooked canyon, on the east slope of the White Mtn., has caused a small rush from near-by points. The region is isolated and difficult to reach.—The Monster mine, in Lead canyon, has been sold to New York capitalists. The consideration is said to be \$20,000 and 25% of the net proceeds from the ore shipped until final payment is made. At least 100 tons of ore per month must be shipped. Considerable ore is blocked out and the working force will be increased. J. P. Fitting is superintendent. Fifteen men are working at the Inyo Coso property and the work of installing the three-mile pipe-line has been completed. It is expected that the mill will be completed by January. W. H. Washburn is superintendent.—Arrangement is under way to build a railroad from Ubehe connect with the projected Goldfield-Ely railway. Such road would open up a large market for the fluxing lead ores of the Ubehebe district. Tonopah mining men are interested.—The shaft at the Furnace Creek mine is going down slowly. It is the intention of the management to sink to the 1500-ft. level. W. J. Casey is superintendent.

Bishop, December 21.

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Feb. 6, 1909 p. 203

SAN BERNARDINO COUNTY.

Work has been started on the 600-ft. adit which H. R. Zintgraf is to drive on the Sundown property, at Hart, recently purchased from Warren Foster. The adit is 6 by 6 ft., and will be rushed with two shifts. It is also planned to sink a 500-ft. shaft.—There has been a decided change at the Hart & Hilt adit during the past week, the soft talcy formation becoming more oxidized, while colors are now obtained in greater quantity than for some time. The unusually soft ground has been penetrated for over 30 ft., and the change now appearing in the face of the tunnel is indicative of the near approach of the orebody.

Jan. 9, 1909 p. 69

SAN BERNARDINO COUNTY.

Some time during the coming week the Oro Belle Mines Co. will increase the force now employed in the north drift of Oro Belle No. 1. Two shifts are to be put on, and the drift continued farther north. Before January 10 the company expects to begin work on its new shaft, which will be sunk 300 ft.—The Atolia tungsten mine, near Johannesburg, has resumed with a large force of miners, and the development work will be pushed with energy. The closing of the mine last fall was due to the condition of the market, tungsten having taken a drop. Since then the price has gradually ascended, and now large profits are again in sight.

Jan. 30, 1909 p. 170-171

INYO COUNTY.

T. G. Crawford, of the Cashler mine at Harrisburg, has been working hard for the past two years to develop his property. Both by adit and shaft, orebodies have been met with, and Crawford is arranging for the construction of a mill. Eastern people agreed to put up a 10-stamp mill, provided Crawford could supply the requisite water-supply. This he has accomplished by purchasing from Warnebeck, of Ballarat, the water rights they held in Jail canyon, which gives a flow of eight miner's inches—more than sufficient for 10 stamps. He has arranged for this flow to come through the 10-in. pipe belonging to the Skidoo Mines Co., as their pipe passes through Harrisburg.

SAN BERNARDINO COUNTY.

A discovery of wulfenite, or lead molybdate, has recently been made by H. M. Benson and M. E. Stacey, near Nipton. The presence of this mineral has been known for some time, and the original source continuously sought. During the first week after the vein was discovered 16 tons of the ore were extracted.

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INYO COUNTY.

The mining men of the northern district of Inyo county are well pleased with the completion of the Southern Pacific cut-off, by which it is rendered possible to ship ores to tidewater at San Pedro; the distance is from 200 to 300 miles, and cheap water transport can usually be got thence to the northern smelting regions. These conditions have added vigor to the mining developments of the county.—A company of Los Angeles capitalists is making a number of exhaustive tests of the graphite and iron deposits in Mazuka canyon. The company intends, if these minerals meet requirements, to erect a plant to use the graphite and hematite as a base for a mineral paint.—George H. Farish, of Denver, is making a thorough examination of the Cady & Reed copper property in Eureka valley.

Feb. 13, 1909 p. 235

YUMA COUNTY.

The Arica group of gold mines, in the Parker district, has been bonded by the Williams brothers, from Mrs. C. H. Gray, of Phoenix, who is the principal owner. The vein at a depth of 190 ft. is said to be 6 ft. wide.—Ames Sterling, former head of the Australian geological survey, is examining the geology and petrology of the Clara Consolidated Gold & Copper Mining Co. for the manager, George Mitchell. Progress is being made by that company in the preparation of its smelter site, and nearly all the machinery is on the ground.

INYO COUNTY.

As a result of the recently held annual meeting of the Four Metals Co. at San Jose, orders have gone out to double the furnace capacity of the smelter at Keeler. A gasoline engine has been ordered for the mine to augment the steam engine already installed there, and an extension of the electric line of the company on Lone Pine creek has been made. Power will be generated at Lone Pine and Keeler for public use. The smelter when enlarged will have a capacity of 300 tons daily.—Some ore from the 160-ft. level of the Bishop Creek Gold Co. has been tested by Ricketts & Banks, of New York, to find its suitability for treatment by cyaniding. They used the new Moore-Clancy process, and obtained an extraction of 90% on the ore, the heads of which ran \$20 per ton.—Three tons of \$600 silver ore have been brought by George Cook to Keeler from Nemo canyon in the Skidoo district. The forty miles of road are in fair condition.

Feb. 20 1909 p. 271

INYO COUNTY.

(Special Correspondence).—Senator T. L. Oddie, of Tonopah, and a syndicate of Chicago and Philadelphia capitalists have secured the Dixon water rights on the upper Kings river, and plan to construct a large power-plant to supply electricity to the mining camps of southern Nevada & numerous points in California. The projects of the

new company involve expenditures approximating \$9,000,000. It is understood that the new company will compete with the Nevada-California Power Co., supplying electricity to Goldfield, Tonopah, and other points.—The Natural Soda Products Co. is building a \$100,000 plant near the shores of Owens lake. It is ultimately intended to add two more units of the same size. R. G. Paddock is directing the work.—Reports from Greenwater are to the effect that a 60-ft. body of sulphide ore, running about 5% copper, has been encountered in the Greenwater-Death Valley mine at a depth of 1000 ft. The shaft is being sunk to the 1500-ft. level, from which point cross-cutting will be done to determine the persistence of the orebody.—At the Greenwater Central work has started on the sinking of a 2-compartment shaft. The shaft is about 250 ft. from the Greenwater-Death Valley mine and is designed to cut the orebody encountered in the latter.—At the Lida C. mine a large force of men are working and a normal output of borax is being maintained.—The 20-stamp mill at the Orange Blossom is handling 80 tons of ore per day. A large reserve of fair-grade ore has been opened up as far as the 200-ft. level.—At the Orange Blossom Extension an 8-stamp Nissen mill is handling good ore. The shaft will be carried down to the 1000-ft. level and other developments done on a similar large scale.—The Fitting mine is working 50 men and maintaining steady shipments of excellent ore. Three teams are constantly engaged hauling the ore from the mine to the railroad.

Bishop, February 13.

Mar. 6, 1909 p. 336

INYO COUNTY

The Inyo Mines Syndicate has purchased the old Tower mine, in the Yellow Jacket district, a few miles south of Benton, from the trustees of the late John F. Millner's estate, and intends to get the mine into productive condition. It has been worked at various times since 1876, producing much high-grade silver ore with a little gold, and the directors of the Syndicate, W. W. Watterson and W. Gillette Scott, expect to make use of the pumps, boilers, hoists, etc., already on the ground.—The Greenwater Copper Mines & Smelter Co. is essentially a holding company, possessing no ground of its own, but holds a controlling interest in the mines of the subsidiary enterprises. Its annual report for the year ending December 31 shows that it owns nearly all of the issued stock of the Greenwater & Death Valley Copper Co., of the United Greenwater Copper Co., and of the following companies: Governor Greenwater Copper Co., El Capitan Copper Mining Co., Iron Clad Greenwater Copper Co., and Eagle Mountain Water Co. Of its workings the Copper Queen shaft No. 2 has been the most promising, and work for the past year has been confined to this shaft, which has been sunk to the depth of 1098 ft. In addition to sinking this shaft, there have been run 886 ft. of drifts and cross-cuts. The mine operations at Greenwater are conducted under the management of John McGee, who was engaged to succeed Jerry Rourke, the former manager. The report shows a balance of \$138,130 cash in hand.—The Modock mine was worked a score of years ago for the Hearst and Haggin interests; last spring it was opened again by John W. Kelly, and more rich ore has been produced from it. Only high-grade ore, however, can be shipped, for it has to be brought 13 miles on burros to Darwin, before hauling the remaining 25 miles to the railroad at Keeler.

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hundred tons of freight have been hauled from Chloride to the Colorado river, as part of the material for the dredge of the Colorado Dredging Co. It is expected to have the machine ready before the season of high water in the river.

Mar. 13, 1909 p. 367

INYO COUNTY.

J. W. Rossi is developing his prospect in the Sierra foothills about three miles south of Keeler. Assays of surface rock give returns up to \$12 per ton. The vein was discovered by trenching, cutting the ore at three or four feet underground.

KERN COUNTY.

(Special Correspondence).—The Knickerbocker Mining & Extraction Co. has taken over the Edith and four other claims, and is arranging to work the holdings on a systematic scale. Machinery has been purchased and a force of men will be put to work at once. The main vein is 3 ft. wide and runs about \$25 per ton in gold. Joseph McNight is president and manager.—A gold-bearing vein with tungsten ore is said to have been discovered by J. D. Feris in his claim in Caliente canyon.—A new 10-stamp mill has just been completed at the Zenda mine, under bond to Johnson & McCarty. A train-line has also been completed from the mine to the mill and arrangements are being perfected for operating on a large scale.—Johnson & McCarty have taken a bond on the Pearl mine and are about to commence active work. A 40-ft. vein carrying fair ore has been opened up and will be treated at the Zenda mill.—At the Amalle mine the shaft is down 500 ft. and about 50 men are on the pay-roll. The low-grade ore is treated by a Huntington mill and the high-grade is shipped to the

Mar. 20, 1909 p. 401

SAN BERNARDINO COUNTY.

The Montana lease, in the Big Chief tunnel, has struck a bonanza, from the richest portion of which assays up to \$2000 per ton have been obtained. The high-grade streak, varying in thickness from 3 to 8 in., is one of the richest deposits discovered in the Hart district. In the same drift, about three weeks ago, Charles Hammer found another bunch of rich ore, but in a few feet it pinched out, owing to a fault occurring at that point. Foster & McCluskey, the owners of the Jumbo, have been finding ore on the 100-ft. level of their mine which surpasses anything they had previously opened. This vein is about 4 ft. wide and shows an abundance of free gold. The east cross-cut has exposed the Jumbo vein as being 25 ft. wide, all of which is of sufficient grade for milling purposes. William L. Foster has issued his report on the Big Chief and Long Shot claims

at Hart. In the east side adit about 300 ft. of work have been done, while in that on the west side more than 700 ft. of progress have been made. Three veins have thus far been cut, all of which are of milling grade, with some streaks of quite rich ore. A special meeting of the stockholders will be held in Phoenix, Arizona, on March 30, to effect the merging of the Hart Consolidated and Big Chief estates. As soon as this is accomplished active work on the Consolidated will be begun, and a 40-hp. hoist installed to sink a shaft.—Twelve miles west of Hart a discovery of uranium ore has been made by W. J. Murphy; it occurs in calcium phosphate, and an analysis by W. B. Meade, of Barwell, shows 11% of uranium oxide. The pure oxide is quoted at \$3.50 per pound.

Apr. 3, 1909 p. 468

INYO COUNTY.

(Special Correspondence).—The Treasure Hill Co. is rapidly perfecting arrangements for unwatering and operating the old Tower property. Men are being engaged, and new machinery will soon be installed. W. Gillette Scott is manager.—The 100-ton cyanide plant at the Keane Wonder mine has been placed in commission. It is expected to add from \$5000 to \$8000 per month to the present output, which is now approximately \$20,000 per month.—At the North Inyo Consolidated property the lower tunnel is being pushed ahead steadily. Several veins of low-grade ore have been encountered. M. T. Stovall is manager.—The Tecopa mines are maintaining large outputs of silver and lead. It is rumored that this company has secured a controlling interest in the Needles smelter, and within a short time will largely augment its working force. The Cerro Gordo mine is maintaining steady shipments of good ore to the Keeler smelter. During the present summer the capacity of the plant will be materially enlarged.—Work continues at the Greenwater Death Valley mine with fairly satisfactory results. The big vein of copper-bearing ore opened on the 1000-ft. level is being developed. The shaft is being sunk to 1500 ft.—Considerable prospecting is being done in Gold valley.

Bishop, March 27.

The Furnace Creek Copper Co., which has been operating in the Greenwater district for the past two and a half years, has finally given up hope, and work has been entirely suspended. James Casey, the last of the employees, will shortly leave the camp.

Clarence A. Beall has taken charge of the Casa Diablo mine and mill. The mill has been re-started, and there is enough ore on hand for more than a month's run.

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SAN BERNARDINO COUNTY.

Shaft work is being completed at the Oro Belle mine, and the new hoist is doing excellently. In a few days the station on the 100-ft. level will be ready, when cross-cutting and driving will be started. The end-lines of the Oro Belle are contiguous to the property of the Hart Consolidated Co.—Ivanpah is an old silver-producing camp about 24 miles west of Hart, abandoned in the days when silver depreciated in value. The work being done on the Clansman group, lying at the extreme southern end of the camp, is exciting favorable attention. There is a surface showing of 2 ft. of ore, running about 80 oz. silver and development to the depth of 30 ft. has uncovered a 3-ft. vein of excellent grade. Kewanee, a new gold camp, lies about a mile to the south of the Clansman.

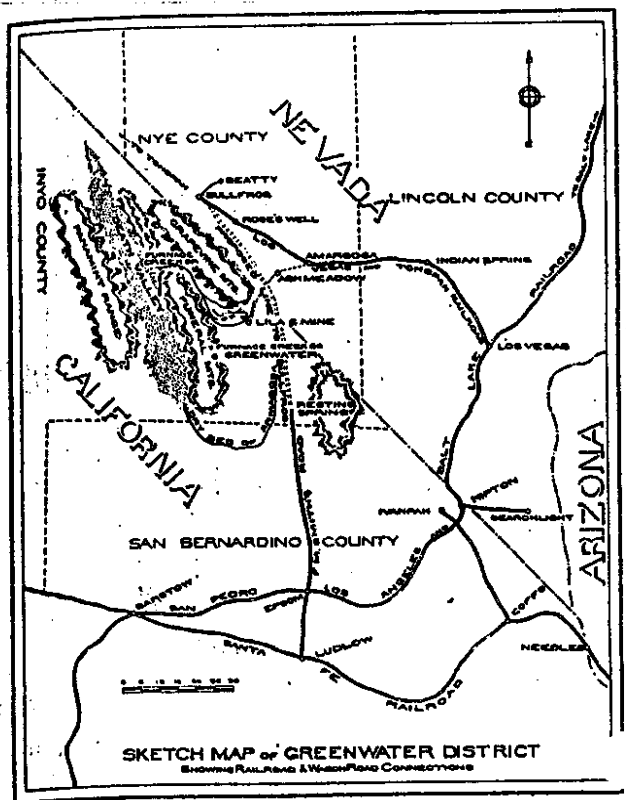
Apr. 17, 1909 p. 536-537
 SAN BERNARDINO COUNTY.

(Special Correspondence).—At a called meeting of the stockholders, held in this city on April 6, the officers of the Orange Blossom Mines & Milling Co. resigned, and new officers were elected. It has been decided to re-organize the company and endeavor to place it on a profitable producing basis. It is said that the new mill is a failure and that the property has been badly managed. The stock formerly sold at par, but is now down to 7c. It is estimated that 50,000 tons of \$6 ore are in sight and with slight alterations to the mill can be treated for \$3 per ton.—Conditions at the Orange Blossom Annex are far from satisfactory. The vein swerved from the shaft at the 60-ft. point and it will be necessary to run a cross-cut from the shaft in an endeavor to find it. Only three men are now employed.—Negotiations are under way for the sale of the Yellow Aster mine at Randsburg to a New York syndicate. It is understood that

the consideration is \$1,500,000. The property is held under an option by Albert Anchor.—At the Exchequer considerable milling ore is being broken and the mill is running continuously.—Considerable mining is going on in the Silver Lake district and several rich strikes are reported. This district was much in evidence two years ago, but the financial stringency caused a practical suspension of activities. Recently several companies have resumed work on the most promising mines and prospects.

San Bernardino, April 9.

Forty miles south of Needles and half a mile from the Colorado river, A. S. Munn has taken up 76 claims, on which there is said to be abundant nitrate of potash. If this be true the deposit should be of considerable importance.



Apr. 24, 1909 p. 569

MOHAVE COUNTY.

Arizona Excelsior Dredging Co. is being formed, to dredge on 640 acres of ground at Las Vegas Wash. Officers of the company are A. B. Call president, J. R. [unclear] general manager, and H. J. Meyer secretary.—Colorado River Dredging Co. is making good progress. Dubols dredge in El Dorado canyon.

INYO COUNTY.

The Four Metals Co., operating a single smelting furnace at Keeler, has been producing \$2500 of bullion per day. The slag pile of the old Cerro Gordo smelter is going to be put through this furnace, in addition to the ore from the old Union mine. An aerial tramway has been erected between the mine and smelter, and is being given a test run.

May 1, 1909 p. 602

INYO COUNTY.

The Mono Consolidated Copper Co.'s property in the White mountains has been bonded to J. Vernon McConnell, of Los Angeles, for \$75,000. The property consists of 12 claims near Hamil station of the Nevada & California railroad, and is considered a valuable low-grade copper prospect. The former owners were John Shortall, H. Levinson, J. S. Johnson, and others.

Mining and Scientific Press

May 8, 1909 p. 643

INYO COUNTY.

(Special Correspondence).—The April output of the Keane Wonder mill was approximately \$28,000. The 100-ton cyanide plant has been in commission since March 15, and has nearly doubled the production. The new shaft is down 100 ft. and will be sunk to the 200-ft. level before any lateral work is commenced. At the present time the shaft is in the best ore yet found in the mine. A 25-hp. hoist will be installed on this shaft at once.—A 30-ft. vein, assaying in places \$11 per ton, has been cut at a depth of 12 ft. in the Pennsylvania group, owned by the Barton Bros. The property is situated six miles southeast of the Keane Wonder.—Ten stamps are dropping at the Skidoo mill on ore running from \$20 to \$25 per ton. From 35 to 40 tons are being handled daily. The company is refusing to renew leases. It is expected to have 15 stamps in action

before the end of May.—A large reserve of milling ore has been developed at the Cashier and a 5-stamp mill is being erected.—The Valley View, American Eagle, Contact, and several near-by properties are producing on a small scale.

—Steady developments are under way at the Black Canyon, Red Rose, Southern Belle, and other local properties, but nothing of an important nature has recently developed.

—The Tecopa Co. is considering the installation of a 4-furnace silver-lead smelter, with a capacity of 600 tons per day. The plant will be erected at Tecopa and a 15-mile railway line will be constructed from this point to the Gunsight and Noonday mines. It is understood that everything has been settled save the signing of the contracts by the president of the Tecopa Co. The company recently negotiated for the Needles smelter, but the deal fell through, owing, it is reported, to the refusal of the railroads to grant desired rates.

Bishop, May 1.

June 22, 1909 p. 707

SAN BERNARDINO COUNTY.

(Special Correspondence).—A 5-ft. vein of gold-bearing ore, running from \$25 to \$60 per ton, has been cut in the shaft on the Black Warrior claim of the Gold Park Consolidated mines. It is expected to start shipping soon. The company controls 52 claims, which are being examined by an English syndicate with a view to its purchase. The consideration is said to be \$300,000. The property is thoroughly equipped with machinery and 30 men are employed.—The Stanford Mining & Reduction Co. is steadily operating the Gold Coin and Stanford mines, near Johannesburg, with good results. The shaft at the Gold Coin is down 350 ft., with about 3000 ft. of development. The Stanford shaft is 300 ft. deep. The vein is composed of siliceous ore, over 2 ft. wide, and is worth from \$20 to \$60 per ton. Equipment consists of a 15-hp. hoist, 10-stamp mill, and a 30-ton cyanide plant.—The Atalia Mining Co. is maintaining steady shipments of tungsten ore to Germany by way of San Francisco. About four carloads per month of high-grade ore

is sent out. Twenty men are employed. San Francisco people are interested.—John L. Winney and Fred Ferris have closed a deal for the Ward mine at Seventeen Mile post. The consideration was \$18,000. Extensive developments are intended.—A 3-ft. vein of \$18 ore has been cut at a depth of 30 ft. on the Great Northern claim of the Twenty-Nine Palms Consolidated property. Driving and cross-cutting is under way.—A new district, 10 miles from Soda Lake station, on the Tonopah & Tidewater railway, is attracting attention. The outcrops show copper, gold, and silver minerals.

San Bernardino, May 15.

June 12, 1909 p. 807

SAN BERNARDINO COUNTY.

A. L. White and associates of Lima, Ohio, have taken a bond and lease on the Gold Bar and Gold Bronze mines in the Vanderbilt district for \$500,000. The lease runs over a period of two years. The Gold Bronze shaft is 400 ft. and the Gold Bar 500 ft. deep. The ore assays about \$30 per ton and it is estimated that 200,000 tons is blocked out. The properties have been idle for five years, being tied up in an estate. The Gold Bronze 10-stamp mill will be put into shape to handle the ore.—A shoot of ore running several inches wide and assaying from \$100 to \$400 per ton has been uncovered in the east drift of the Amalie. The main vein continues to run about \$40 per ton. The high-grade will be shipped to the Selby smelter and the milling ore stored until a mill is erected.—The Piute Consolidated Mining Co. has placed an order for a 6-stamp mill and is considering the installation of an aerial tramway to connect the mine and plant.

June 12, 1909 p. 807

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INYO COUNTY.

The Casa Diablo Mining Co. has received a shipment of electrical machinery from the Pittsburg Transformer Co., consisting of three large and three small transformers. The large ones will be placed at the company's hydro-electric plant on upper Owens river and the small one at the mine. The hoist, compressor, and mill are run by electric power.

YUMA COUNTY.

A contract for the building of a \$1,000,000 smelter with a 300-ton daily capacity at Parker has been let. The construction will be begun as soon as a spur track from the Arizona & California railroad has been completed.

Mining and Scientific Press

June 5, 1909 p. 770

INYO COUNTY.

(Special Correspondence.)—At the Cerro Gordo extensive developments are going on around the 1000-ft. level, and steady shipments of ore are being maintained to the Keeler smelter. The company is busily arranging for the projected enlargement of the Keeler plant, and it is thought that active work will shortly commence.—The unwatering of the Tower mine is progressing.—Information from Greenwater indicates that the orebody recently opened at the Greenwater-Death Valley mine is too low-grade for commercial purposes. The ore was cut on the 1000-ft. level and the shaft will be sent down 500 ft. deeper, in the hope of the grade improving with depth. If this fails it is reported that an effort will be made to secure properties elsewhere in order to reimburse the stockholders. With the exception of the Greenwater-Death Valley, no properties are now working at Greenwater. The district has been practically abandoned, the gold as well as copper propositions failing to come up to expectations.

Bishop, May 29.

June 3, 1909 p. 6

INYO COUNTY.

(Special Correspondence.)—The Skidoo mine is producing at the rate of \$24,000 per month. During May 824 tons were treated. The bullion extraction was \$20,473 and cyanide extraction \$1000. Development and operation costs amounted to \$6,404.91, leaving a net profit of \$15,417.46.—The Conklin Mining Co. has installed a 10-stamp mill and 7000-ft. tramway at its Monster property. A wagon-road has also been built from the mine to Brown station on the California & Nevada railway. Large reserves of ore have been opened and prospects are good for a steady production.

—The King lease has opened a vein of free-milling ore on the estate of the Inyo Mines Syndicate at Benton.—Mount & Denison are sinking on a 5-ft. vein of \$7 ore.—The Shive-Untank lease at Chedago has developed a 3-ft. vein of excellent ore at a depth of 125 ft.—The Lucky Jim is sacking ore for shipment to the Keeler smelter.—In the Bishop district most of the old properties are working steadily. Lack of ample finances is holding back rapid developments in some cases, but this feature is manifesting encouraging improvement.

Bishop, June 26.

A cloudburst in the mountains surrounding Bishop has caused the destruction of the diverting dams of the Nevada-California Power Co., causing the shut-down of many mines throughout Nevada. The company has three plants at Bishop operated by water-power. Two of these were completely closed and the third badly damaged.

SAN BERNARDINO COUNTY.

(Special Correspondence.)—A 16-in. streak of bonanza ore has been cut at a depth of 185 ft. in the Ram's Horn at Silver Lake. Samples of the ore assay \$3000 per ton. The adit is in 180 ft. in milling ore.—Ore assaying from \$5 to \$90 per ton has been struck in the shaft at the Avawatz, and at the 65-ft. level a 3-ft. body of fair-grade ore is being opened. C. S. Elchholtz is superintendent.—The adit at the Old Glory is in 180 ft. and some milling ore has been opened. F. M. Myrick is superintendent.—The shaft at the Eaton group at Seventeen Mile Point is being sunk from the 200 to the 300-ft. level and is opening bodies of milling ore. John L. Witney is manager.—The Todhunter-Felix lease at Hart has cut the southern end of the rich shoot exposed in the shaft. It is 18 in. wide and assays about \$50 per ton.—The Crackerjack Bonanza is driving a cross-cut from the 200-ft. level of the main shaft and is in 70 ft. Three thousand tons of ore assaying \$5 to \$80 per ton are stored on the dump. F. L. Flourman is manager.—Providence, Rhode Island, people have purchased the Oro Belle Extension, Oro Extension, Oro No. 1 Extension, Ruth, Ruth Extension, Red Boy, Red Boy Fraction, and Estrella claims and have started vigorous work. Three shafts are going down at the Ruth, Red Boy, and Oro Extension.—C. Leager and S. T. Grant, of Goldfield, have acquired 10 claims at Shadow mountain and are pushing work. The vein is 3 ft. wide and carries gold and copper.—The Alta mine is shipping ore to Selby.

San Bernardino, June 25.

July 10, 1909 p. 41-42

INYO COUNTY.

The Birch Creek placer mine has been taken over by C. A. Curl and associates of Riverside. A No. 2 Giant has been installed, 1500 ft. of pipe laid, and the sluices built to handle a large amount of gravel that runs from 20c. to \$2 per cubic yard.—The Casa Diablo Mining Co. shipped two carloads of concentrate to the smelter that assayed \$65 per ton.

SAN BERNARDINO COUNTY.

The first carload of ore from the Jumbo mine averaged over \$100 per ton. In the east cross-cut from the 100-ft. level 15 ft. of \$25 ore has been cut.—The shaft of the Oro Belle is down 250 ft. From the 200-ft. level the east cross-cut is being run to cut the Fraction vein and the north drift on the adit level has been driven 300 ft. along a vein of excellent milling ore.—The Acme Mining Co. is erecting a 5-stamp mill at its mines in the Signal Mountain district 20 miles south of Hart and has let a contract to sink the shaft from the 100 to the 200-ft. level.

Mining and Scientific Press
July 24, 1909 p. 105

SAN BERNARDINO COUNTY.

The Oro Belle shaft is in low-grade ore at a depth of 280 ft. A station will be cut at the 300-ft. level and drifts started from that point. The east and west cross-cuts on the 100-ft. level and the east cross-cut on the 200 have opened low-grade orebodies.—A new hoist is to be installed at the Dayton shaft of the Oro lease of the Big Chief Mining Co. at Hart, and sinking continued to the 500-ft. level. William L. Foster is manager.—The equipment for an additional 60 stamps has been purchased by the Gold Mountain Mining Co. in the San Bernardino mountains and will be placed in the mill in a short time.—At the Morse-Kizer mine at the mouth of Silver creek a 3-stamp mill is being constructed.—Dave Wright is erecting a 5-stamp mill on his property at the head of Silver creek.—The Acme Mining Co. is installing a 5-stamp mill at the mine 20 miles south of Hart.—At the Vontrigger mine of the California Gold & Copper Co., 18 miles south of Hart, the copper leaching plant is rapidly nearing completion. There are 33,000 tons of ore piled on the dump. A. H. Cram is manager.—The 10-stamp mill at the Vanderbilt mines is running steadily. Ohio capitalists have an option on the property.

July 31, 1909 p. 137-138

INYO COUNTY.

The Keeler smelter shipped 270 tons of lead bullion to the Selby plant during the past week.—From the Cerro Gordo mine 109 tons of \$100 ore were sent over the tramway to Keeler.—A 5-ft. vein has been opened in the Skidoo mine, 14 miles west of Death Valley in the Tucki mountains, that assays \$20 per ton. The five stamps recently added to the mill are dropping on good ore and the monthly clean-up will approximate \$30,000. Matt Hoveck is manager.—E. A. Montgomery, the principal owner of the Cocopah mine, adjoining the Skidoo property, is authority for the statement that a 20-ton mill and cyanide plant will be constructed for the treatment of the company's ore.—The return on a carload of ore shipped from the Shieve & Utank lease in the old Chedago district to the Mammoth smelter at Kennett was \$30 per ton. There are several carloads of similar ore on the dump, and as it is silicious it makes an excellent flux for the Kennett ores.—The Birch creek placers west of Big Pine are now in operation and are washing a 25-ft. bank that averages more than \$20 per cubic yard. C. A. Curl is directing the work.—The Tecopa Consolidated Mines Co. has purchased the equipment and is laying 13 miles of track from Tecopa to the Tecopa mines. The ore is of the lead-silver type and the company has enough blocked out to warrant the spending of \$200,000 to equip a railroad to the mine.

SAN BERNARDINO COUNTY.

James H. Hart is running a drift on a 1-ft. vein in the Oro Belle No. 2 that assays more than \$100 per ton.—A raise from the main adit of the Oro lease of the Big Chief Mining Co. cut an ore-shoot that assays \$6000 per ton.—The Oro Belle shaft is down 300 ft. and a station is being cut at that point. The shaft will be sunk another 100 ft. in hopes of striking a sufficient flow of water to supply the mill the company plans to erect on the property.—O. F. Bevere has purchased a one-third interest in the Rambler claim adjoining the Jumbo property.

Aug. 7, 1909 p. 170

INYO COUNTY.

On the Golden Siren group, 17 miles from Bishop, a shaft has been sunk 50 ft. on a vein which assays from \$40 to \$100 and varies from 1 to 3 ft. in width.—Sim & Roeder have sunk a 26-ft. shaft on a 14-in. vein of good milling ore.—On the property of John Beauregard an inclined shaft is being sunk in a 3-ft. vein, 6 in. of which is of shipping grade.

SAN BERNARDINO COUNTY.

The streak of high-grade ore recently cut by the raise in the Big Chief property has widened to 6 in. and the richer portions assay from \$8 to \$10 per pound. This is the richest ore found in the district and is being sacked for shipment.

—J. S. Reece and associates have opened a body of silver ore on their Pearl property in the Silver Lake district. The prospect was located for its copper content, but the ore has changed completely in character from the outcrop, and now assays 400 oz. silver per ton. Considerable nickel and cobalt is present.

Aug. 21, 1909 p. 241

INYO COUNTY.

At the Cerro Gordo mine of the Four Metals company new buckets are being added to the aerial tram to handle the increased output. About 300 tons of ore averaging 52% lead and 50 oz. silver are stored at Keeler till the smelter shall resume operations. There are also 1400 tons of slag running 13% lead and 10 oz. silver ready for treatment.—The Inyo Mines Syndicate is sinking two shafts on its property at Hummer, seven miles west of Olancho. W. G. Scott is in charge of the work.

SAN BERNARDINO COUNTY.

The raise which recently opened phenomenally rich ore on the Oro lease of the Big Chief ground continues in a body of good milling ore, with occasional streaks of high-grade.—The north drift on the Oro Belle is now in nearly 400 ft. with good ore the entire length. On the 100-ft. level the cross-cut is expected to cut the vein within the next few weeks.—Work has been resumed on the Oro Belle Extension No. 1 claim. The ore so far opened is of milling grade, but will not pay to ship outside the district.

Aug. 28, 1909 p. 275

INYO COUNTY.

The Casa Diablo Mining Co. has completed the installation of two carloads of mining machinery and has ordered two Leyner drills and a Leyner drill sharpener.—King brothers are to start their mill on ore from the Unthank lease on the St. Ives ground shortly. There is about 300 tons of \$15 ore, and 40 tons of \$40 ore on the dump. The vein is from 12 to 18 in. wide in the bottom of the 125-ft. shaft.

SAN BERNARDINO COUNTY.

The recent negotiations for the sale of the Jumbo mine near Hart have been called off and the mine is again working after a shut-down of 60 days. The Foster brothers and Patrick McCluskey, who own the property are now planning to install a mill and hoisting machinery as an open-cut east of the shaft recently opened 20 ft. of \$30 ore.—The raise in the Oro lease of the Big Chief Mining Co. is up 40 ft. in ore of good milling grade. A 40-hp. hoist is to be installed at the Daton shaft in a few weeks. The shaft is now down 50 ft. and the company will sink to the 100-ft. level next season.

Mining and Scientific Press
Sept. 4, 1909 p. 309

SAN BERNARDINO COUNTY.

The Foster Brothers and Patrick McCluskey have made arrangements with the Hart Townsite company to supply the necessary amount of water for the mill which they are to erect. A shaft is to be sunk on the high-grade ore recently discovered in an open cut and a connection made with the 100-ft. level.—Operations are to be resumed at the Florence property in Hart this month. There is a large body of low-grade ore blocked out on the 180-ft. level, and it is understood that the company is to install a hoisting plant and erect a mill. J. C. Popper is manager.

LOS ANGELES COUNTY.

On Friday afternoon, August 17, an informal reception was tendered by the members of the Los Angeles Chamber of Mines, to members of the Arizona Hassayampa Club, of Los Angeles, the Montezuma Club, of Goldfield, and the Sierra Madre Club, of Los Angeles, and to visitors generally from the mining districts of the Southwest and Old Mexico. An address of welcome to the visitors from the various mineral districts was tendered by Calvert Wilson, the president of the Chamber.

Sept. 18, 1909 p. 376

SAN BERNARDINO COUNTY.

Work has been resumed at the Jumbo mine and cross-cutting continued in the big vein. Thirty feet of ore has been opened that assays over \$30 per ton.—On the Oro Belle property the shaft is down 370 ft. A station will be cut at the 400 ft. point, and if sufficient water for milling is not found, the company will install a diamond drill to sink for water.—The Hart Townsite Co. has uncovered an 8-ft. vein on the Red Boy claim, and is to sink a shaft to prospect the property.

Sept. 25, 1909 p. 409-410

SAN BERNARDINO COUNTY.

(Special Correspondence).—The Needles smelter has suspended operation because of the alleged lack of ore. Stockholders state that the plant will resume at an early date, but there are several rumors concerning the company that indicates the shut-down may be of long duration. It is known that the owners have been anxious to dispose of the plant. —A 32-in. vein of \$83 silver ore has been opened on the Easton group, in the Silver Lake district.—It is reported that a 19-in. shoot of ore, running from \$200 to \$2000 per ton, has been struck at a depth of 600 ft. in the Blue Bucket. A number of small, rich shoots are being opened by cross-cuts in the lower workings.—W. A. Clark, Jr., and associates have decided to resume operations on their holdings near Klienfelder. The 100-ft. shaft has opened

cont.

large bodies of ore, with copper predominating. A 50-hp. hoist, compressor, air-drills, ect., have been ordered and the shaft will be sunk to the 1000-ft. level.—The shaft at the California Hills is down 300 ft. Some good ore was recently opened.—The IbeX has been re-organized under the name of the Gold Bank by Mr. Ferguson, of Long Beach. A 5-ft. Huntington mill, with a capacity of 35 tons per day, has been purchased, and work will be resumed at an early date.—Clausen & Ware have sold their holdings at Gold Flat to Pasadena capitalists for \$20,000. The group has been opened by a 125-ft. shaft. Development will be started immediately with C. M. Lamb in charge of the work.—The Leiser-Ray Mining Co. has installed a 50-ton crushing and leaching plant at the Homer mine.—J. F. Main has opened a body of ore running \$5 to \$500 per ton in gold and tungsten on his Signal property.—A large deposit of China clay has been discovered near Klienfelder by D. E. De Lape. A force of men will be put to work at once.—The Lucile Gold & Copper Mining Co. has opened a large vein of milling ore. It has been exposed for 300 ft., and averages \$8 per ton. Orders have been placed for a small stamp-mill.—Davis & Helgersen have bonded the Washington claim.—A 300-ft. deposit of ore, said to run 4% copper and \$10 gold, has been opened on the surface for a considerable distance by Dillon, Howard & Kelly at Lone Willow spring.—A high-grade body of silver ore has been opened in the Iris claim. Shipping will commence within a few weeks.—The Koch group reports the uncovering of a small vein assaying 22% copper and \$60 gold.—Custom mill, at Victorville, has resumed operations after treating 15 tons of ore per day.—At the Wild Rose the shaft is down 75 ft. on a vein of high-grade ore.—Two large veins, running from \$8 to \$25 per ton, have been opened on the Guarantee Mining & Development group. The main shaft is down 150 ft., and the 5-stamp mill is running steadily.—The Morse-Kayser Mining Co. has completed a 5-stamp mill at its property near Victorville.—The Big Chief Mining Co. has secured a bond on the Jumbo, Good Luck, Clapper, Clapper No. 2, and Clapper No. 3 mining claims at Hart. The bond runs for one year and is for \$75,000 to be made in monthly payments, the final one being \$40,250. A compressor and machine-drills will be installed at once and a mill built on the property at a later date.

San Bernardino, September 20.

Oct. 2, 1909 p. 441

INYO COUNTY.

(Special Correspondence).—The Keane-Wondor mine, managed by Homer Wilson, is producing about 1500 tons per month of ore that assays \$12 per ton, all of which is treated by the 20-stamp mill and cyanide plant on the property. It is stated that an extraction of 95% is made. The mine is opened by four cross-cuts, and a 200-ft. shaft. The ore occurs in lenses within a well-defined zone. It is conveyed from the mine to the mill over an aerial tramway a mile long. The property is on the west slope of the Funeral range, over-looking Death Valley. The main office is at Rhyolite, Nevada, which is the supply centre.

Rhyolite, September 25.

The Bishop Creek Gold Mining Co. is installing a Sullivan compressor and drill at its property on Bishop creek. The compressor will be driven by a 5-ft. Pelton wheel.

Mining and Scientific Press
Oct. 2, 1909 p. 441

SAN BERNARDINO COUNTY.

At the Jumbo mine, near Hart, the new management has a shipment of \$50 ore ready to forward to the smelter. This was taken from a shaft that has been started in the cross-cut adit. Another cross-cut has been started 150 ft. north of the one that opened the 30-ft. vein.—Cross-cutting has been started on the 400-ft. level of the Oro Belle property, and the cross-cut on the 100 is expected to cut the ore shortly.—William J. Dingle, of Oakland, has acquired 30 placer claims near Johannesburg which contain large nitre deposits. An assay of the ground showed it to contain from 25 to 28% nitre.

Oct 9, 1909 p. 482-483

INYO COUNTY.

At the Gray Butte mine, southwest of Benton, the company is opening a 6-ft. vein of fair milling ore. George E. Austin is superintendent.—The transmission line at the Casa Diablo plant has been re-built to carry a higher voltage. The power plant is nearly complete and the power will be turned on in a few days.

SAN BERNARDINO COUNTY.

(Special Correspondence).—The Garvanza Mining & Milling Co., controlled by Michigan men, began 3½ years ago to develop a group of nine claims situated five miles west of Leastalk station, and now have 2000 ft. of development completed. This opens a series of quartz veins, cutting through pegmatite granite. The veins are 20 to 75 ft. in width, and contain a complex ore of silver, copper, gold, lead, molybdenum, and thorium. The value of the silver, copper, and gold is about \$15 per ton of ore; the rare metals amounting to 0.5 to 1%. A mill of 100 tons capacity has been erected and is in operation. It is equipped with crusher, rolls, trommels, and Standard concentrating tables. The tailing, which contains some gray copper, molybdenum, and thorium, is chemically treated; and it is stated that after the lead is separated from the rest of the concentrate the remainder of the product is to be calcined, then leached in a new plant. H. M. Banfield, superintendent for the company, states that their method of treatment has been developed by tests at the mill and laboratory, and he is now satisfied as to results. The thorium is in the form of a nitrate and is worth \$14 per pound. The company is figuring on erecting a steam-electric power plant, in which crude oil will be used as fuel. The calcining and leaching plant to be erected will have a capacity of 30 tons of concentrate per day.

Vanderbilt, October 2.

Nov. 6, 1909 p. 635

RIVERSIDE COUNTY.

(Special Correspondence).—A large vein of free-milling ore assaying \$50 per ton has been opened at a depth of 100 ft. on the Bailey group.—Operations have been resumed at the Elder Morn and shipping will commence with the completion of the railroad.—At the Rapyngo a 4-ft. vein, said to assay \$100 per ton in copper, gold, and silver, has been opened in the new adit. A station will be cut at this point and a shaft sunk on the vein.—At the Steece group a good reserve of ore has been opened assaying from \$10 to \$50 per ton. It is possible that a plant will be erected next year.—In the Whipple district activities are pronounced. A deal for the Hon is under way, and is expected to be concluded within a few days.—The D. & W. and others are showing good ore with increasing depth. Owing to lack of capital the properties in this district are operating on a restricted scale.

Calzona, October 30.

Nov. 13, 1909 p. 669

INYO COUNTY.

(Special Correspondence).—The attachment for \$7832 against the mines and smelter of the Four Metals Co., at Keeler, has been released by order of the court, the company having given bonds to cover the amount. It is currently reported that the Four Metals Co. has effected a consolidation with the Western Ore Purchasing Co. Steady shipments of bullion are being maintained. In the Cerro Gordo mine high-grade ore has been opened from the 600 to the 1000-ft. level.—The Gray Butte company is opening a 6-ft. body of milling ore. George E. Austin is superintendent.—The Skidoo management reports the improvement of the main vein with depth. The mill is running steadily.—At the Keane Wonder the copper content in the ore continues to increase with depth. This property is the largest producer in the county, keeping the 20-stamp mill steadily in operation.—At the Bishop Creek several bodies of milling ore are reported in the shaft. Assays are reported to run from \$10 to \$250 per ton.—It is announced that the Virginia & Truckee railway will be extended through the mineral districts of Inyo and Mono counties. This will enable a large number of low-grade properties to operate.—The Tecopa company is shipping steadily to Utah smelters. Developments in the Gunsight and Noonday mines continue satisfactory. There is apparently no ground for the continued report that this company is about to acquire the Needles smelter, as the management is understood to be considering the erection of a reduction plant near the mines.

Bishop, November 5.

LOS ANGELES COUNTY.

The Los Angeles Chamber of Mines has received notification from a number of the railroads that the Pacific Freight Tariff Bureau has been instructed to include in the next tariff a provision granting a free rate on all ore and oil specimens consigned to the Chamber from points on their lines, and intended for exhibition purposes. This free rate is now effective on some of the lines and will become effective on the others within a short time. The following railroad companies have granted the concession mentioned: Southern Pacific company, and all connections, including the Southern Pacific lines of Mexico; the Santa Fe and connections, including the Tonopah & Tidewater and the Bullfrog-Goldfield; the Tonopah & Goldfield; El Paso & Southwestern, and the National Railways of Mexico; also the Salt Lake route.

Mining and Scientific Press
Nov. 20, 1909 p. 700

SAN BERNARDINO COUNTY.

(Special Correspondence).—The new 100-ton leaching plant of the California Gold & Copper Co. is rapidly nearing completion, and it is expected to commence the production of copper within 60 days. Large quantities of oxide and carbonate ore are available in addition to the sulphide reserves opened in the lower levels. Three shafts have been sunk, the deepest being down 325 ft. A. H. Cram is manager.—Promising ore has been intersected on the X-Ray.—The Iron Chief Mining Co. has commenced work on the Eagle Mountain iron deposits. L. S. Barnes is manager.—Considerable work is going on in the tungsten properties in the Clark mountains, 16 miles northwest of Ivanpah. The rocks of the district are principally granite and limestone. The Mount Clark, Hamburg, Jack, Tungstine, and Fitzpatrick, are among the best claims in the district.

San Bernardino, November 15.

Nov. 20, 1909 p. 698

INYO COUNTY.

The Bishop Creek Gold Co. has completed the installation of a Sullivan 9-drill compressor, and has started drifts on the vein at the second level at a depth of 288 ft. J. S. Chapman is superintendent.—The water jackets on the furnace at the smelter at Keeler have been replaced by new ones and new buckets and grips are being placed on the tram, the old ones having proved too light. The repairs will be completed about the first part of December, and the smelter blown-in again. A consolidation is being effected between the Four Metals and the Great Western companies.—The shaft at the Union mine is down 1025 ft., and a large amount of zinc ore stored on the dump. The company will store all ore till a spur is completed to the smelter.—An extremely rich discovery has been made at Burgess, a new camp in the Inyo mountains, east of Lone Pine. A 3-ft. vein of high-grade ore has been cut at a depth of 93 ft. causing a rush of prospectors to the district.

Dec. 4, 1909 p. 774

C. E. STEVENS, formerly of the Bagdad Chase Gold Mining Co., and superintendent of the Petit mine, Atlanta, Idaho, is now superintending a new mine on Skelton creek, near Soldier, Idaho.

Dec. 4, 1909 p. 769

MOHAVE COUNTY.

One of the most important mining transactions ever made in this county was effected a few days ago when all the property of the Arizona-Mexican Mining & Smelting Co., operating the Needles smelter, was transferred to A. P. Anderson of the U. S. Smelting, Mining & Refining Co. The property conveyed includes the smelter and real estate in Needles; the Iron Bar group of mining claims near Slam, and a lime quarry at Vanderbilt, both in San Bernardino county, California; and the following mines in the Wallapai district of Mohave county; Infallible, Star Spangled Banner, Alta, Twins, Blue Lode, Twin Gulch, Champion, Champion No. 2, Twin Gulch No. 2, Arizona No. 1, and the north half of the Winchester. This makes 30 mines and prospects now owned in this county by the U. S. Smelting, Mining & Refining Co.—

INYO COUNTY.

Seven carloads of machinery for the 300-ton mill to be erected by the Buckeye Mining Co. at its mine south of Big Pine has been shipped from the East. The company is also to erect a 500-hp. hydro-electric plant on Birch creek and a cyanide annex at the mill. A. A. Casler is superintendent.—A contract has been let to sink the shaft at the Black Canyon claim to the 60-ft. level.

Dec. 18, 1909 p. 835

KERN COUNTY.

(Special Correspondence).—The Kern Development Co. has completed its 3-compartment shaft to the old workings of the Big Blue and Summer mines and is about to commence activities. In addition to these mines the North Extension Summer, Lady Belle, Beauregard, Fronk, Bull Run, and Urbana, will be operated through the new working avenue. Eastern people are interested. R. L. Long is superintendent.—Oscar G. Rogers, of this county, has taken a lease and option for \$40,000 on the McCreadie group of claims in the Amalie district.—Tungsten mining in a small way continues active in several districts.

Bakersfield, December 10.

Mining and Scientific Press
Feb. 14, 1914 p. 307

INYO COUNTY

Lessees at the Cerro Gordo mine, at Keeler, have opened a large orebody on the 700-ft. level. A drift is being driven at 200 ft. to cut this shoot. About 25 tons of ore containing 110 to 125 oz. silver, 10% lead, and \$1 gold is being shipped daily. Zinc ore is not being shipped, pending development of the new orebody. Thirty men are employed.

Feb. 21 p. 347

INYO COUNTY

There is some activity in Death Valley at present, and the camp of Carbonite has sprung into existence. Developments to 300 ft. in the Carbonite mine, the principal property in the district, have proved ore containing gold, silver, lead, and copper. A wagon-road has been cleared across the south end of the valley, 41 miles to the Tonopah & Tidewater railway at Zabriskie. Sixty mules and a 25-ton traction engine are hauling ores for shipment to smelters.

march 7 p. 429

INYO COUNTY

The annual report of the Tecopa Consolidated company, operating at Resting Springs, shows that the Gunsite mine is 10 miles long, that out on the desert would be 10 miles, and the one to Ray would be the longest of the three. The contemplated line's importance is best understood when it is stated that the present rate paid for freight from the Superior district to the railway at Florence is \$10 per ton, and that the cost of delivering it by an aerial tram to Miami, for instance, would be about \$1 per ton. The line will not only carry the Magma's output but will have a considerable revenue for that company in handling of output of the entire Pioneer district, and incoming supplies at only half the present freight rate. Estimates have already been secured from steel companies and the management has practically finished its estimates, although it will not give out the approximate cost of such a line. That to Miami, however, probably would cost somewhere from \$200,000 to \$400,000, according to the size of towers, weight of equipment, and general details of construction.

Superior, February 23.

march 21 p. 507

INYO COUNTY

No. 1 well, drilled in Death valley for the Pacific Coast Borax Co. by D. H. Wallace, is down 1000 ft. This was done in 17 days. The entire well shows a series of hard salt strata, each from 1 to 20 ft. thick, alternating with similar strata of clay more or less saline. To 250 ft. the salt is sodium chloride, but from this point to the bottom, principally sodium sulphate. No significant potash results are reported. No. 2 well is being drilled about six miles north of No. 1.

March 28 p. 545

IMPERIAL COUNTY

(Special Correspondence.)—The Imperial Reduction Co. mill and cyanide plant is now in its second month, with good results. It consists of three Gates dry-crushing rolls three 8-ft. Hardinge tube-mills, fifteen Deister tables, one Dorr thickener, two Trent agitators followed by two Trent replacers. The ore reserves are extensive and of a profitable grade.

Ogilby, March 13.

Apr. 4

INYO COUNTY

Most of the lead ore produced in California has come from the Cerro Gordo, Darwin, and Modoc districts of this county according to Adolph Knopf in *Bulletin* 680-A of the U. S. Geological Survey. The Cerro Gordo has produced about \$7,000,000 in argentiferous lead, and the Darwin between \$2,000,000 and \$3,000,000. The latter district lies at an altitude of 4750 ft., and is arid country, the rainfall at Keeler, 110 ft. lower, being 3.15 inches. Water is piped 8 miles and sold in 1913 for a 1/4c. per gallon for mining and 1c. for domestic purposes. Ore is hauled from the mines to the railway at Keeler at \$6 to \$8 per ton. Freight to the district is \$1 per ton more. Miners' wages are \$3.50 to \$4 per day. There is telephone connection between Darwin and Keeler. The ore deposits are generally inclosed in lime-silicate rocks, although some are in limestone, and small isolated masses of ore are found in the quartz-diorite. The minerals are galena with silver, cerussite, anglesite, and the gangue calcite and fluorite. Several mines are described, and in the early part of 1913 there was considerable activity in the district, especially at the Christmas Gift, Lucky Jim, and Custer mines. The Death Valley railroad, now under construction from Death Valley Junction on the Tonopah & Tidewater line, will be completed and in operation by July 1, 1914. This road, primarily constructed for the purpose of handling the crude borax of the Pacific Coast Borax Co. from its deposits, will make the development of other minerals easier in this region.

May 9 p. 788

SAN BERNARDINO COUNTY

(Special Correspondence.)—A 100-ton cyanide plant has just been erected at the Waterman mine, at Barstow, by George B. Phillips. Results so far have been satisfactory. Barstow, May 1.

June 6 p. 945

RIVERSIDE COUNTY

Development of the iron-ore deposits of the Eagle mountains now only awaits clear titles to the claims of the Iron Chief Mining Co. Eighty claims have been declared valid, and this decision is to go to the General Land Office and the Secretary of the Interior for review.

Mining and Scientific Press
 July 18, 1914 p. 114

SAN BERNARDINO COUNTY

Sixteen suits by Colton orange-growers against the California Portland Cement Co. have been settled for \$116,831. By agreement, the Company purchased 135 acres of land adjoining its property for \$92,450, an average of \$685 per acre. This will permanently end all suits. The Company's plant has a capacity of 5000 bbl. of cement per day, and it is proposed to increase this to 9000 bbl. at an expenditure of \$1,000,000.

July 25 p. 157

INYO COUNTY

The Wilshire Bishop Creek mine has been unwatered in a week, against 10 weeks in 1913. Development is under way, and the cyanide plant will be erected at once.—Lessees at the St. Ives mine, 25 miles northwest of Bishop, have about 850 tons of \$16 gold ore. A Tetrault mill, made in Tonopah, is to be installed.

Aug. 8 p. 230

INYO COUNTY

Utah men who are leasing the Cerro Gordo mine near Keeler are said to be doing well. An ore-shoot has been opened for 150 ft. and 3 ft. wide, and has also been cut at 200, 400, 500, and 700 ft. depth. The present output is 20 tons of \$59 silver ore per day. L. D. Gordon is in charge.

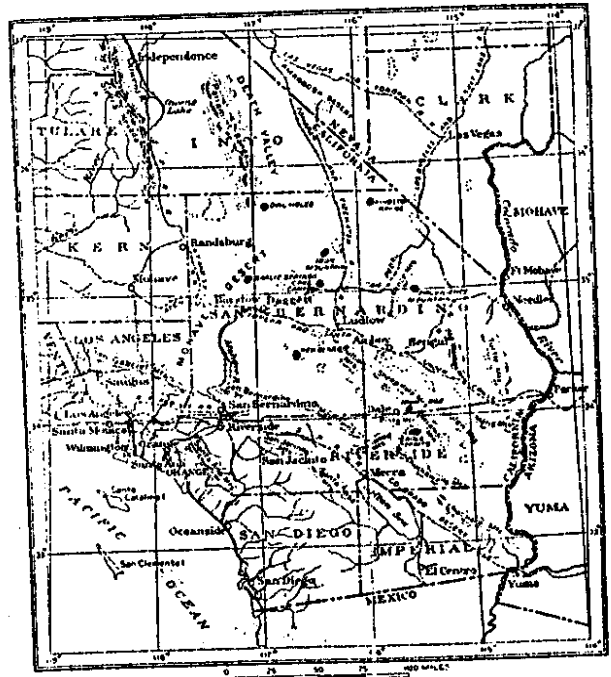
RIVERSIDE COUNTY

In the Ironwood mining district, the Assets Realizing Mines Corporation of Los Angeles is developing about 300 acres at an altitude of 1800 ft. The claims include the Arica, Big Butte, Crescent, Eldorado, and January 1, 2, 3, 4, 5, 6, and others. Six veins run through the property having dolomite hanging and schistose foot-walls. About 18,100 tons of gold-silver ore worth \$352,900 is ready for stoping, and dumps contain \$60,000. There is a fair equipment at the mines. A 20-stamp mill lies at Blythe Junction, ready for hauling and installation. J. V. Priest is general manager for the company.

Nov. 21, 1914 p. 821

INYO AND SAN BERNARDINO COUNTIES

Salines in the Owens, Searles, and Panamint basins of southeastern California is the subject of U. S. Geological Survey Bulletin 580-L, by Hoyt S. Gale. It covers 73 pages, and is illustrated by line-cuts and maps. The author states that the salt-incrusted valley floor commonly known as Searles lake has lately come into prominence through the widespread interest in the search for an available source of potash in this country. The previous estimate of 4,000,000 tons of water-soluble potash salts has been confirmed by subsequent development. In discussing the lake history of the basins, each one is considered, as it played an independent part in the whole system. Water from Owens valley, the principal source of supply, passed through Indian Wells, Searles, and Panamint valleys, and probably finally into Death valley. The bulletin describes each area, the salts, crystalline forms of salts, and prospective commercial development.



MAP OF SOUTHERN CALIFORNIA.

Nov. 21 p. 821

SAN BERNARDINO COUNTY

(Special Correspondence.)—The mining of tungsten ores in this county is showing activity of late, and there is a probability that the output of this state will be somewhat increased during the current year. This will be due partly to the Atolia Mining Co. Early last spring the management started leasing claims to 'float diggers.' In a few weeks there were over 40 men in the vicinity of the Atolia, working new scheelite dry placers, which later led to a discovery of a network of scheelite and quartz veins. These placer deposits yielded a good tonnage of high-grade tungsten ore, especially near the Papoose mine, but were soon worked out. Following the placer work came discoveries of quartz veins which were the source of the rich 'float,' and those who had placer leases began developing new quartz deposits. The result was that the Atolia company discharged its miners, as the mill was being kept busy night and day on ore produced by lessees. This method has been in vogue all summer. Early lessees received \$4 per unit of tungsten (WO₃), but later operators received only \$3.50 per unit, less \$6 over and above 3%. One dollar per ton royalty is charged by the Company, while lessees pay for all timbering, hauling, supplies, and help employed. Lessees cannot sublet, and the Company reserves the right to pay all help of lessees, which is deducted from ore produced by them, including 30c. per shift for each individual hired, as an accident insurance fund, under the state law.

The scheelite veins of this district are found generally fault fissures, and while rich, at times up to 60%, are not continuous, making and pinching out without any indications. These conditions are discouraging to lessees, and during October the ore production fell considerably below the capacity of the Company's mill, and an additional force of Italian workmen was put to work again on the regular tungsten producing claims of the Company's property.

Palladium: Its Characteristics, Uses, and Discovery in the Boss Mine

Mining and Scientific Press
Nov. 21, 1914 p. 821 (Cont.)

Quite a number of additional tungsten claims were located adjacent to the Atolia company's holdings during the past few weeks, some of which are promising. The California tungsten belt, that in which the Atolia mines are situated, is known to extend from Table mountain, 30 miles west of Barstow, through Cuddaback lake and Atolia, over and across the Rand mountains to its west side; thence west to Jawbone cañon, a distance of over 50 miles. Specimens from the cañon show a mixture of scheelite and a darker mineral, which is probably hübnerrite. Those from the Sidney group, west side of Rand mountains, are speckled cream-yellow, and generally contain gold. Near Randsburg and the 'stringer district' are several tungsten ore-producing mines, both placer and quartz, nearly all of which appear to be increasing in production; but, in general, it is conceded that the Atolia district, as in former years will lead in tungsten production for 1914, owing to rich development in the Papoose, Plute, and adjoining claims, this summer.

Randsburg, November 4.

Dec. 12, 1914 p. 930

INYO COUNTY

The Carlo Gordon mine is described with illustrations in *The Inyo Register*, published at Bishop. During the current year, to October 1, 2779 tons of silver-lead ore has yielded \$223,125. Mining is being done to 700 ft., and the ore averages about 80 oz. silver, 20% lead, 4% copper, and \$1.60 to \$1.80 gold. It also contains 45% silica and 2% zinc, apart from the real zincy ores. The product goes to Midvale, Utah. There are 56 men employed, L. D. Gordon being in charge, with J. C. Climo as superintendent.

Dec. 26 p. 990

A Platinum-Gold Lode Deposit in Southern Nevada

By ADOLPH KNOPF

*The ore of the Boss gold mine in the Yellow Pine mining district, Nevada, has recently been shown to contain considerable platinum. The deposit occupies a vertical zone of shattering in dolomite of Carboniferous age. The gangue consists mainly of fine-grained quartz, but streaks of plumbojarosite are found carrying as high as 111 oz. gold, 99 oz. platinum, and 16 oz. palladium. Some 600 ft. from the mine is a small intrusion of granite porphyry, but no basic intrusives occur; in fact, none are known to occur in the whole district, which is the most productive lead and zinc district in Nevada.

*Abstract of a paper read before the Geological Society of America, Philadelphia, December 29-31.

*Palladium is one of the rare metals belonging to the platinum group and occurring almost invariably associated with platinum or other metals of this group. The metal was discovered in 1803 by Wollaston, and named for the planetoid Pallas in honor of its discoverer, Olbers. The other members of the platinum group are platinum, iridium, osmium, rhodium, and ruthenium.

These metals collect in the lead button formed in the regular course of a fire assay for gold and silver. When this button is cupelled, the metal osmium is driven off, but all the other metals collect in the gold and silver button. If they are present to the extent of 2½% of the weight of the button, their presence is made apparent by a frosting and darkening of the button, while smaller proportions usually make themselves known in the course of the operation of parting.

Palladium is a ductile, malleable, white metal, which looks like platinum and is distinguished from the other metals of the platinum group by the ease with which it dissolves in nitric acid. It is strongly resistant to oxidation by atmospheric oxygen and moisture and to the effect of sulphur-bearing gases. For this reason it is employed for the inner mechanism of chronometers and watches, for the construction of fine balance beams, for the divided scales of delicate apparatus, and for surgical instruments. Like platinum, it is employed in the preparation of toning baths for use in photography. Another property of palladium which renders it valuable in some of the newer chemical processes is that of absorbing hydrogen. The price of palladium is practically the same as that of platinum, or more than twice that of gold, although on account of the somewhat lighter demand, it occasionally falls lower.

Most of the palladium comes from the placer mines of the Urals, Russia. Until recently the only mine in which palladium was found in this country was the Rambler mine, in Wyoming, where it is associated with platinum and copper. That it occurs elsewhere in minute quantities associated with copper ores is known from the fact that it is found in electrolytic copper.

A sample of ore from the Boss mine, Yellow Pine district, Clark county, Nevada, has just been analyzed by Walter S. Palmer in the state mining laboratory at the Mackay School of Mines with the following results: Palladium, 60.4 oz.; platinum, 12.28 oz.; gold, 38.92 oz. and silver, 10.96 oz. per ton. A carload of 56,267 lb from the mine, shipped to the American Smelting & Refining Co., gave the following returns: Palladium 5.47 oz.; platinum, 1.1 oz.; gold, 8.752 oz.; silver, 9 oz. copper, 0.97%; insoluble, 80.7%; sulphur, 0.5%; and iron, 6.7%. An assay made by Ledoux & Co., of New York, of a 340-lb. sample, gave the following results: Palladium, 16 oz.; platinum, 99.08 oz.; gold, 111 oz. and iridium, a trace, per ton.

*Press Bulletin 4, Mackay School of Mines, Nevada.

