CALIFORNIA STATE MINING BUREAU
FERRY BUILDING, SAN FRANCISCO

FLETCHER HAMILTON — State Mineralog

San Francisco — December, 1918

Mines and Mineral Resource

OF

SIERRA COUNTY

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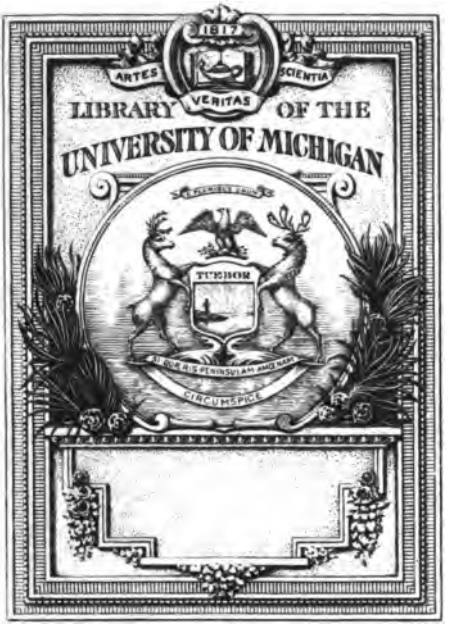
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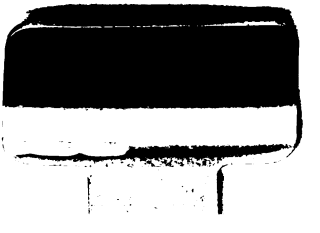

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Mines and Mineral Resources

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SIERRA COUNTY

By ERROL MAC BOYLE

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ALLEGHANY MINING DISTRICT.

Including Alleghany, Forest, Chips Flat and Minnesota.

Introduction.

The Alleghany district is one of the older California gold camps, famous in early days for rich placer and drift mines. Miners working gold quartz veins often find extremely rich ore shoots which present interesting problems in vein formation.

Situation, etc.

The district is situated in the southwestern part of Sierra County, twenty-five miles northeast of Nevada City. Alleghany may be reached by stage from three railroad points—from Nevada City via Mountain House (forty miles); from Loyalton and Truckee on the northeast and southeast, respectively, via Downieville and Mountain House. A regular daily stage from Nevada City is the shortest route. The stage roads are poorly located in regard to rain and snow, causing the region to be isolated during winter. The freight rate from Nevada City to Alleghany is $20 a ton. The Nevada County Narrow Gauge Railroad terminates at Nevada City, and the Southern Pacific Railroad connects with the other points.

The climate is characterized by heavy rains and deep snow in winter, and by dry, warm summers. The growth of yellow pine has been almost completely cut, but there are still large areas covered with timber on the ridges south of the South Fork of Yuba River and on the North Bloomfield divide.

The Alleghany district was one of the first placer regions to be worked in California. The rich river bars were mined first, after which hydraulicking and drifting in ancient gravel beds of Neocene age was carried on. Lode mining became important in 1907 after the discovery of the Tightner vein at Alleghany. The total gold production to 1913 is estimated at between $5,000,000 and $6,000,000; in 1912 it amounted to $293,561.

Bibliography.

Ferguson, Henry G., Lode Deposits of the Alleghany District, California, U. S. Geol. Survey Bull. 580 I.

Topography.

The topography is characterized by streams separated by gently rolling areas. The river cañons are deep and precipitous. Alleghany and Chips Flat are on opposite slopes of the cañon of Kanaka Creek, a branch of the Middle Fork of Yuba River. The northern part of the district, about Forest, is drained by Oregon Creek. A broad andesite

breccia ridge between Oregon and Kanaka creeks is about 1000′ above the general level, with a moderate slope on the south side. The general elevation of the region is from 4000′ to 5000′.

Geology.

The region consists of intensely folded sedimentary rocks, intruded by basic igneous rocks; andesite breccia covers both igneous and sedimentary rocks in certain areas. The sediments and intrusions were eroded before the andesitic flow took place and fragmentary areas of the andesite are sometimes underlain by old Neocene gravel beds. Slates and sandstones are exposed as parallel bands running approximately north and south. A band of Cape Horn slate one mile wide lies to the west, while the Blue Cañon formation, which is three miles in width, lies to the east. The general strike of the beds is north with dips of 80° to 90° E. The Delhi formation is composed of a dark brown, hard, fine-grained rock, and occurs in contact with serpentine near the southwest border of the district.

The Cape Horn and Blue Cañon formations are separated by serpentine and amphibolite. Compressive stresses have caused the igneous rocks to be schistose in character, especially the amphibolite which has probably been derived by pressure, from diorite or gabbro. In some places the amphibolite schists are chloritic and difficult to distinguish from clay slates.

West of Alleghany the serpentine consists of four parallel narrow bands in amphibolite. Along Oregon Creek a serpentine belt encloses a mass of gabbro; the surface exposure of this belt is broken on the ridge south of Oregon Creek by a capping of andesite breccia.

Historical geology.

The oldest known rocks in the region are those of the Blue Cañon and the Cape Horn formations, which belong to the Carboniferous division of the Paleozoic. The former is composed of gray slates and quartzitic sandstones, while the latter is composed only of clay slates. The Delhi formation in the southwestern part of the district rests on Cape Horn slates which are known as the Calaveras formation in other regions.

At the end of the Carboniferous period the sediments were closely folded and compressed. Erosion took place during the Juratrias period, at the end of which the sediments were folded into high mountain ranges. Intrusions of basic and igneous rocks occurred at about the same time. The principal ore deposits followed these intrusions.

A period of folding and faulting occurred again in late Cretaceous time and the high Sierra Nevada range was formed. Deposition, following erosion, built up auriferous gravels in the river beds of the

Neocene period; some of these have been covered by andesite breccia which flowed down the Neocene river valleys, at the close of the Tertiary period, as volcanic mud. Andesite covers the chief interstream ridges and has preserved many of the auriferous gravel deposits from being eroded.

Mineral deposits.

The mineral deposits occur both as lode and placer. The lode deposits are well-marked fissure veins. The placer deposits are covered by andesite and recent river bars.

Tertiary gravels.

A tributary of a Neocene river runs through Minnesota, Chips Flat, Alleghany and Forest. At Minnesota 20′ of fine quartz gravel is exposed. The channel below the andesite has been drifted along its entire length and was found to be very rich. At Chips Flat a few acres are exposed, consisting of coarse gravel with well-washed quartz boulders. At Smith's Flat, one mile south of Alleghany, gravel banks 50′ high show flat cobbles of quartz and siliceous slate on bedrock. The gold is coarse and has often worked its way down into bedrock. At Forest, $150,000 is reported to have been produced from a small amount of heavy gravel; one foot of bedrock was extracted with 2½′ of gravel, yielding $7 per cubic yard. Drifting operations have been carried on in a small way at various points along the ridge west of Alleghany. In general the Neocene gravels were deposited in branches of a great drainage system that sloped to

Photo No. 4. Old hydraulic workings at Chips Flat.

the Sacramento Valley. Both bedrock gravel and bench gravel contain gold, but the former is richer. Gravels intercalated with andesite tuff seldom carry values.

The gold probably accumulated during erosion of the various quartz veins of the region. In some cases the Neocene gravels themselves have been eroded, and the gold reconcentrated in modern streams; an example of this is the shifting bars of Kanaka Creek and the Middle Fork of Yuba River.

Lode deposits.

The gold quartz veins are mineral fillings of fissures in the bedrock (pre-Cretaceous) series. Quartz has been deposited by waters circulating in the fissures, which vary in size and regularity. A large vein often splits into a series of stringers, especially when passing from amphibolite into serpentine. The gold is seldom evenly distributed, usually being concentrated in bodies or in elongated steeply dipping ore-shoots, several of which may occur along a vein. Productive veins occur in slate, serpentine and amphibolite, but chiefly in the latter. They strike north, northeast and east, and dip from 40° to 60° E.

The veins in the amphibolite are generally persistent but vary in width. There is usually a well-defined wall, where they pinch out, with some gouge which may be followed until the quartz reappears. Sericite occurs in minute veinlets within the veins, especially in the crushed portion. Secondary dolomite and siderite are sometimes found as crystals formed on the quartz.

Arsenopyrite occurs in the veins as large-bladed crystals, and as irregular masses broken and veined by quartz. It is the most important vein sulphide, as it contains gold and is an indicator of rich ore-shoots. Banded quartz is regarded as a favorable indication for good gold values; the arsenopyrite in such ores occurs as bands and has been recrystallized in minute perfect octahedral crystals. Fine crystalline arsenopyrite found in veins some distance from the shoots of high grade ore usually contains only small amounts of gold. The gold ranges in size from microscopic particles to pieces several millimeters across. It occurs as thread-like veinlets and as replacements of the quartz veinlets which cross the arsenopyrite. It also occurs in small irregular fissures, away from the arsenopyrite, usually associated with galena. The galena is not abundant but is commonly associated with rich ore. It often occurs as a replacement of quartz, one crystal being the center of radiation of closely spaced slender galena needles, about two millimeters long. Minute crystals of dark brown sphalerite often occur with the galena and pyrite is found associated with the other sulphides. Tetrahedrite and chalcocite

occur in small amounts. Minerals occurring in the wall rock are calcite, dolomite, mariposite, arsenopyrite and pyrite.

As shown by the microscope,* arsenopyrite crystallized before the quartz and the gold is deposited later than the arsenopyrite. The coarsely crystalline arsenopyrite carries gold; apparently the gold was carried in later solutions traveling through the vein and was precipitated by the arsenopyrite. Near the arsenopyrite, gold and various sulphides, such as galena, were deposited in minute fissures.

AMERICAN HILL MINING DISTRICT.

This district includes the country within two miles of the town of American Hill. The region contains both lode and placer deposits, but mining has been done chiefly in the Tertiary river gravels, which are especially rich in the region of the quartz veins. It is in southwestern Sierra County, about five miles east of Alleghany, and thirty-one miles northeast of Nevada City. The nearest shipping point is Nevada City, terminus of the Nevada County Narrow Gauge Railroad, from which a daily stage is run to Forest. The distance from Forest to American Hill is about six miles over fair roads.

The summers are warm and dry, but there are heavy rains and snowfall in the winter. This region is but sparsely timbered. Wolf and Bear creeks furnish a good supply of water.

Bibliography.

Lindgren, W., Tertiary Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, pp. 142-143. U. S. Geol. Survey Folio 66, 1900.

Topography.

The region in general consists of rolling interstream ridges. American Hill (elevation 5000′) is situated on a flat topped ridge covered with andesite which lies between two branches of Wolf Creek. The cañons of Wolf and Bear creeks, which drain the region, are from 1000′ to 1500′ deep.

Geology.

The formations consist of closely folded Blue Cañon slates and quartzitic sandstones, intrusive granite, and andesite and basalt flows. The Blue Cañon is the oldest formation, being of Carboniferous age. The granite intruded in early Cretaceous or late Jurassic time. Stream gravels accumulated during the Neocene period and at its close much of the region was covered by volcanic andesite breccia. In early Pleistocene the partially eroded andesite was covered in places by local basalt flows.

*Ferguson, H. G., Lode Deposits of the Alleghany District, California, U. S. Geol. Survey Bull. 580 I.

The basalt is fine grained, sometimes vesicular, and generally contains small crystals of olivine. The granite is coarse grained and of light gray color. It consists of white feldspar with large crystals of gray quartz, with small amounts of hornblende and biotite. Other rocks present are the same as in the Alleghany District.

The Tertiary gravels are characterized by coarse gold. At American Hill and extending for a mile westward around the head of Little Wolf Creek bench gravels outcrop. On the east side of Wolf Creek, at Bunker Hill, a gravel bed 300′ thick lies in a trough in the bedrock and is covered with clay and sand. This channel is believed to extend under the lava cap. Two long tunnels, driven some years ago, but now inaccessible, showed the existence of two channels at different elevations.

There are two known quartz veins in the district, one directly south of American Hill, and the other about a mile in a southeasterly direction. Their outcrops strike northerly and may be traced for perhaps a quarter of a mile. The first vein dips 80° E; it is a fissure vein in Blue Cañon slate. The southern vein appears to occur along a contact between slate and granite.

BRANDY CITY DISTRICT.

The Brandy City mining district is located in the extreme western portion of Sierra County, twelve miles by trail west of Downieville. It comprises the auriferous gravels of the west fork of the Neocene channel of North Yuba River, which have been worked for gold since the early fifties. Brandy City is situated at an elevation of about 3700′ on the southwest end of a gently sloping ridge. Clipper Mill, eight miles by trail west of Brandy City, has stage connection with Oroville, thirty-four miles distant, and Quincy, fifty miles distant. Downieville is about forty-eight miles, by stage, southwest of Loyalton, a point on the Western Pacific Railroad; also about sixty-eight miles by stage northeast of Marysville, and about forty-four miles north of Nevada City. During the spring and summer months the stage roads and trails are fair, but during the winter months, owing to heavy rainfall and snow, they are very poor. Sufficient water for that portion of the district immediately around Brandy City has been obtained from Cañon and Cherokee creeks. Rock and Slate creeks furnish water for the section north of Brandy City.

History of mining.

The deposits of auriferous gravels belonging to the La Porte channel have been hydraulicked. Operations on a large scale were carried on at Poverty Hill in the extreme north of the district until

1891. In 1906 and 1907 the gravels of Poverty Hill were prospected with the idea of working them by drifts.

Opposition to hydraulic mining in 1891 stopped large operations carried on along the channel between Cañon Creek and Cherokee Creek. The Brandy City Mining Company later obtained control of the water rights and most of the claims. Water is carried by ditches, under the supervision of the U. S. Debris Commission, and in 1909, 30,000 cubic yards of the upper part of the gravel was hydraulicked with a recovery of 10¢ per cubic yard.

Bibliography.

Lindgren, W., Tertiary Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, p. 101, 1911. U. S. Geol. Survey Folio 43, Bidwell Bar, 1898.

Topography.

Slate Creek, to the north of this district, flows along the northwestern side of a ridge, and Cañon Creek flows along the southeastern side of the same ridge. The cañons formed by the two creeks are steep and precipitous. On the ridge are the Council Hill, Fairplay, Union Hill, Scales and Poverty Hill diggings.

Brandy City, Grizzly Hill and Indian Hill diggings are situated on a ridge lying between Cañon Creek to the northwest and the North Fork of Yuba River to the south. The district is drained by the North Fork Yuba River, and its tributaries.

Geology.

Amphibolite composes most of the exposed portion of this district. An area of Calaveras slate is in contact with it on the north. Small exposures of andesite tuff cap the auriferous gravels at Poverty Hill and Union Hill. At Council Hill, near the line of contact between the amphibolite and the Calaveras formation, a small exposure of andesite tuff caps the auriferous gravels. A strip of the Calaveras formation about one-fourth mile wide extends through the amphibolite north of Brandy City and trends in a northerly direction. A portion of this, as well as a considerable portion of the amphibolite, is capped by andesite tuff north of Brandy City. A narrow strip of serpentine cuts through the amphibolite and is in contact with andesite tuff and the underlying auriferous gravels at Brandy City. Southwest of this serpentine is an area of Calaveras slates, trending southerly, in contact with amphibolite. On this exposure of the Calaveras formation is found the auriferous gravels of Indian Hill. A small exposure of gabbro occurs about one mile southeast of Brandy City.

The auriferous gravels of the district are all of Neocene age. The main channel extends from the Poverty Hills inlet of Scales Diggings, reappears at Rock Creek outlet and continues to Union Hill, Fairplay, Council Hill, Brandy City, Grizzly Hill and Indian Hill.

DOWNIEVILLE MINING DISTRICT.

Including Downieville, Goodyears Bar, Eureka, Sierra Turnpike and Cornish House.

The Downieville district includes large deposits of recent auriferous gravels, along the North Fork of Yuba River and its branches, from which millions of dollars have been washed; the most valuable deposits are exhausted. Tertiary auriferous gravels occur in two or three scattered areas. The district is one of the largest producers of placer gold in the region. Small amounts of gold have been obtained from two or three quartz veins. A lens of dolomitic limestone in the extreme eastern part of the district extends northwesterly from the North Fork of Yuba River for about one mile in length.

Downieville, the county seat, is situated at an elevation of 3000′ in the west-central portion of Sierra County. It is forty-four miles by road north-northeast from Nevada City, via North San Juan and Camptonville. The distance by road from Marysville, in Yuba County, is sixty-eight miles. Downieville may also be reached from Loyalton, forty-eight miles by road to the east on the Western Pacific Railroad.

The climate of the district is moderate. The summers are warm and dry, but during the winter months there is heavy rainfall and some snow. It is in the central portion of the Tahoe National Forest and is wooded with yellow and sugar pine, spruce, fir and oak. The region has an abundant water supply. The North Fork Yuba River and its tributaries run through the district and furnish a cheap source of electric power.

History of mining.

Gold-bearing gravels of modern streams were worked at an early date. Tertiary auriferous gravels were mined by a shaft at the Pliocene mine, four miles south of Downieville. At the Ruby mine, one mile north of Table Mountain and three miles south of Downieville, gravels have been mined by means of a tunnel. At the head of Slug Cañon, two miles south of Downieville, the City of Six gravel deposits occur where an old river channel has been tunneled through to Rock Creek, a tributary of the North Fork Yuba River to the west. The Bald Mountain Company has worked its channel by tunnels that enter the ridge on the south slope. The gravel of the Nebraska

diggings, two and a quarter miles southeast of the Pliocene shaft, has been extensively mined. In 1905 the Downieville district produced $34,000 in placer gold; in 1909 the production dropped to $17,000.

Bibliography.

Lindgren, W., Tertiary Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, p. 111, 1911. Mineral Resources of the U. S., 1905, p. 182; 1906, p. 196; 1907, part I, pp. 225–226; 1908, part I, pp. 350, 768; 1909, part I, pp. 284-285. U. S. Geol. Survey Folio 37, Downieville, 1897.

Topography.

Downieville is located at the juncture of the North Fork of the North Fork with the North Fork of Yuba River. The land rises from Downieville in three directions. To the northwest the elevation increases from 3000′ to 5000′ in less than two miles. To the northeast the cañon sides are most steep, the slope being greater than 1:1, and the elevation reaches 5500′ along the ridge. This ridge runs parallel to the North Fork Yuba River, and forms the divide between it and the East Fork of the North Fork; south of Downieville the land rises to a long level ridge trending east between the North Fork and the Middle Fork of Yuba River; at Table Mountain it reaches an elevation of 5619′.

Geology.

The region is made up primarily of folded and compressed sedimentary rocks of the Calaveras formation, which have been metamorphosed to clay-slates and quartzites. Intrusions of serpentine, gabbro and amphibolite have taken place in the western part of the district. The serpentine extends north and south as long belts through the district. It is covered with andesite on Fir Top Mountain, but is exposed on the eastern slope of Saddleback Mountain farther to the north; it makes up the east slope of Goodyear Creek Cañon. In the southeastern portion of the district a large intrusion of granite occurs in the Calaveras formation.

One-half mile east of Downieville a long narrow dike of gabbro intrudes the Calaveras formation; it is about two miles long and extends in a northwesterly direction. Near its northern extremity the Gold Bluff quartz vein occurs.

Eureka is located five miles by trail northwest of Downieville. It is on Neocene gravels which rest on a belt of augite-porphyrite less than one-half mile wide enclosed by the Calaveras formation. The augite-porphyrite was probably derived from augitic tuffs, lavas and dikes of Juratrias age, compressed and metamorphosed along with the surrounding sediments.

The Calaveras formation composes the country west of Eureka. On the upper portion of the broad flat ridge furthest west there is a capping of andesite breccia continuous with the andesite running southwest in Poverty Hill district.

During Eocene time the Sierra Nevada was eroded, and during the Neocene period auriferous gravels accumulated. At the end of Neocene time extensive lava flows occurred, a remnant of which is the andesite breccia remaining on the highland in the south of Downieville district. About the same time a great dislocation occurred along the eastern base of the Sierra Nevada, which changed the grade of the western slope of the range and greatly increased erosion. Eruptions of basalt occurred in early Pleistocene time and cover many scattered areas such as the Table Mountain region.

Mineral deposits.

On the high ridge south of Downieville auriferous Tertiary gravels occur capped with andesite. There are two distinct channels. The older one extends toward the Bald Mountain Extension mine channel. The younger channel lies 116′ lower and connects with the old Rock Creek diggings. At the Pliocene mine, a shaft was sunk through the andesite breccia to the gravel resting on Calaveras bedrock, and at the Ruby mine, three miles south of Downieville, a tunnel was put in at the base of the andesite breccia.

The City of Six gravels occur at the head of Slug Cañon, at the base of andesite and basalt, the bedrock being Calaveras slate. The exposed material is 500′ wide and one-third of a mile long, with pebbles composed of quartz and metamorphic rock.

Tertiary river gravels three miles northwest of Downieville have been hydraulicked at the Monte Cristo mine, at the Excelsior mine, one mile northeast of the latter on the opposite side of the andesite cap, and at two places on the ridge between the North and Middle Forks of the North Fork Yuba River. This ridge also contains the Wide Awake drift which extends under the andesite cap.

Auriferous gravels of recent origin occur along the North Fork of the North Fork of Yuba River to a point five miles north of Downieville. They occur at the river junction at Downieville and in disconnected patches in each direction along the North Fork of Yuba River. The deposits are extensive at Goodyears Bar and for two and one-half miles up Goodyear Creek. Water-worn pebbles of chrome iron have been found in the gravels of Goodyear Creek; these have apparently been washed from the neighboring serpentine.

Recent gravels also occur along the Middle Fork of the North Fork of Yuba. Some of these now lie at an elevation of 150′ above the

river. At Downieville remnants of gravel benches, formerly mined with good returns, are still preserved.

Two gold-quartz veins have been developed in the cañon of the North Fork of the North Fork of Yuba River, about a mile north of Downieville. The veins are quartz fillings in the Calaveras formation, one being of the contact type. The outcrop extends for one-fourth of a mile in a north and south direction. At the Good Hope mine, west of and about 500′ above the river branch, a contact vein between slate and serpentine, strikes northwest and dips 45° W. into the hill. The Gold Bluff vein occurs farther north on the opposite side of the creek; it is being worked near the north end of the gabbro dike east of Downieville. Quartz veins are numerous on the ridge south of Downieville and prospectors have discovered four gold-quartz veins in Jim Crow Ravine.

GIBSONVILLE MINING DISTRICT.

Including Gibsonville and Whiskey Diggings.

This district contains extensive exposures of Tertiary auriferous river gravels. Gibsonville has been only a moderate producer of gold. Some chrome has recently been produced.

This district is located in the northwest corner of Sierra County. Gibsonville is sixty-eight miles by road northeast of Marysville, twenty-six miles by road south of Quincy, and approximately thirty miles by road west of Clio, a point on the Western Pacific Railroad. The condition of the roads in summer permits of the use of auto-trucks, but in winter there is a great deal of rain and snow, and the roads are often impassable. A daily stage runs from Marysville.

Gibsonville is a few miles north of the Tahoe National Forest, and a great deal of timber is still uncut in the surrounding region. A good supply of water is furnished by Little and East branches of Slate Creek, and their numerous tributaries. Electric power is furnished at a low rate.

History of mining.

Nearly all the main Tertiary river channel between Gibsonville and the old Hepsidam camp has been mined by means of tunnels. From 1875 to 1895, the Niagara Consolidated Company drifted on the channel between Hepsidam and Bunker Hill, a distance of about a mile. The channel at Hepsidam between rims was 800′ wide, of which 500′ to 600′ was drifted. The recovery from much of the drifted ground was as high as $3 a cubic yard. One and a half miles southwest of Gibsonville the Feather Fork Gold Gravel Company has drifted for one mile up the channel from the Thistle shaft, which is said to have been pumped dry at great expense.

In the region about Gibsonville and Whiskey Diggings 2,500,000 cubic yards of gravel are reported to have been washed, and in 1891, 500,000 cubic yards were estimated to be still available. In the year 1905 Gibsonville produced $6600 and La Porte $18,000 worth of placer gold; in 1909 both together produced $32,000.

Bibliography.

Lindgren, W., Tertiary Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, pp. 106-107. Mineral Resources of the U. S., 1907, part I p. 286; 1908, part I, p. 351; 1909, part I, pp. 284-285. U. S. Geol. Survey Folio 37, Downieville, 1897.

Topography.

This small district lies mostly on the south slope of a flat ridge between South Fork Feather River and Slate Creek, a tributary of the North Fork Yuba River. Gibsonville is at an elevation of 5000′ on the south slope of the ridge and is 200′ above the bed of Little Slate Creek, which flows southwestward.

Geology.

The southern portion of the district is composed of amphibolite, continuous with that in the Port Wine district to the south. East of Gibsonville serpentine and Calaveras slates and quartzites occur in contact with the amphibolite. Along the ridge north of Gibsonville and Whiskey Diggings a capping of andesite covers the amphibolite, serpentine, and the Calaveras rocks.

One mile southeast of the Hepsidam drift a dike of quartz-porphyry intrudes the Calaveras formation; it outcrops for over one-fourth of a mile and strikes northwest. A small body of glacial detritus remains three-fourths of a mile south of the Hepsidam drift.

Mineral deposits.

The only mineral of economic importance at the present time is gold which occurs in the gravels of the Neocene river channels. The main Tertiary river channel west of the Neocene divide in the Downieville quadrangle passes through Gibsonville, Whiskey Diggings and Hepsidam. From Gibsonville the channel slopes southwestward through La Porte, Scales and Indian Hill, toward Camptonville.

From Gibsonville to La Porte the channel is deeply covered by andesitic tuffs and clays. At the Thistle shaft, one and one-half miles southwest from Gibsonville, the clays composed largely of volcanic mud, become from 300′ to 400′ thick; the channel is 1500′ wide and the rims rise very steeply. Similar conditions hold between Gibsonville and Hepsidam.

Following up the channel from La Porte to Gibsonville the average present grade is about 80′ to the mile; from Gibsonville to Whiskey Diggings it is about 250′ to the mile, and from there to Hepsidam about 400′ to the mile. Although the grade of the channel between Gibsonville and Hepsidam greatly increases there is no change in the character of the gravel; the rapid increase in grade is ascribed to a differential elevation toward the east. From Thistle shaft to Hepsidam the channel is easily accessible by tunnels, having been mined almost continuously.

The channel has been mined continuously underneath the ridge, two miles above Gibsonville, by the Niagara Consolidated Mining Company. It is 800′ wide between rims, 500′ to 600′ of which was drifted. The gold on the bedrock was coarse and the upper gravels carried some gold in places. Much of the drifted ground yielded as much as $3 per cubic yard. Several sudden 'jumps' of 3′ or 4′ each occur in the channel and probably represent faults crossing the bedrock. Under the summit of the ridge a sudden drop occurred, necessitating another tunnel 50′ lower; this was found to be the beginning of a fault zone which depressed the channel on the Nelson Creek side by several hundred feet. This fault zone lies approximately in the extension of the Spanish Peak fault, in the Bidwell Bar quadrangle, but they can not be connected with certainty.

There is another fault zone in the region of La Porte. The block between these two zones, which includes the channel from La Porte to Hepsidam, has been sharply tilted.

The Bunker Hill drift, across the ridge in Plumas County, is a mile and a quarter northeast of Hepsidam. There the channel is exposed under the lava-capped ridge, on the slope to Feather River. The channel between Bunker Hill and Hepsidam has been mined by drifts.

INDIAN HILL MINING DISTRICT.

Including Indian Hill and Snowden Hill.

This district is situated in the west central portion of Sierra County. Indian Hill lies a mile and a half south of the North Fork Yuba River and ten miles southwest of Downieville. It is fifty miles, by road, northeast of Marysville; and forty miles, by road, north of Nevada City. There is an abundance of water, timber and cheap electric power.

Gold is produced chiefly from mines in Tertiary and modern stream gravels. Hydraulic mining was at one time extensively carried on. One quartz vein, containing gold, is as yet merely a prospect.

Bibliography.

Lindgren, W., Tertiary River Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, 1911. U. S. Geol. Survey Folio 37, Downieville, 1897.

Topography.

Indian Hill is situated in a saddle of a ridge 900′ in elevation above Indian Valley. The level floor of this valley is somewhat less than one-fourth mile in width and is about three miles long.

No streams of importance from the south flow into the North Yuba at Indian Valley, but to the east Humbug Creek and St. Catherine Creek flow from Snowden Hill. On the east side of this hill Woodruff Creek flows northward to Goodyears Bar. Fiddle Creek drains the region north of Indian Valley and almost parallels the North Yuba to within three-quarters of a mile from their junction.

Geology.

The Calaveras formation makes up most of the eastern portion of the district. Amphibolite and serpentine form the eastern border. Intrusions of granite, amphibolite and serpentine with some augite-porphyrite occur in the west. Flows of andesite and basalt occur in the southeastern portion of the district.

PIKE MINING DISTRICT.

Including Tippecanoe, Grizzly Gulch and Nelson Mill.

Gold occurs, in this district, in small scattered areas of Tertiary river gravels. At Tippecanoe a few acres of Tertiary auriferous gravels have been hydraulicked. A quartz vein at the Alaska mine, one-half mile north of Pike, was worked to a considerable extent thirty-five years ago.

Pike is situated in the extreme southwest corner of Sierra County at an elevation of 3300′. A good water supply is furnished by Oregon Creek, Grizzly Creek and the Middle Fork of the Yuba River. Various uncut bodies of timber in the surrounding country are sources of lumber. The nearest railroad station is Nevada City, twenty-eight and a quarter miles to the south, by way of Camptonville. Marysville, on the Southern Pacific Railroad, lies fifty-three miles by road to the southwest.

Bibliography.

Lindgren, W., Tertiary River Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, p. 138. Mineral Resources of the U. S., 1907, part I, pp. 225-226; 1908, part I, p. 769. U. S. Geol. Survey Folio 66, Colfax, 1900.

Topography.

The region is made up of many small ridges and divides. Pike occupies a flat ridge which extends about a mile and a half southward and then drops 1200′ in one-half mile, to the Middle Fork Yuba River. Grizzly Creek drains Pike and the region to the southeast. To the north of Pike the land rises to an elevation of 4000′, forming the

divide south of Oregon Creek; this creek is a long tributary almost paralleling the Middle Fork Yuba River and draining the northern region about Tippecanoe and Forest. Tippecanoe is on a broad ridge drained by Indian Creek to the south.

Geology.

Diabase occurs around Pike. North of the diabase a broad belt of serpentine is in contact with Delhi rocks on the east; it carries irregular bodies of amphibolite. In the northeastern part of the district, north of the andesite cap, and in contact with the Delhi formation to the west, there is an intrusive body of granite-porphyry.

The region is composed largely of black siliceous folded sedimentary rocks of the Delhi formation, pierced by the above intrusives. Both sedimentary and intrusive rocks forming the present interstream ridges are usually capped by andesite, which also covers the auriferous gravels which were deposited in channels of rivers during the Neocene period. Pleistocene erosion has left this andesite only on the uplands.

Mineral deposits.

A Tertiary river channel almost coincides with Oregon Creek. Areas of gravel exposed along this channel at Tippecanoe lie in flat benches sometimes less than 100′ above the present stream. At Tippecanoe the deposit is 100′ thick and consists of quartz and chert pebbles, often imperfectly washed; no volcanic rocks are contained in the deposit. A small body of gravel is exposed one-half mile east of Nelson Mill. Another gravel deposit one mile east of Plum Valley rests on a bedrock of the Delhi formation and is capped with andesite to the northeast. Some drift mining has been done three and three-quarter miles northeast of Pike, in a gravel deposit resting on serpentine.

The Alaska vein occurs one-half mile north of Pike. It strikes east, outcropping for a distance of about one-half mile, and dips north. The vein is of quartz, filling a fissure in diabase. The ore once produced was very rich in coarse gold.

POKER FLAT MINING DISTRICT.

Including the region about Poker Flat, Table Rock and Howland Flat.

This district lies southeast of the Gibsonville district. Table Rock is seventy-two miles by road northeast of Marysville; roads also connect with Quincy, thirty miles to the north via Gibsonville, and with Mohawk, twenty-seven miles to the northeast. Daily stages run from Marysville and from Quincy when weather permits. In the winter, when there is much snow and rain, the roads are in many

Photo No. 6. Distant view of the Howland Flat-St. Louis-Port Wine gravel channel. Table Mountain in the background.

places impassable, but in the summer they are in fair condition and permit the use of motor trucks. Water is supplied by numerous tributaries of Slate Creek and Cañon Creek. Cheap electric power may be obtained.

History of mining.

On the south slope of the ridge southeast of Table Rock a gravel deposit, known as the California Diggings, has been hydraulicked. On the south side of Cañon Creek, opposite the California Diggings, the Deadwood gravel deposit has been worked by both hydraulic and drift mining. The gravel has been followed under the andesite cap in a southeasterly direction to the Bunker Hill mine. The gravels about Potosi and Howland Flat have been drifted along the channel under the lava.

The production of placer gold at Table Rock, along with that of St. Louis in the adjoining Port Wine district, was $28,000 in 1905 and $26,700 in 1909.

Bibliography.

Lindgren, W., Tertiary Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, pp. 108-109, 1911. Mineral Resources of the U. S., 1909, part I, pp. 284-285. U. S. Geol. Survey Folio 37, Downieville, 1897.

Topography.

Table Rock and Mount Fillmore lie between Cañon Creek and Slate Creek, tributaries of the North Fork Yuba River. Table Rock, elevation 6980′, is a high peak on a ridge which extends southwestward to Queen City and Port Wine. Cañon Creek lies south of Table Rock at an elevation of 4800′. In the Poker Flat region to the east andesite forms a cap continuous with that on Table Rock and Mount Fillmore, elevation 7816′. The north slope is drained by the East Branch of Slate Creek. Rattlesnake Peak, elevation 7400′, is on a ridge three miles east of Poker Flat; its north slope is characterized by irregular spurs. The ridge south of Poker Flat is broad and flat, and partially covered with andesite; it continues westward to Deadwood Peak.

The main drainage of the district has a general southwest direction; the streams are all tributaries of the North Fork Yuba River.

Geology.

Closely folded slates and quartzites compose most of the district. They generally strike north and dip nearly vertically. In the extreme southeastern portion of the district they strike northwest and dip 75° E. On the ridge east of Deadwood Peak the sediments have a northeast strike.

Both north of Potosi and west of Poker Flat amphibolite occurs. Northwest of Potosi it strikes northeast, and dips 70° SE.

About one and one-half miles west of Mount Fillmore a belt of serpentine, about three-fourths mile wide, is in contact with amphibolite on the west, and with the Calaveras formation on the east. A narrow belt of serpentine just east of Poker Flat extends in a northeasterly direction; it is probably continuous, under the andesite cap, with the northern belt.

One mile east of Poker Flat a body of augite-porphyrite one-fourth mile wide and two miles long extends northward towards Mount Fillmore. A small body of the same rock also occurs one-half mile west of Poker Flat.

One mile northeast of Rattlesnake Peak a body of granite about one-half mile in diameter intrudes the Calaveras formation. Its northern border is covered by basalt.

Deadwood Peak is covered by an isolated body of andesite, which itself is covered by a small body of basalt. A mile and a half northeast of Poker Flat a small area of andesite partly covers a narrow area of rhyolite lava.

At some time in the Juratrias period there were flows of augitic lavas and tuffs; these were compressed with the Calaveras formation and form the augite-porphyrite of the present time. The amphibolite may have been formed in a similar manner, but it is likely that the amphibolite and serpentine were intruded into the Calaveras formation at the end of the Juratrias period. Granite was probably intruded about this time.

During the Tertiary period the region was eroded and auriferous vein material accumulated in the river beds. Toward the end of Neocene time rhyolite flows occurred, followed later by an extensive flow of andesite, covering practically the entire region. Following this an uplift occurred, which increased the rate of erosion. Scattered basalt flows took place during the early part of the Pleistocene epoch and a period of glaciation followed during the middle part of the Pleistocene. One small area one mile northwest of Rattlesnake Peak remains covered by glacial detritus.

Mineral deposits.

The only mineral deposit, at present of economic importance, is gold which occurs in gravels of the Neocene river channels. Waterworn pebbles of chrome-iron found in the gravel at Howland Flat probably came from the serpentine area east of Gibsonville.

The main Tertiary river channel west of the Neocene divide extends from Port Wine and St. Louis through Howland Flat and Potosi, disappearing at the latter place under the lavas of the Mount Fillmore ridge. The channel has been followed through the ridge by tunnels, reappearing on the south slope at Gold Cañon. It is reported

that the channel rises towards the middle of the ridge and then falls so that at Gold Cañon the elevation is the same as at Howland Flat. The rise and fall is by steps, the channel being suddenly cut off at several points by polished and striated walls indicating faults. At Howland Flat the gravel is well exposed and rests on a bedrock of amphibolite; to the south at Table Rock the channel is covered by andesite.

The California Diggings are located on the south slope of Table Rock, in a ravine draining into Cañon Creek. The bedrock is amphibolite; the andesite of Table Rock partially covers the gravel and separates the exposure from that at Howland Flat.

White quartz gravel occurs in the Deadwood channel, one mile southwest of Poker Flat, on a bedrock of the Calaveras formation. To the south the gravel is capped by andesite, under which the channel has been followed for about a mile in a southeasterly direction to a claim known as the Bunker Hill. In the tunnel many faults and numerous lava dikes have been encountered.

Auriferous gravel has been mined on the south slope of the lava-capped Rattlesnake Peak ridge by drifting at the Red Oak property and by hydraulicking at the Rattlesnake property. The gravel rests on the Calaveras formation. Some drifting has been done in the basalt-capped gravel lying on granite northeast of Rattlesnake Peak.

PORT WINE MINING DISTRICT.

Including the region about Port Wine, Queen City and St. Louis.

Port Wine is located close to the northwestern border of Sierra County, sixty-five miles, by road, northeast of Marysville, a point on the Southern Pacific Railroad. There is a mountain road from Port Wine to Johnsville via Gibsonville, thence to Blairsden on the Western Pacific Railroad, a distance of about thirty-five miles. The roads are fair in the summer, but in many places impassable during the winter, at which time there are heavy rains and snowfall. Port Wine and Queen City lie at elevations of about 5000′ above sea level.

The district is wooded with fir and spruce. Water is plentiful in Cañon Creek, Little Cañon Creek, and the tributaries of Slate Creek which flow through the district.

History of mining.

In 1897, at the Bunker Hill claim, not to be confused with the mine of the same name further south in the Poverty Hill district, a tunnel was run under the lava. At the Lucky Hill mine development work has shown that gravel underlies portions of the andesite cap between the Bunker Hill and the Iowa shaft to the south.

Photo No. 7. Old hydraulic workings of the Port Wine channel, showing basalt sheets in gravel bank.

Most of the Tertiary channel has been mined from Port Wine through Queen City, Grass Flat, Gardener's Point, Cedar Grove Ravine and St. Louis to Howland Flat. In 1891 it was estimated that on the Port Wine ridge 1,600,000 yards of gravel had been excavated, while 5,000,000 cubic yards remained. The value of the placer gold produced at Port Wine in 1905 was $3500, and in 1909, $1000. The St. Louis property had a somewhat higher production.

Bibliography.

Lindgren, W., Tertiary Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, pp. 108-110, 1911. Turner, H. W., Further Contributions to the Geology of the Sierra Nevada, U. S. Geol. Survey Seventeenth Annual Report, part I, p. 602, 1886. Mineral Resources of the U. S., 1908, part I, p. 351. U. S. Geol. Survey Folio 37, Downieville, 1897.

Topography.

The district consists of two parallel divides, and a portion of a third. These ridges, and the streams between, have a northeasterly direction.

Port Wine and Queen City, one-half mile apart, lie between Cañon Creek and Slate Creek. West of these settlements the ground slopes gently to Slate Creek, while to the east it rises to the top of the divide, and then drops 1200′ to Cañon Creek.

A broad flat divide becoming a narrow ridge to the north, separates Cañon Creek from Little Cañon Creek. Grass Flat is on the same divide as Queen City. St. Louis is on the southwestern end of Howland Flat, between Slate Creek and Cedar Grove Ravine.

Geology.

A belt of the Calaveras formation extends in a northwest direction through Port Wine and Queen City. It is in contact with amphibolite both to the northeast and southwest; Queen City lies near the northeastern contact. It consists of closely folded slates and quartzites, which strike northwesterly and dip nearly vertically. Andesite covers these formations on the ridge between Slate and Cañon creeks.

A series of lenticular shaped bodies of augite-porphyrite are enclosed in the Calaveras formation and extend under the andesite southeast of Queen City. It is composed of volcanic tuffs or lava flows that have been folded in with the sediments and metamorphosed. The age of the formation of igneous rock which later was changed to augite-porphyrite is probably Juratrias.

Amphibolite may have been formed in a manner similar to the augite-porphyrite, but is possibly a metamorphosed diorite or gabbro. Two miles northeast of Queen City the schistosity has a vertical dip and an east-west strike. The amphibolite, if intrusive, is probably post-Juratrias in age.

Auriferous gravel accumulated during the Neocene epoch. Toward the end of this time an extensive flow of andesite occurred probably covering the entire region, and later still an uplift increased the rate of erosion; most of the andesite was worn away but considerable remains capping the interstream ridges.

Mineral deposits.

The only mineral deposit known at the present writing is placer gold which occurs in the gravels of the Tertiary river channels.

Photo No. 8. View showing basalt sheet in gravel at Port Wine.
According to Lindgren (U. S. Geol. Survey Prof. Paper 73, p. 105) the basalt was intruded into the gravel. According to early days miners gold was found concentrated on top of this basalt sheet, but below the lava the gravel contained little gold until just above bedrock. Therefore it seems probable that the basalt flow covered the lower gravels, and was itself covered by later gravels.

The Port Wine channel is a branch of the main Tertiary river channel to the west of the Neocene divide (Sierra Buttes). The gravel, in general, consists of well-washed white quartz pebbles lying in a well-defined channel several hundred feet wide and 50′ deep. Heavy masses of pipe clay, occurring above the gravel, are often covered by andesite tuff.

The Bunker Hill gravel, one-half mile southwest of Port Wine, covers the contact between amphibolite and the Calaveras slates. The bedrock at Port Wine consists of the Calaveras formation. At Queen City the bedrock is both Calaveras and amphibolite, while at Grass Flat it is amphibolite. The deposits are all partially covered with andesite on the ridge to the southeast. The Lucky Hill drift mine, between the Bunker Hill and the Iowa shaft to the south, proves

the continuity of the Tertiary channel, below the andesite cap, between the latter two places.

At St. Louis, an extensive gravel deposit is exposed. There is only one small area of andesite breccia capping the gravel in this region and that lies to the east on a spur from Table Rock. The bedrock in this region is amphibolite.

A deposit of gravel which occurs on the ridge between Cañon Creek and Little Cañon Creek has been extensively mined. Good exposures are seen at Morristown, two miles southeast of Port Wine, and at Craig's Flat, one and one-fourth miles farther south. At Craig's Flat the upper surface of the gravel appears to have been eroded before it was covered by andesite breccia. These gravels are probably on the same channel as the gravel at Eureka, in the Eureka District, one and one-half miles southeast.

POVERTY HILL MINING DISTRICT.

Including Poverty Hill, Scales and Mount Pleasant.

This district includes large deposits of Tertiary auriferous river gravels which have been developed along the main channel extending from Hepsidam to Scales. No gold is obtained from the more recent river gravels nor from quartz veins.

The district is located near the western boundary of Sierra County. The elevation of Scales is 4300′ above sea level. Marysville, on the Southern Pacific Railroad, is fifty-nine miles by road to the southwest. A very mountainous road runs from Scales northeast to Clio, on the Western Pacific Railroad. The roads are in fair condition in summer, but in many places impassable in winter, during which time there is heavy snowfall and much rain. Water is plentiful. Several lakes occur in the immediate vicinity of Scales. Cañon Creek, with numerous short tributaries, flows through the district. In the north are Slate Creek and its tributaries. Cheap electric power is available.

History of mining.

Hydraulic mining has been carried on at the Sailor Boy and the Fairplay mines and at McMahons, Scales and Poverty Hill. The gravels have been drifted at the Lucky Hill, Iowa and Bunker Hill properties. The Poverty Hill District produced $11,000 in placer gold in 1905, but only $6800 in 1909.

Bibliography.

Lindgren, W., Tertiary Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, pp. 108-110, 1911. Turner, H. W., Further Contributions to the Geology of the Sierra Nevada, U. S. Geol. Survey Seventeenth Annual Report, part I, p. 351, 1896. Mineral Resources of the U. S., 1908, part I, p. 351; 1909, part I, pp. 284-285. U. S. Geol. Survey Folio 37, Downieville, 1897.

Topography.

The region consists of the southeastern portion of the elevated area between Slate Creek to the north and Cañon Creek to the south, and also of the broad ridge south of Cañon Creek.

Poverty Hill is on a southern tributary of Slate Creek. Mount Pleasant lies at an elevation of 4500′, two miles southeast of Poverty Hill. At the base of the gently sloping south side of Mount Pleasant, Scales is located on a nearly level area a mile and a half southwest of the summit. Southeast of Scales the ground slopes towards Cañon Creek.

Geology.

The chief formation in the southern part of the district is the Calaveras, consisting of closely folded slate and quartzite. It is continuous with the same formation in the Indian Hill District to the south.

In the eastern part of the district are belts of serpentine and amphibolite. The amphibolite increases in width to the northwest and is covered by flows of andesite on the ridges east of Poverty Hill and south of Cañon Creek. A long, narrow cap of andesite extends along the rim of the cañon southeast of Scales. A small intrusive body of granodiorite underlies the Tertiary gravels at Scales and is in contact with the Calaveras formation to the southwest.

In Rock Creek, one-fourth mile southwest of Scales, dikes of white quartz-porphyry cut the Calaveras formation. The rock has a fine grained ground mass of quartz and feldspar, with phenocrysts of feldspar, biotite, hornblende and quartz. These dikes may be genetically related to the granodiorite.

The region was eroded during the Neocene epoch and the auriferous gravels were deposited, the gold probably being derived from eroded quartz veins.

Mineral deposits.

Gold is the only mineral of economic value in the region. It occurs as small particles of various sizes in Tertiary gravels which are generally richest where the rivers crossed the auriferous slate belts. In 1891 it was estimated that at Scales and Mount Pleasant 4,050,000 cubic yards, and at Poverty Hill 2,250,000 cubic yards, of gravel had been removed. The amounts still available at these places have been estimated at 60,000,000 and 5,000,000 cubic yards, respectively.

One of the main channels of the Tertiary river systems ran from Scales southward through Indian Hill to Camptonville. North of Scales the channel forked, one branch extending through Poverty

Hill, La Porte and Hepsidam, the other through Mount Pleasant, disappearing under the lava and reappearing at Bunker Hill, Port Wine and Potosi.

The main gravel channel has an average grade of 100′ to the mile taken as far south as Camptonville. The lowest grade, 60′ to the mile, occurs between Poverty Hill and Scales; there the channel has a general southerly direction, and is filled with quartz gravel to a depth of 120′. The bedrock is granodiorite and the Calaveras forma-

Photo No. 10. Lava-capped channel at Scales. Shows derrick used for handling large boulders.

tion. From Poverty Hill the channel extends through Secret Diggings to La Porte.

The smaller Port Wine branch is almost parallel to the main channel, lying only from two to three miles east of it. The channel is several hundred feet wide and has well-defined rims of amphibolite rising several hundred feet above the bottom. The quartz gravel, about 50′ deep, is overlain by heavy masses of pipe clay, which is covered by andesite tuff or basalt.

The Iowa shaft was sunk through cemented gravel at a point nearly three miles, by road, northeast from Scales. The elevation of the collar of the shaft is 4900′, while that of the lowest bedrock found exposed is 4582′. The mine was worked about thirty years ago and it is reported that $30,000 worth of gold was recovered.

A small amount of hydraulic mining has been done at the Sailor Boy property two miles east-southeast of Scales; drift mining has been carried on at the Bunker Hill property two miles southeast of

Scales. At both places the gravel rests on a bedrock of the Calaveras formation and is composed of pebbles of dark quartzite, siliceous schist and Tertiary lavas. At McMahons, two and one-half miles east of Scales, the gravel rests on amphibolite; the pebbles in the lowest gravels are composed of white quartz. High bedrock intervenes between these gravels and those at Eureka.

SIERRA CITY MINING DISTRICT.

Including the region around Sierra Buttes, Furnier and Church Meadows.

This district includes some of the most profitable quartz mines in the entire Downieville quadrangle. There are only a few deposits of auriferous Tertiary gravel within the district, but recent gold bearing gravels occur along the North Fork Yuba River.

Sierra City is situated in the south-central portion of Sierra County, twelve miles by road east of Downieville along the North Fork Yuba River. The distance by road from Nevada City is fifty-six miles via North San Juan and Camptonville. A road connects with Loyalton, thirty-six miles northeasterly, and with Marysville, county seat of Yuba County, eighty miles to the southwest. A daily autostage makes the twenty-mile run between Sierra City and Blairsden, a town on the Western Pacific Railroad, between the months of June and December. The region about Sierra City has warm summers, but the winters bring heavy rainfall and snow. An abundance of water is supplied by the North Yuba River with its many tributaries and by many glacial lakes which occur in the eastern part of the country.

History of mining.

The only mineral product of present economic importance is gold. Many lenses of magnesian limestone occur to the west and north of Sierra City, and there are masses of magnetite in the extreme northern part of the district.

The placer gold deposits along the North Fork Yuba River were worked long ago and produced much gold.

The gold quartz veins have been worked with profit for many years but are now undergoing a period of depression. The largest of these veins are found at the Sierra Buttes, the Young America, the Mountain mine and the Phoenix mine.

Bibliography.

Turner, H. W., Further Contributions to the Geology of the Sierra Nevada, U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. Lindgren, W., Tertiary River Gravels of the Sierra Nevada, U. S. Geol. Survey Prof. Paper 73, pp. 112-113. Mineral Resources of the U. S., 1905, p. 182; 1907, part I, pp. 225-226; 1908, part I, p. 350; 1909, part I, pp. 284-285. U. S. Geol. Survey Folio 37, Downieville, 1897.

Photo No. 11. Sierra Buttes from the Keystone mine. View looking north across the North Yuba River.

Topography.

The district is very rugged and mountainous. Sierra City is in the narrow valley of the North Fork Yuba River at an elevation of 4300′. It lies at the southern base of the Sierra Buttes, which rise to an elevation of 8615′ in a distance of two miles. To the south the region rises abruptly from the river to a flat-topped ridge, 2500′ above the river.

Sierra County—Table of Mineral Production, 1880–1918.

Year	Gold, value	Silver, value	Amount	Miscellaneous	Value
1880	$974,332	$576			
1881	950,000	6,000			
1882	1,100,000	----------			
1883	1,075,000	----------			
1884	1,177,349	145			
1885	1,433,881	11			
1886	1,967,152	2,414			
1887	1,502,469	202			
1888	1,250,000	1,500			
1889	1,446,486	1,222			
1890	733,528	2,039			
1891	701,702	811			
1892	688,464	26			
1893	839,343	46			
1894	604,722	----------			
1895	694,470	107			
1896	786,175	424			
1897	370,208	46			
1898	399,063	519			
1899	450,115	359			
1900	659,696	3,463			
1901	575,427	755			
1902	326,155	311	24,000 gals.	Mineral water	$6,000
1903	810,770	476			
1904	374,763	1,222			
1905	517,308	3,657			
1906	409,366	2,518			
1907	483,904	2,621	120,000 gals.	Mineral water	12,000
1908	412,626	1,917			
1909	189,672	957			
1910	312,035	1,330			
1911	461,513	5,604			
1912	732,988	2,777	1,285 lbs. ----------	Copper Lead	212 446
1913	1,006,573	4,305	----------	Lead	98
1914	730,000	3,000			
1915	726,362	3,156			
1916	724,256	3,291	----------	Other minerals	1,950
1917	384,428	1,629	13,031 lbs.	Copper	3,558
1918	289,368	2,121	807 tons	Chromite	40,012
Totals	$28,771,664	$61,587			$64,276

CHROMITE.*

Case and Myer Property. Owners, Case and Myer, Downieville. Leased to Bynon and McGonigal, Downieville. Comprises seven locations and 90 acres of patented land, a total of 230 acres, situated thirty-five miles from Blairsden.

Pipes of chromite in serpentine have been developed by an open cut, shaft and stopes. In July, 1918, nine men were employed. The property had produced four carloads of ore at that time and was thought capable of yielding perhaps six carloads more. The ore was said to average about 45% Cr_2O_3. It was hauled a mile in wagons, one-half mile in an aerial tram and thirty-three miles in autotrucks to Blairsden on the Western Pacific Railroad. The hauling season lasts from June 1 to the first rains in autumn.

Dorris Mine. Owners, Dorris, Davis, Bradbury and Dobbie, all of Forest. Leased to Morgan and Leichester of Nevada City. Includes five unpatented locations, 100 acres, near Forest and thirty-three miles by road from Nevada City.

Small lenses of chromite have been mined by shallow shafts and an open cut. The production to the end of July, 1918, was a small carload with possibly 15 tons of ore still in sight. Hauling to Nevada City in autotrucks cost $15 a ton.

Evans Prospect. Owner, Robert Evans, Forest. Four tons of chromite taken from a small shaft was shipped in July, 1918, and there was said to be no more ore in sight at that time. The claim is near the Dorris mine.

Finane Prospect. Owner, Steven Finane, Forest. This claim, located near the Dorris mine, produced 8 tons of 45% chromite ore up to August 1, 1918, and showed no promise at that time of further production.

Macchaus Mine. Owners, Macchaus, Redmayne, McGonigal and Finane, of Alleghany. Located twenty-nine miles from Nevada City, near Alleghany. The property consists of 3 unpatented claims covering an area of about 60 acres.

This mine yielded a little over 200 tons of chromite, said to average 46% Cr_2O_3, from lenses containing 15 to 20 tons each which were mined by open cuts. The property was reported worked out and abandoned August 1, 1919.

*NOTE.—For the following data on chromite properties in Sierra County, we are indebted to the United States Bureau of Mines for the use of field notes taken by Harry Thompson.

Redmayne and McGonigal Prospect. Owners, Geo. Redmayne and D. McGonigal.

This property, located four and one-half miles from Sierra City, showed about 25 tons of float ore said to carry 30% Cr_2O_3, which was too low grade to be profitably handled, considering the long haul to the railroad.

White Bear Mine. Owner, John Costa, Downieville. Leased to Ostrom Brothers and Lindvall Brothers, Downieville. Comprises 5 placer locations situated seven miles from Downieville and forty miles from Blairsden.

The four lessees worked the property during the summer of 1918, and produced about 250 tons of ore containing 40% to 45% Cr_2O_3. The ore was taken on pack animals one-half mile, then loaded on trucks which hauled it to Blairsden. The total cost of hauling was $20 a ton. The claims are on a steep mountain-side where the outcrop was poor, and it was hard to estimate future production. Work stopped in September, 1918, on account of rain.

COPPER.

Antelope Neck Claim. Owner, Mr. Beamer.

Location: On patented land in Sec. 27, T. 21 N., R. 15 E, 3 miles southwest of Loyalton (B. & L. R. R.).
Bibliography: Cal. State Min. Bur. Bull. 50, p. 189. U. S. Geol. Survey Topo. Sheet, Sierraville.

A wide vein of copper sulphide outcrops on this property.

Basset's Pride Claim. Owners, Albert Church et al.

Location: Sierra City Mining District, Sec. 11, T. 20 N., R. 12 E., 5 miles northeast of Sierra City, 31 miles southwest of Loyalton (B. & L. R. R.) by good automobile road.
Bibliography: Cal. State Min. Bur. Bull. 50, p. 189. U. S. Geol. Survey Folio 37, Downieville.

Some native copper shows in the deposit in which a tunnel has been driven.

Copper Mine. Owner, B. Pride, Sierra City.

Location: Sierra City Mining District, Sec. 13, T. 20 N., R. 12 E., 4 miles northeast of Sierra City, thence 20 miles north, by road, to Blairsden (W. P. Ry.) or 56 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 6000'.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

Hapgood and Miller Prospect. Owners, J. H. Hapgood and J. J. Miller.

Location: Sierra City Mining District, Sec. 30, T. 20 N., R. 13 E., 3½ miles northwest of Sierra City, thence 43 miles southeast, by road, to Boca (S. P. R. R.). Elevation 5000'.
Bibliography: Cal. State Min. Bur. Bull. 50, p. 189. U. S. Geol. Survey Folio 37, Downieville.

This prospect shows veins 15' in width, carrying oxide, sulphide and carbonate ores of copper.

Lassiat Claim. Owner, John B. Lassiat, Table Rock.

Location: Poker Flat Mining District, Sec. 10, T. 21 N., R. 10 E. Poker Flat is about 30 miles, by wagon road, south of Quincy.
Bibliography: Cal. State Min. Bur. Bull. 50, p. 189. U. S. Geol. Survey Folio 37, Downieville.

One claim showing a copper deposit about 60′ wide, carrying pyrites, oxides and carbonates of copper comprises this property.

Zuver Mine. Owner, George Zuver.

Location: Sierra City Mining District, Sec. 19, T. 20 N., R. 12 E., 3 miles northwest of Sierra City, thence 56 miles, by good automobile road, southwesterly to Nevada City (N. C. N. G. R. R.).
Bibliography: Cal. State Min. Bur. Bull. 50, p. 189. U. S. Geol. Survey Folio 37, Downieville.

There is a 40′ shaft on this mine. Copper sulphides have been extracted and shipped.

GOLD—DRIFT MINES.

Badger Hill Mine. Owner, Jensen, Downieville.

Location: Downieville Mining District, Sec. 35, T. 20 N., R. 10 E., ½ mile east of Downieville, thence 44 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 3000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property, relocated by Jensen, was formerly owned by A. Lakeree. There were four or five men working under a slide on recent river gravels.

Bald Mountain Mine. Owners, Bald Mountain Mining Company, Jas. McGregor, Mrs. S. V. Heinstzen.

Location: Forest City Mining District, Sec. 22, T. 19 N., R. 10 E., 13 miles, by road, south of Downieville, 39 miles, by road, northeast of Nevada City (N. C. N. G. R. R.). Elevation (mouth of main working tunnel) 4637′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property has a total area of 441.02 acres and consists of the Bald Mountain, Parkman and Oregon Creek Tailings claims, covering a length along the channel of 5000′. The surface is lava capped and covered with manzanita brush.

It was discovered in 1869 by a shaft 268′ deep. A bedrock tunnel 1800′ was run to this point in two years. The cost of putting the property on a paying basis, in 1872, was $20,000. From that time until 1887 the total production was $3,100,000; the net profit, $1,300,000, was divided among 20 stockholders. The death of H. W. Wallis, manager and superintendent in 1887, was followed by the closing down of the mine. A consolidation of the Bald Mountain, the Bald Mountain Extension and the Ruby properties, covering an area of about 1500 acres, was brought about by Mark N. Alling, of Downieville. He, with the assistance of W. F. Coperland of Alameda, organized a development company to reopen these mines. Work was begun in July, 1914.

The higher channel, the 'Great Blue Lead,' was about worked out and the pillars nearly drawn, when an incline was put down on the contact of the bedrock and the lava filling of a deeper channel, which found the channel to be 62′ deeper than the higher lead and to contain rich gravel. A break 400′ long in the bottom of this deeper lead at this point was worked and $60,000 is said to have been extracted. This deeper channel was again tested by a shaft 400′ south of this point.

The property covers two ancient channels, the 'Great Blue Lead' (now worked out), being the older and the higher, and the 'Deep Bald Mountain Channel,' an intervolcanic channel of the andesitic period. The older channel was worked to the Ruby mine line, where the lava filling of the newer channel cut off the pay gravel almost exactly on the boundary line. This channel comes in from the Ruby claim, crosses the 'Blue Lead' diagonally with a southwest course at the north end of the Bald Mountain ground, courses south along the west side of the 'Blue Lead' in close association with the same, encroaching on the higher lead, more or less, for 3900′, when it again crosses the 'Blue Lead' just below the point of confluence of the Bald Mountain Extension tributary with the 'Blue Lead,' there cutting away several hundred feet of the higher channel. The Ruby Company discovered this same deep lead and worked the west benches of it for about 1000′ to the Bald Mountain line. Except for 400′, the 'Deep Channel' has not been worked from the Ruby line to the south line of the Bald Mountain property. Calaveras slates and amphibolite schists with long parallel lenses of serpentine make up the country rock. Rich quartz ledges occur in the schists and slates along the contacts. Erosion of these by ancient rivers and tributaries accounts for the richness of the ancient channels. The pay gravel ranged from 300′ to 600′ in width and from 10′ to 50′ in depth. The gravel was all quartz and quartzites, medium sized to fine; bedrock mostly slate (Calaveras), soft and a good gold catcher. The gold was mostly coarse, nuggets ranging from 1 to 20 ounces being common, with some pieces weighing as much as 73 ounces, though fine gold was also found. Black sands and arsenical sulphides were common. Several quartz ledges were found in the mine, one with free gold in place in the rock; the gravel below where the channel had crossed the ledge was cemented together with sulphides.

In the southern portion of the Ruby ground the 'Deep Bald Mountain Channel' cuts diagonally across and down through the 'Blue Lead,' eroding away about one-half mile of original channel and reconcentrating. This channel was profitably worked by the Ruby Company downstream to their boundary line 3900′ further south. The Bald Mountain Company sank an incline into this channel, the

gravel being practically all quartz, free and rich in gold. Four hundred feet further south a shaft was sunk into this channel and rich quartz gravel 7′ thick was found. About 3200′ further south the South Fork Company crossed this channel and found the gravel practically all quartz, and carrying about 50¢ per ton car in gold. It appears that the bulk of the gold contained in the 'Deep Lead,' and derived principally from the erosion of the higher channel, lies on the Bald Mountain ground. On this assumption it is estimated that this deep channel will pay to work throughout the entire 5000′ channel in the Bald Mountain claim.

(October 2, 1915.) A shaft is being sunk to tap the north extension of the Bald Mountain channel and is down 80′. Another shaft is being sunk to develop a quartz ledge encountered in tunnel workings. The Bald Mountain tunnel is being repaired and placed in shape for operations.

Bald Mountain Extension Mine. Owners, Bald Mountain Extension Gold Mining Company, Downieville; John Costa, president, W. I. Redding, secretary, Downieville.

Location: Forest Mining District, Secs. 14, 22 and 23, T. 19 N., R. 10 E., 2¼ miles northeast of Forest City; 13 miles, by road, south of Downieville; 39 miles, by road, northeast of Nevada City (N. C. N. G. R. R.). Elevation 4300′.

Bibliography: Cal. State Min. Bur. Repts. VIII, p. 580; XI, p. 408; XII, p. 261; XIII, p. 371. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

Since Report XIII of the State Mineralogist (1896), the channel has been worked about 1000′ northward from where the tunnel struck the channel. It was here cut off by lava, which fills the depression of some secondary channel. After spending much money and more than a year's time in searching for the continuation of the pay lead, the mine was closed down.

In working south, or downstream, the pay channel was followed to within 300′ of the face of the old workings, extending into the mountain from Forest City. Here the pay was cut off by lava, resulting in the abandonment of this portion of the mine, including the tunnel one and one-fourth miles in length, run from the headwaters of Kanaka Creek, about three miles easterly from Forest City, through which the above work was done.

It is thought that about one-half mile of virgin channel still lies in the northern portion of the property. Extensive surveys were made in 1914 to ascertain the position of this segment.

A large, deep, unprospected channel also extends through the property from north to south along the western boundary, the eastern tributaries of which are probably responsible for the erosion of the higher channel at the various intervals where it has been cut away.

The Bald Mountain mine adjoins on the west.

Balsam Flat Claim. Owner, Captain Morrill, Alleghany.

Location: Forest Mining District, Sec. 2, T. 18 N., R. 10 E., 1 mile east of Alleghany, thence 31 miles, by road, southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 4500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

No work has been done on this property for a long time.

Bellevue Group. Owner, Bellevue Mining Company.

Location: Gibsonville Mining District, Secs. 25 and 36, T. 22 N., R. 9 E., 2 miles southwest of Gibsonville, thence 26 miles north to Quincy. Elevation 4700'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

This property consists of the Bootjack, Chalcedonia, Irish and Bellevue claims, a total area of 353.4 acres, all patented.

Blue Channel Mining Company. (Bunker Hill.) Owners, Blue Channel Mining Company. Bonded to W. F. A. Hood, Bunker Hill.

Location: Poker Flat Mining District, 2 miles southeast of Poker Flat near Table Rock; 30 miles, by road, south of Quincy.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105.

This property consists of one patented claim. No work has been done for some time.

Brown Bear Mine. Bonded to J. G. Jackson et al., Oakland.

Location: Downieville Mining District, Sec. 13, T. 20 N., R. 9 E., 12 miles, by trail, west of Downieville. Elevation 5000'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Henry Spaulding of Downieville is in charge of operations being carried on by J. G. Jackson et al. In July, 1915, the pump and other machinery had been put in order, supplies taken in and a crew of men put to work.

Bruckermann Claim. Owner, Fred Bruckermann, Table Rock.

Location: Poker Flat Mining District, Sec. 3, T. 21 N., R. 10 E., 2 miles east of Table Rock, thence 30 miles by road, north to Quincy. Elevation 5600'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpt. XIII, p. 372.

Buckeye Mine. Owner, Buckeye Mining Company; Albert Read, president, Alleghany; E. L. Crafts and E. R. Jones, Forest City; John Walsh, Plumbago.

Location: Forest City Mining District, Sec. 31, T. 19 N., R. 11 E., 7 miles, by road, from Forest City to the southeast, thence 13 miles, by road, to Downieville. Elevation 5000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of two locations, the Buckeye and the Buckeye Extension, covering an area of 320 acres situated on the lava covered ridge between Kanaka and Wolf creeks. There is some timber on the property.

The deposit is an old river channel coursing north, capped with andesite, and supposed to be a southern extension of Marble Mertz

channel. The gravel is quartz, partly cemented, on slate bedrock. It is dry. The channel is about 250′ wide and 3′ deep.

Cutty, of Chips Flat, worked it in 1879. He ran a 900′ tunnel but did not strike gravel because too far west. The present company upraised 50′, then drifted on gravel west 125′, but did very little breasting. Assessment work only being done. Equipment consists of rails and cars.

Bunker Hill Claim.

Location: Gibsonville Mining District, Sec. 21, T. 22 N., R. 10 E., 4 miles northwest of Gibsonville by road, thence 26 miles, by road, northerly to Quincy. Elevation 4450′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XII, p. 263; XIII, p. 373.

Bunker Hill Prospect. Owners, Lloyd and Andrews, Port Wine.

Location: Port Wine Mining District, Sec. 27, T. 21 N., R. 9 E., 1 mile southwest of Port Wine, thence 34 miles northerly, by road, to Quincy. Elevation 4825′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Caledonia. (See under Hydraulic Mines.)

California Consolidated Mining Company. Owner, M. McDonnell, Table Rock.

Location: Poker Flat Mining District, Sec. 5, T. 21 N., R. 10 E., 1 mile northwest of Poker Flat; 30 miles, by road, south from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Sold to state in 1914.

Canada Mining Company. Owner, Canada Mining Company, Grass Flat; A. Harris, agent, La Porte.

Location: Port Wine Mining District, Sec. 13, T. 21 N., R. 9 E., 2 miles, by road, south of St. Louis, thence 33 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Captain Cook Claim.

Location: Poker Flat Mining District, T. 21 N., R. 10 E., 2 miles south of Poker Flat, thence 32 miles northerly, by road, to Quincy. Elevation 6000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Carleton Claim. Owner, Albert Hough, Table Rock.

Location: Poker Flat Mining District, Sec. 3, T. 21 N., R. 10 E., 2 miles east of Table Rock, thence 30 miles northerly, by road, to Quincy. Elevation 5400′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Sold to state in 1912.

Carmen Claim. Owners, Edwards Brothers.

Location: Sierra City Mining District, Sec. 15, T. 21 N., R. 12 E., 10 miles, by road, north of Sierra City, 18 miles south of Blairsden (W. P. Ry.). Elevation 6500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117, 118. U. S. Geol. Survey Folio 37, Downieville.

Patented.

Challenge Claim. Owner, J. J. Johnson, San Jose, California.

Location: Port Wine Mining District, Secs. 13 and 14, T. 21 N., R. 9 E., 2 miles south of St. Louis, thence 30 miles northerly, by road, to Quincy. Elevation 4860′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Clipper Ship Mine. Owners, Clipper Ship Mining Company; E. H. Wemple, president, San Jose, California.

Location: Port Wine Mining District, Sec. 7, T. 21 N., R. 10 E., 1 mile southeast of St. Louis, thence 32 miles by road northeast to Mohawk (W. P. Ry.). Elevation 5700′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 602, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property, consisting of 56 acres and covering a length along the channel of 800′, was worked by hydraulicking in the early days. Not patented. Formerly leased and bonded to G. G. Chamberlain of Los Angeles.

A 950′ tunnel lacks 100′ of reaching the main channel. A 10′ raise passed through slate bedrock and struck clean wash quartz gravel carrying flaky gold. The gravel is capped with andesite. Wemple took out $35,000 to $40,000 by hydraulicking.

Columbia Channel Mine. Owner, Columbia Channel Mining Company, Palace Hotel, San Francisco; W. E. Sharon, president, San Francisco; John C. Newlands, secretary; J. M. Harper, manager.

Location: Forest Mining District, Secs. 12, 13, 14, 15, 20, 21, 22, 28, 29, T. 19 N., R. 11 E., 7 miles east of Forest City, by road, thence 13 miles, by road, to Downieville; 39 miles from Forest City to Nevada City (N. C. N. G. R. R.) by road. Elevation 5000′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of from 1000 to 1600 acres of patented ground, including the Yuba, Gallant, Stanislaus, San Joaquin, Sacramento, Merced, Columbia, and Wolf Creek claims, covering a length along the channel of five miles.

The deposit consists of old channel gravels, coursing north and capped with lava. The gravel is quartz and granite with some big boulders on a bedrock of slate, porphyry and granite. It varies from 4′ to 5′ in depth and has a width of 600′. It has been worked for the past 10 or 12 years only during the winter and spring on account of shortage of water, which is obtained from Wolf Creek and from the tunnel.

There are 5000′ of tunnels, drifts and raises. The main tunnel, 3500′ long, has exposed over 600′ of gravel. The amount of gravel worked could not be determined.

Equipment consists of a boarding house, blacksmith shop and tools.

Comrade Claim.

Location: Poker Flat Mining District, Sec. 24, T. 21 N., R. 10 E., 4 miles southeast of Poker Flat, thence 33 miles northerly, by road, to Quincy. Elevation 4500′.

Bibliography: U. S. Geol. Survey Folio 37, Downieville. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105.

Conglomerate Claim. Owner, T. C. Corlett, Table Rock.

Location: Poker Flat Mining District, Sec. 13, T. 21 N., R. 10 E., 3 miles southeast of Poker Flat, thence 33 miles northerly, by road, to Quincy. Elevation 6500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Corotoman Claim. Owners, Corotoman Gold Mining Company, Forest City.

Location: Forest Mining District, Secs. 28, 29, 32, 33, T. 19 N., R. 10 E., 1½ miles southwest of Forest City, thence 39 miles, by road, southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

Assessment work only being done. No other work has been done for a number of years.

Crown Point Claim. Owners, Sinnott and Carmichael, Gibsonville.

Location: Eleven miles east of Gibsonville; thence 26 miles northerly to Quincy. Elevation 5575′.
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 374.

Dead River Group. Owner, Dead River Mining Company; White, secretary, Wilkesbarre, Pennsylvania.

Location: Forest Mining District, Sec. 34, T. 19 N., R. 10 E., near Alleghany, thence 31 miles, by road, southwest to Nevada City (N. C. N. G. R. R.).
Bibliography: W. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of the Deep Blue Placer, Wyoming and Wyoming Extension locations.

There are 2000′ of drifts and tunnels. Some quartz ledges, but no channel.

Blacksmith shop only equipment.

Eagle Claim. Owners, O. Libertie and N. Marchetti, Port Wine.

Location: Port Wine Mining District, Sec. 23, T. 21 N., R. 9 E., near Port Wine, thence 34 miles northerly, by road, to Quincy. Elevation 4890′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Owners are driving a tunnel.

Empire Claim. Owner, E. G. Squire, Willows.

Location: Gibsonville Mining District, Sec. 19, T. 22 N., R. 10 E., ½ mile north of Gibsonville, thence 26 miles, northerly, by road, to Quincy. Elevation 5495′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Erie Claim. Owner, L. W. France, Port Wine.

Location: Port Wine Mining District, Sec. 23, T. 21 N., R. 9 E., ½ mile northeast of Port Wine, thence 34 miles northerly, by road, to Quincy. Elevation 4880′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Erwin Claim. Owners, Wm. Erwin et al., Downieville.

Location: Downieville Mining District, Sec. 17, T. 20 N., R. 10 E., 4 miles northwest of Downieville, thence 44 miles, by road, southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 4900′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Assessment work only being done.

Excelsior Claim. Owner, Excelsior Drift Mining Company; C. E. Bauer, Courtland.

Location: Port Wine Mining District, Secs. 12 and 13, T. 21 N., R. 9 E., 1 mile southeast of St. Louis, thence 30 miles northerly, by road, to Quincy. Elevation 5500'.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 265; XIII, p. 376. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Excelsior Group. (Hawkeye and Bell Point.) Owners, Frank Montre, F. Tanguay and J. Merhan, Forest.

Location: American Hill Mining District, Sec. 29, T. 9 N., R. 11 E., ½ mile west of American Hill, thence 8 miles, by road, west to Mountain House, thence 35 miles southwest, by road, to Nevada City (N. C. N. G. R. R.). Elevation 5000'.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 267; XIII, p. 378. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 142-143. U. S. Geol. Folio 66, Colfax.

There is a 400' tunnel run as assessment work. Not in a channel. A little gravel found.

Feather Fork Claim. Owner, W. C. Wingate, Downieville.

Location: Gibsonville Mining District, Secs. 25 and 36, T. 22 N., R. 10 E., 2 miles southwest of Gibsonville, thence 26 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XI, p. 419; XII, p. 265; XIII, p. 376.

First Chance, Last Chance and Doherty Group. Owner, H. Eppinger, 320 Oakland avenue, Oakland.

Location: Port Wine Mining District, Sec. 22, T. 21 N., R. 9 E., 2 miles west of Port Wine, thence 37 miles northerly, by road, to Quincy.
Bibliography: Lindgren W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

These claims are on Slate Creek near La Porte.

Forest Queen Mining Company. (Forest and Queen.) Owners, Forest Queen Mining Company, Table Rock; P. L. Carmichael, president; J. K. Wall, secretary.

Location: Poker Flat Mining District, Sec. 23, T. 21 N., R. 10 E., 1½ miles southeast of Poker Flat, 6 miles east of Table Rock, thence 30 miles north, by road, to Quincy.
Bibliography: Lindgren W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

This property consists of two placer locations, the Forest and the Queen, each 160 acres in area, and covering a length along the channel of three-fourths of a mile. It is situated in a valley surrounded by lava-capped ridges, and has good timber.

H. C. Stout discovered the property in the early '80's. Consolidated in 1885 by the present owners. Three men are doing assessment work at present. There is a 700' tunnel with a 60' shaft at the end, all in lava.

Garnet Claim. Owner, H. Skinner, Gibsonville.

Location: Gibsonville Mining District, Sec. 21, T. 22 N., R. 10 E., 3 miles east of Gibsonville, thence 26 miles northerly, by road, to Quincy. Elevation 6000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Gibraltar Mine. Owners, Gibraltar Consolidated Gold Mining Company, Downieville; J. Keiffer, president, Downieville; P. L. Carmichael, secretary, Browns Valley.

Location: Poker Flat Mining District, Sec. 7, T. 21 N., R. 10 E., north of Rattlesnake Peak; 9 miles east of Table Rock by trail, thence 30 miles by road, north to Quincy. Elevation 6500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

This property consists of seven claims of 160 acres each, namely, Gibraltar, Germania, Eclipse, Eclipse Extension, Divide, Gibraltar Extension and Germania Extension. The aggregate of 1120 acres covers a length along the channel of two miles. There is a good stand of fir timber suitable for mine timber, fuel, etc., on the ground. The property was first located in 1881 by Fritz Trimphin, who ran a 600' tunnel. The present company was reincorporated in 1893. Two men were working in the summer of 1914.

The deposit is made up of old river channel gravels, blue quartz on soft slate bedrock with andesite capping. The gravel courses west and varies from 2½' to 5' in depth. There is not much water in the channel.

Development consists of a 1780' tunnel, 80' too high, several upraises between the 900' point and the face of tunnel, a 310' shaft sunk to bedrock, 400' from the face of tunnel, and a 35' drift in bedrock at the 296' point. All pay gravel taken from the shaft. No breasting has been done. The main channel is supposed to be east of the shaft, or in other words, the shaft struck a high reef of bedrock.

There is an 8-h.p. gasoline hoist on the property and a sawmill is under construction.

Golden Hope Claim. Owner, C. E. Mott, Forest.

Location: Forest Mining District, Sec. 35, T. 19 N., R. 10 E., 2 miles east of Forest City, thence 39 miles, southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 4000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 37, Downieville.

Assessment work being done.

Gold Hill Group. (Lucky Hill.) Owner, J. B. Lassiat, 6437 Harrison court, Oakland.

Location: Port Wine Mining District, Sec. 33, T. 21 N., R. 9 E., 2½ miles southwest of Port Wine, by road, thence 34 miles, by road, northeast to Quincy. Elevation 4500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 602, 1896. U. S. Geol. Survey Folio 37, Downieville.

The **Gold Hill** property consists of two placer claims, the **Gold Hill** and the **Gold Hill Extension**, lying on the west side of the Port Wine-Scales ridge. There is a total of 320 acres, covering a length along the channel of a mile and a half.

This property has been located several times. It was last owned by Chas. Hendel under the name of the Lucky Hill, until relocated by the present owner in 1913.

The deposit is made up of quartz gravel of the Port Wine channel. Its course is southwest and it is from 60′ to 80′ in depth, lying on a bedrock of schist, and capped with 500′ of andesite.

A shaft is to be sunk 300′ through lava on the Gold Hill claim farthest north.

Adjoining mines are the Iowa on the southwest, the Mountain Boy on the north and the Bonton, Bella Union and Hardscrabble on the east.

Gold Star Mine. Owners, Golden Star Mining Company; W. G. Motley, Nevada City, agent.

Location: Alleghany Mining District, Secs. 32 and 33, T. 19 N., R. 10 E., 2 miles southwest of Alleghany, thence 31 miles, by road, southwest to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of located land aggregating about 700 acres, of which 140 acres are patented. There is good timber on the ground for mining purposes.

The mine was formerly leased to and operated by Chinese, who made good pay, but in 1910 it was sold to the state. The present company was organized and it was reopened in July, 1914. A deposit of gravel extending the full length of the claim was overlooked by the Chinese. About 1000′ of the channel has been worked, producing in the neighborhood of $1,000,000.

Development work consists of a number of long crosscut tunnels and drifts, the present crosscut working tunnel being 1800′ in length to where it cuts and bottoms the channel. This tunnel intersects the channel near the western end of the property, so that the gravel is extracted by working upgrade on the stream, thereby draining itself. A number of long drifts have been extended into the channel from the main working tunnel and an immense quantity of gravel has been opened up. The upper tunnel, designed to ventilate the mine, is 1200′ long. It will have to be continued 180′ in order to connect with the east drift, thereby giving the required ventilation to the whole mine.

The channel system passing through the Gold Star is part of the Blue Lead of the Neocene period, and is known as the Narry Red, Young America, or Gold Star, and Cortoma and Slattery channel, from the names of nearby mines. The trend is southeasterly, southerly and southwesterly. The channel is from 150′ to 200′ in width and from 4′ to 10′ in depth, and is capped with a large deposit of

volcanic lava. Portions of the gravel are uncemented and free-washing, while other portions are cemented. Samples show from $3 to $7 per ton. This channel has been worked in the Young America and Cortoma properties when it ran from $5 to $10 per car. To the west, in the Omega and Slattery properties the values proved equally as good. At present there is a breast of gravel 250′ in length across the drift, and from 4′ to 10′ in depth. This can be worked as soon as the drift is put in proper working condition. There is a reserve of about 4000′ of channel in this ground.

A number of quartz veins having the general characteristics of veins in the Alleghany District are found on the property, in a broad belt or finger of serpentine which runs northwesterly and southeasterly through its center. East of the serpentine is amphibolite, to the west is slate, and the Oriental vein is on the amphibolite-serpentine contact. The Oriental mine has produced $3,000,000, one bunch of ore containing $740,000. That portion of the Oriental veins which is in the Gold Star ground should be developed, as there are indications that it would probably be a large producer. On the slate and serpentine contact is a continuation of the vein found on the Kate Hardy property to the north. This property has produced large amounts of specimen ore.

The mine is equipped with several trains of gravel cars, blacksmith shop, complete set of tools, and outbuildings. There are a number of long flumes for washing the gravel, but these are out of repair.

Water can be obtained free the year round from a ravine situated about 2000′ west of the mouth of the working tunnel. It will be necessary to construct a 4″ pipe line from the mouth of the tunnel to the ravine in order to give ample water for all requirements. Mining is done principally with pick and shovel, powder being used only occasionally to loosen the ground. The channels are overlain by a cemented sand which makes a splendid roof, requiring but little timbering and the cost of mining the gravel should not exceed $1 per ton. One miner can produce from 4 to 6 cars of gravel per shift and is paid at the rate of $3 for 8 hours work.

The Kate Hardy property adjoins on the north, the Oriental on the southeast, the Young America on the east, the Cortoma on the northeast and the Omega and Slattery properties on the west.

Greenwood Mining and Development Company. Owners, same, Port Wine.

Location: Port Wine Mining District, at Cedar Grove near St. Louis, thence 33 miles northerly by road to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Hal Taber Mine. (Taber.) Owners, W. H. Spencer, Hal P. Taber, Downieville.

Location: Gibsonville Mining District, Sec. 25, T. 22 N., R. 9 E., in Gibsonville, thence 26 miles, by road, north to Quincy. Elevation 5340'.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 273; XIII, p. 384. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

This property consists of the following claims: Hal Taber, P. Pillsbury (same as Pennsylvania) and Plumas. They are situated on the flat ridge between Slate Creek and South Fork Feather River and cover a length along the channel of 3500'. There is a good stand of big timber on the property.

The gravel is free blue quartz lying on amphibolite schist and capped with andesite. The channel courses southwest.

It is developed by a 3828' tunnel which includes a 297' incline north with a vertical drop of 90'. For 1400' the tunnel goes through lava, gravel and pipe clay, then through hard bedrock for 1500', and soft bedrock for 500'. The incline is in pipe clay and gravel. A good deal of water was encountered. A 370' air shaft, meeting the tunnel at 2200', cut through 180' of lava, 10' of gravel and 180' of bedrock.

The mine is equipped with a 20-h.p. generator, 30-h.p. steam engine, Pelton water wheel, 20-h.p. engine, several small dynamos and centrifugal pumps, 6 cars, blacksmith shop, tools, and engine house.

Hanley and Company. (Gold Star.) Owners, Mrs. Hanley and son, Alleghany.

Location: Alleghany Mining District, 1 mile southwest of Alleghany, thence 31 miles southwesterly, by road, to Nevada City.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 267; XIII, p. 378. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

Herkimer and Bunker Hill Group. Owners, A. Hough, Table Rock; C. Keiler, Downieville; P. Carmichael, Table Rock. Bunker Hill bonded to Blue Channel Mining Company.

Location: Poker Flat Mining District, Sec. 23, T. 21 N., R. 10 E., 2 miles southeast of Poker Flat, thence 33 miles north, by road, to Quincy. Elevation 6500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Herkimer property consists of two claims, the Herkimer and the Enchantress, a total of 280 acres; the Bunker Hill also contains two claims, the Bunker Hill and the Evening Star, a total of 320 acres. Together they cover a total length along the channel of 6000'. There is good timber on the Herkimer property but very little on the Bunker Hill.

The deposit is old channel gravel on slate bedrock capped with andesite. Where worked in the Bunker Hill claim it had a maximum width of 50', an average of 30' and a depth of from 4' to 6'.

In the Bunker Hill property the channel has been worked to within 100' of the east line. Mining is going on at present on this claim. A

tunnel 1600′ long, bearing N. 30° E., was being run from the south side of the ridge to reach the channel beyond the point worked, and has 150′ to go. It starts on the Herkimer claim in lava and continues for 600′, then passes through slate for 500′, and the balance is in hard lava.

Hilo. (See under Hydraulic Mines.)

Homestake Claim. Owner, H. Forbes, Gibsonville.

Location: Gibsonville Mining District, Sec. 21, T. 22 N., R. 10 E., 2 miles east of Gibsonville, thence 26 miles northerly, by road, to Quincy. Elevation 5900′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Hustler Claim. Owner, C. A. Reid, Bangor, California.

Location: Port Wine Mining District. Port Wine is 37 miles, by road, south of Quincy.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73. U. S. Geol. Survey Folio 37, Downieville.

Iowa Mine. Owners, A. Harris, La Porte; Dixon Brattan, 775 Twelfth street, Oakland. Leased (1914) to Mason and C. S. Whitehouse, 476 Sixtieth street, Oakland.

Location: Port Wine Mining District, Sec. 9, T. 20 N., R. 9 E., 3 miles southwest of Port Wine, thence 34 miles northeast, by road, to Quincy. Elevation 5000′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 602, 1896. U. S. Geol. Survey Folio 37, Downieville.

The Iowa property embraces 400 acres patented, including the Iowa, Manhattan, Centennial, and Iowa Tailings mine. Besides this, Harris owns the Black Bear location (139.14 acres), Quartz Hill, patented (39.98 acres), and Canada (Empire) location (300 acres, mostly worked out to Port Wine). The property is situated on the flat south of Lone Tree and Bald Mountain and contains good timber.

The deposit is an old Neocene channel coursing north on schist bedrock and capped with andesite.

It was located in the early '70's. Bought by Harris and others in 1876 and worked by them until 1879. The property is credited with a total output of $85,000.

The channel is developed by a shaft 300′ deep, a 600′ incline and a drift 400′ to the north, also a 6000′ drain tunnel. The shaft is sunk 100′ through lava. In the 400′ drift to the north, in the last workings, a rim is said to be dipping steeply to the northwest and it is claimed that the channel lies west of the workings and that all the workings are in a breakover from the main channel. A 3000′ tunnel is to be driven from the ravine on Cañon Creek.

There are no records of the amount of gravel worked, but it is said that it averaged $1.75 to $2 per car, and that one man could take out 10 cars per day.

Adjoining properties are the Canada Hill, mostly piped off, and the Quartz Hill and Black Bear, which were never worked; these latter properties are lava capped and must be drifted.

Kanaka Mine. Owners, Mark N. and Emeline H. Alling, Downieville; Ross L. and Ella M. Taylor, Paul St. Darrah, Fred Kuhfeld, G. W. Voelzel.

Location: Forest Mining District, Sec. 1, T. 18 N., Sec. 36, T. 19 N., R. 9 E., and Sec. 31, T. 19 N., Sec. 6, T. 18 N., R. 10 E., 4 miles, by road, southwest of Forest City, about 35 miles in a southwesterly direction, by road to Nevada City (N. C. N. G. R. R.). Elevation 4050'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Kanaka drift mine consists of the Kanaka Nos. 1 and 2, which cover the 'Kanaka Blue Lead' channel for about 4000', and the Kanaka Nos. 4 and 5, which cover about 4000' of the 'Kanaka White Lead' channel, a south extension of the 'Mount House drift mine' channel. Claim No. 5 embraces a portion of the old Unmedico claims. There is a total area of about 600 acres of unpatented ground. Claims Nos. 1 and 2 include 'Long Point,' a lava-capped ridge extending in a southerly direction. Nos. 4 and 5 extend south across a lava-capped ridge covered with thick manzanita brush on top and yellow pine, spruce, fir, cedar and oak timber on the sides.

Tunnel work was prosecuted in a small way by Dr. Fraser of San Jose from 1900 to 1911 on the old Unmedico claims with the aim of tapping the 'White Lead.' The claims were abandoned on his death and relocated in 1912 by the present owners. The property was being developed by Arthur Fritsche of Berkeley, who had the mine under lease and option to purchase in 1915. Operations began October 7, 1914, and a small crew of men were to be employed during the winter.

The 'White Lead' is a channel from 200' to 400' in width, filled with white quartz gravel from 3' to 10' in thickness. A thick layer of pipe clay lies over this with andesitic lava tuffs, mud and breccia on top, capped in turn with basaltic lava cemented mud. This channel courses south. The 'Kanaka Blue Lead' lies at such a level and courses in such a direction that it is thought to have been a tributary to the 'White Lead.' The gravel is fairly coarse but not big and the gold is free. Soft Calaveras schists and slates form the bedrock of the channel, which follows along close to the east contact of the west belt of serpentine in the Calaveras rocks.

A lower tunnel (No. 1) 500' in length, extends in a northeasterly direction from the west branch of Blue Ravine. It begins in serpentine and strikes slate at the face. Two raises disclosed pay gravel, but not in place, and the channel proper is thought to lie about 600' further in the hill in the Calaveras formation. This tunnel is about 80' lower than the channel proper, and another tunnel was

started about 40′ higher and 100′ southerly and run almost parallel for 430′. Nothing but serpentine was found as it did not extend to the contact. Prospect shafts are now being sunk on the surface preparatory to running a bedrock tunnel to the main channel. The gravels are to be treated in revolving trommels before running through sluices, owing to gold being carried away on the unwashed rocks.

In 1914 there was only prospecting equipment on the ground. Water is obtained from Blue Ravine and local springs. The Yuba Hydroelectric Company's power line crosses the property near its center.

Klondike Mine. W. W. Turner, manager.

Location: Downieville Mining District, Sec. 3, T. 19 N., R. 12 E. Downieville is 44 miles by road, northeasterly from Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Operations were resumed on this property in August, 1915. Development consists of two shafts and drifts, but it was decided to drive a crosscut tunnel to tap the channel at depth. Snowsheds erected early in the winter of 1915–1916 permitted continuous work, and the drift had been run 240′ by March. It will be extended 100′ further to tap the channel. Eight men were employed and more were to be added with the opening of spring. The nearby Alleghany mine is to be operated by the same interests.

Last Chance Claim. Owners, W. B. and D. E. Ownes, Goodyear Bar.

Location: Forest Mining District, Sec. 9, T. 19 N., R. 10 E., 5 miles southwest of Downieville, thence 44 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Last Chance Prospect. Owners, T. Donohue, St. Louis; J. F. Cowdery.

Location: Poker Flat Mining District, Sec. 32, T. 22 N., and Sec. 5, T. 21 N., R. 10 E., within 1 mile of Table Rock; 30 miles, by road, south of Quincy. Elevation 5600′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Little Grizzly Claim. Owner, Chas. Kelles, Downieville.

Location: Poker Flat Mining District, Sec. 23, T. 21 N., R. 10 E., 3 miles south of Poker Flat, thence 32 miles northerly to Quincy, by road. Elevation 6200′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Lost River Mine. (Rocky Peak, Monterey, Bunker Hill.) Owners, Mark N. and Emeline A. Alling, Downieville; Geo. F. Taylor, W. I. and Lena A. Redding, Lillian B. Shindberg, Gustave W. Voelzel, Chas. Allenberg.

Location: Brandy City Mining District, Sec. 4, T. 19 N., and Secs. 28 and 33, T. 20 N., R. 9 E., about 4 miles northeast of Brandy City. Nevada City (N. C. N. G. R. R.) about 40 miles, by road southerly. Elevation (at lower end of property) 4015′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 101. U. S. Geol. Survey Folio 43, Bidwell Bar. Cal. State Min. Bur. Rpts. XII, p. 271; XIII, p. 382.

The Lost River mine consists of the following claims: the Lost River Nos. 1, 2, 3, 4, and the Tailings claim, a total of 700 acres, covering about two miles of channel. It is situated on lava-capped tableland, heavily timbered on the slopes and covered with dense manzanita. The Bunker Hill contains 640 acres, covering a length along the channel of two miles, making a total of four miles.

The property was discovered about 1880 and James Arnott, Sr., organized a company known as the Rocky Peak Mining Company, and two main tunnels were run. Owing to exhaustion of funds, the company ceased operations about 1895, finally abandoning the property about nine years later. In 1904 it was relocated, but after failing to organize a development company it was again abandoned. In 1911 the property was again located by Mark N. Alling and others, and in 1913 Norton E. Wilcox of Berkeley and Paul W. Smith of Downieville took the property under lease and option to purchase. During the summer of 1914 they put down ten drill holes locating the channel. Two shifts of two men each and three men cutting wood were employed. The Bunker Hill was discovered in 1875. Five men were at work in 1914 running a 325′ tunnel, 6′ by 5′ in the clear.

The Rocky Peak Mining Company ran a tunnel in a northwesterly course for 700′ or 800′, and some pay gravel was found a short distance from the mouth on what was thought to be a bench. The tunnel, which started in slate bedrock, soon ran into lava, filling the trough of an ancient river. At the face a shaft was sunk 90′ in lava, but a heavy flow of water forced the abandonment of this attempt. The company then moved down to Monterey Ravine and ran a tunnel under a big surface slide. This Monterey tunnel is from 700′ to 800′ in length, begins in slate bedrock and runs N. 70° W. (magnetic) into hard fine sand and granular 'pipe clay.' No channel in place was found. Wilcox and Smith have recently used a No. 3 Keystone churn drill, and located both rims and the approximate position of the deepest portion of the channel. The average depth of the holes is 155′. Gravel was found in six of them, there being as much as 10′ in some. Pay gravel was struck in the tenth hole, about 600′ west of the NW. ¼ of Sec. 4. The gold is small and well rounded. A tunnel to develop and drain the mine was to be started in the spring of 1915.

The channel appears to be of good size, ranging in width from 200′ to 400′, with gravel composed of quartz and quartzite rocks, but no lava pebbles. It is free and contains medium sized boulders on the bedrock of hard, siliceous black slate. Several feet of granular pipe clay immediately overlies the gravel, above which comes andesites and basalt. The channel courses about due south, or a little to the

west of south, and this channel is thought to be a southern extension of some of those worked in the Port Wine Ridge.

About three miner's inches of water was developed by the old Monterey tunnel.

Lucky Dog Mine. Owners, Frank and Wm. Davies, Forest; Thos. Fitzgerald, J. B. Moulton, E. R. Jones.

Location: Forest Mining District, Sec. 29, T. 19 N., R. 10 E., 1½ miles west of Forest City, 1½ miles south of Mountain House, thence 35 miles to Nevada City (N. C. N. G. R. R.). Elevation 4500′.

Bibliography: Cal. State Min. Bur. Rpts. XII, p. 268; XIII, p. 373. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Lucky Dog property consists of one claim, with an area of 150 acres covering a length along the channel of 400′. It is a relocated claim and assessment work only has been done in the last ten years.

The deposit consists of old channel gravels, mostly lava, but with some quartz, lying on porphyry bedrock and capped with lava. The channel courses north and the pay gravel has a depth of 4′.

The ground has been developed by a tunnel through hard rock and 1300′ in the channel. Some water was encountered.

There is a cabin on the property.

Mabel Mertz Mine. Owners, Forest City Mining Company, Downieville; W. J. Redding, Downieville, president; H. B. McCormick, Downieville, secretary.

Location: American Hill Mining District, Secs. 29 and 30, T. 19 N., R. 11 E., 5 miles east of Alleghany, thence 31 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 4800′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 142-143. U. S. Geol. Survey Folio 66, Colfax.

The Mabel Mertz property consists of five locations, a total of 495 acres, covering a length of 6000′. It is situated on a lava-capped ridge near the headwaters of Kanaka Creek, and has a good stand of timber.

The property was located July 7, 1895, by the present company and has been worked at intervals for the last 16 years, producing to date about $2000. It was shut down in May, 1914, but was to be worked by two men during the winter.

There is a total of about 8000′ of tunnels, drifts and raises. The lower is 2700′ long; the upper tunnel, 92′ above, is 800′ long. The tunnels are driven through shale and porphyry, most of the work having been done in the fault zone in the northern part of the channel.

The gravels are the same as those in the Emigrant channel of the Nebraska mine. They course south on a bedrock of slate and are capped with andesite.

The northern part is said by Alling to have been raised 105′ with a throw to the west of 250′.

Considerable water encountered.

Equipment consists of a blacksmith shop and a boarding house. The adjoining Buckeye, to the south, and the Nebraska, were worked out 30 or 40 years ago.

Mammoth Springs Mine. Owners, J. W. MacGuire, Alleghany; F. C. Davis, 2506 Folsom street, San Francisco.

Location: Forest Mining District, Secs. 23 and 26, T. 19 N., R. 10 E., 2 miles east of Forest City, thence 39 miles, southwest to Nevada City (N. C. N. G. R. R.). Elevation 5500′.

Bibliography: Cal. State Min. Bur. Rpts. XII, p. 268; XIII, p. 373. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of a total of 510 acres, which cover a length of one mile along two channels. The surface is steep and rugged, and estimated to carry a stand of about 300,000′ of pine and cedar. Three men were working in 1914 driving a tunnel.

A blacksmith shop and cars make up the equipment.

The deposit is made up of old channel gravels, mostly red, on a bedrock of slate. The gravel is 30′ deep, and the capping of andesite averages 50′ in width and 4′ in depth.

The west channel was struck by a 1600′ tunnel and shaft. Water was encountered. A tunnel which will have to be 1500′ long, was being run 100′ lower. An area 50′ by 1500′ has been worked.

Manchester Mine. (Boston Mine.) Owner, Edward Petny, Gibsonville.

Location: Poker Flat Mining District, Sec. 21, T. 22 N., R. 10 E., 12 miles, by road, south of Gibsonville, thence 26 miles north, by road, to Quincy. Elevation 6100′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

This property consists of one claim, the Manchester, with an area of 19 acres covering 600′ of channel. Price worked the property in early days, and it was relocated by the present owners in May, 1913.

The deposit is part Whiskey Creek wash and part old channel gravels, on a bedrock of soft slate. The tunnel, which will be 800′ in length, had been started in 1914.

The water right on Pilot Flat ditch is owned, and a house and blacksmith shop are on the property.

Henry Skinner owns two claims above and east of the Manchester. Other adjoining properties are the Corbett and Ne Plus Ultra, and 120 acres owned by Hicks Forbes. Assessment work only is being done on these properties.

Midas Claim. Owner, C. W. Cox, Table Rock.

Location: Poker Flat Mining District, Sec. 5, T. 21 N., R. 10 E., ½ mile west of Table Rock, thence 30 miles, by road, northerly to Quincy. Elevation 5000′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Miner's Home Mine. (Union, Hibernia, Shirley.) Owners, Thos. Corker et al., Table Rock. Bonded to Howland Flat Mines Company,

79 Mills Building, San Francisco; Edwin L. Oliver, San Francisco, president; Scott Hendricks, Mills Building, San Francisco, secretary.

Location: Poker Flat Mining District, Sec. 5, T. 21 N., R. 10 E., within 1 mile of Table Rock; 75 miles northwest of Marysville, daily stage; 65 miles east of Oroville by stage road; 30 miles south of Quincy, but road is generally impassable in winter. All supplies have to be hauled in during the summer months.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Miner's Home mine comprises five claims and a tailings claim, namely, the Kewana, North Kewana, Union, Hibernia, Shirley, and Creek tailings claim, a total of 155 acres, covering a length along the channels of from 3000′ to 4000′. It is situated on the rolling ground at the base of Table Rock.

The lower channel was worked out by the Union and Hawkeye companies during the early days by drifting. It is said to have averaged 60¢ per square foot of bedrock. In the Hawkeye 66,506 square feet of bedrock yielded a gross return of $77,000, or $1.16 per square foot. When work stopped, gravel was running $7.75 per 18 cubic foot car. This region has produced in the neighborhood of $14,000,000.

The main tunnel, 6′ by 6′ in cross section, is 3170′ long. It is called the Talk tunnel and is driven on the north rim 1800′ (40′ below the old Hawkeye tunnel), then a raise of 12′ and the tunnel continues 750′ in old gravel and clay, then a raise of 33′ into the north rim of the upper channel, in which it continues 500′ farther east. A few laterals have been driven into the gravel, but very little breasting has been done. A drift across the channel would be advisable to see whether the pay gravel and clay will be found across the whole width as developed in the lower channel.

The deposit is an intervolcanic channel lying on rhyolite tuff, etc. The channel courses southwest with a big swing to the south between the Hawkeye and the end of the property. The gold is found in a so-called blue clay which is evidently a fine ash containing large boulders of white quartz, well rounded and waterworn, together with fine wash gravel, and it is said to be coarser than that which was taken out of the lower channel, ranging in size from fine to pieces as large as a dime. It appears that the old channel was first covered by the rhyolitic deposit and later, at the time of the deposition of the blue ash, there was a break above and the gold and old channel gravel was washed down onto the rhyolitic bedrock. The blue clay disintegrates in the water. In the upper channel there is said to be 6000 square feet of bedrock blocked out which will average $1.06 per square foot and 230,000 square feet practically proven. The width of the channel is reported to have been 500′ and the upper channel was worked to a considerable width in the Hawkeye claim by Overstreet

at a large profit. The lower gravel is stated to have been 5′ to 10′ in thickness, above which was the rhyolitic tuff, then came 1′ to 2′ of pay gravel mixed with 'blue clay' and from 25′ to 109′ of fine wash gravel capped by andesite.

Equipment consists of a washhouse, blacksmith shop, 10 cars (18 cubic foot) and all tools for 20 men. Water through a 10″ pipe under 60′ head is purchased from the Water Company at $250 per year. Labor costs $3.25 to $4 per day. Freight from Marysville to mine is 1½¢ per lb. There is no timber on the property and lagging, delivered costs $6 per M.

At the Hawkeye mine, adjoining, considerable gravel was worked during the summer of 1915 with good results. Snowsheds were built so work can be continued throughout winter.

Monte Carlo Mine. Owners, Lavezzola, Dondero and Poggi, Downieville.

Location: Downieville Mining District. Situated in Clarks Cañon. Sec. 27, T. 21 N., R. 10 E. It is 44 miles southwest by road, from Downieville to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The Monte Carlo mine was being operated in the summer of 1915, yielding nuggets worth $3 to $4 each. The pay continues to increase as the main tunnel is driven in a northeasterly direction. August 18, 1917, the cleanup for work of three men since July 1, amounted to $1400.

Morristown and Angora Group. Owner, A. Harris, La Porte.

Location: Port Wine Mining District, Sec. 24, T. 21 N., R. 9 E., and Sec. 30, T. 21 N., R. 10 E., 4 miles by road east of Port Wine, thence 34 miles by road north to Quincy. Elevation 5000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 602, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property consists of the Angora Creek claim (patented) and the Morristown, 400 acres, not patented. It covers a length along the channel of 3000′.

The Morristown property was purchased by Harris in 1885, hydraulicked in 1888, and closed down in 1890.

The deposit consists of old channel gravels 75′ deep, 200′ wide and capped with andesite, coursing north. The gravel is free, contains some quartz boulders and lies on slate bedrock. There is said to be 400 acres that could be hydraulicked; $7000 was taken out in one short season with water obtained from Little Grizzly Creek. There is a 3-mile ditch which delivers 2500 inches under 125′ head for 4½ months out of the year.

Must be drifted on back channel to work.

Mott Mine. Owners, Mott and Morrison, Forest; Harlan, San Jose.

Location: Downieville Mining District, Sec. 12, T. 19 N., R. 10 E. It is 44 miles northeast by road from Nevada City (N. C. N. G. R. R.) to Downieville.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This gravel property was leased in October, 1914, to Gilbreath and Hughes of Downieville, who will repair the 1200′ tunnel and lay track preparatory to working. The channel is known as 'black lead,' the gravel being dark and well cemented to bedrock, but it has yielded well when worked.

Mott and Brady Group. Owner, C. E. Mott, Forest.

Location: Forest Mining District, Sec. 11, T. 19 N., R. 10 E., 3 miles north of Forest City, thence 39 miles by road to Nevada City. Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142.

Mountain House. Owners, W. J. Belcher, W. W. Casserly, G. W. Voelzel and Mark N. Alling, Downieville. Leased and under option to Shaw Brothers, Oakland.

Location: Forest Mining District, Secs. 18, 19, 30, T. 19 N., R. 10 E., and Sec. 25, T. 19 N., R. 9 E., 1 mile east of Mountain House, thence 35 miles southwest by road to Nevada City. Elevation 4720′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Mountain House property consists of eight claims, the Mountain Nos. 1 to 8, inclusive, discovered and located in 1911, 1912, 1913. It covers a length along the channel of 13,000′. The surface is characterized by a high lava-capped ridge covered with brush and timber, with good loam in the flats and on the northern slopes.

A discovery tunnel, about 700′ long in the gravel, is supposed to be following down stream, but no grade in the channel was found beyond the first 75′, indicating that the deposit discovered is either a bench or a flat place of unusual length. Lava, with considerable water, was encountered in this tunnel, so a tunnel 40′ lower was run 400′ and the same lava encountered again, indicating that a second and deeper channel has cut through the original or else that the main channel is lower than any of the workings. No breasting has been done except for testing purposes. The main tunnel has been run along the center of the deposit, laterals being extended to the supposed rims on either side.

The channel courses due south on Calaveras formation between serpentine bodies throughout the property. The gravel is quartz, ranging from 2′ to 6′ in thickness, nearly every pebble of which is white. It is about 200′ wide and is capped by about 22′ of pipe clay, overlaid with several hundred feet of andesite tuff, mud and breccia, covered in turn with basalt. The gravel is free and the gold assays 946 fine.

Where the channel had grade, it was prospected for a width of about 65′, an occasional pan being found yielding as much as 50¢.

Where the lava was encountered at the end of about 600′ of dead level deposit, the gravel carried very little gold. This channel is thought to be the south extension of the White Bear channel. A 9′ quartz ledge follows the contact along the west side of the Calaveras formation.

Equipment consists of 2 iron cars, 10 cubic foot capacity, 8- and 12-lb. T-rails, 7″ galvanized air pipe and blower run by gasoline engine, washing floor 16′ by 20′, dwelling houses and a blacksmith shop at the mouth of each tunnel. Water supply from local springs has been developed.

Timbers, spruce and fir, cost only $1 per set, as plenty of timber is standing on the ground. Five men were employed, wages being $2.50 per day, with board, in 1914.

At present, the gravel is washed in a small sampling wash yard and run through a short string of boxes with pole and Hungarian riffles, the tailings being dumped into a ravine.

The Kanaka drift mine adjoins.

Mountain View Claim. Owner, Wayland, Alleghany.

Location: Forest Mining District, Sec. 24, T. 19 N., R. 10 E., 3 miles east of Forest City, thence 39 miles southwest to Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 37, Downieville.

This property was relocated by Wayland in 1913. Assessment work only being done.

Mountain View Consolidated Group. Owners, Schield and Meesery, La Porte.

Location: Port Wine Mining District, Sec. 30, T. 21 N., R. 10 E., 2 miles east of Port Wine, thence 32 miles by road northerly to Quincy. Elevation 5000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Mount Vernon and Mott Tunnel Group. Owners, H. Mott, Forest; Hermon, San Jose. Bonded and leased to E. Gilbreath and H. V. Hughes.

Location: Downieville Mining District, Sec. 12, T. 19 N., R. 10 E., 2 miles south of Downieville by trail, thence 44 miles southwest to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property consists of four or five claims situated on the lava-covered ridge between Rock Creek and North Yuba River. They carry some timber.

The deposit is old channel gravel, cemented and dark colored, with some quartz boulders. The bedrock is slate and the gravel is capped with andesite.

The channel is developed by an old tunnel 1200′ long which passes through slate. Three men working in 1914, reopening this tunnel. A raise 400′ in, strikes cemented gravel. Some breasting has been done at intervals. The cemented channel is supposed to be 500′

vertically below the Ruby channel. In June, 1915, Gilbreath and associates opened a new channel of unworked gravel of very high grade.

The Ruby mine adjoins.

Mount Alta Mine. Owner, Mrs. R. M. St. Claire, 421 Fifth street, Marysville.

Location: Indian Hill Mining District, Sec. 33, T. 19 N., R. 9 E., 2 miles north of Pike City, thence 28 miles, by road, south to Nevada City.
Bibliography: Lindgren W., U. S. Geol. Survey Prof. Paper 73, p. 111. U. S. Geol. Survey Folio 37, Downieville.

Gravel of good grade is being opened at several points. Five men employed in 1915 driving main adit. A large area of virgin ground is available, and it is planned to keep the tunnel 300′ ahead of all working faces, insuring a good area of workable ground, when sufficient water for washing is obtainable.

(In 1918 it was reported that the tunnel was 4000′ long and had been driven 1600′ without seeing bedrock except by sinking. The channel was said to be swinging toward the Pleasant View property.)

Mugwump Mines Company. Owners, S. L. Bright, San Francisco; A. D. Foote, L. P. Larue, C. F. Clinch and A. H. Tickell, Grass Valley.

In February, 1916, the Gold Star and Young America lode and gravel properties were consolidated under the above name. Mine equipment has been ordered and development of the main gravel channel will be pressed at once. Later on the quartz deposits will receive attention.

New Jersey Claim. Owner, A. Eckhart, 531 Dolores street, San Francisco.

Location: Forest Mining District, Sec. 31, T. 19 N., R. 10 E., 3 miles southwest of Forest, thence 39 miles southwesterly by road to Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 37, Downieville.

Assessment work being done.

Nugget Nell Claim. Owners, J. McGregor and others, Downieville.

Location: Just north of Telegraph, Sec. 4, T. 20 N., R. 10 E.
A 1500′ tunnel has been driven on this 400-acre holding.

Occidental Claim.

Location: Forest Mining District. It is 39 miles by road, Forest to Nevada City (N. C. N. G. R. R.).

About 600′ of new tunnel had been completed at creek level in March, 1914, and promising prospects shown. (E. and M. J., March 7, 1914.)

Orient Group. Owners, Orient Gold Mining Company; John Frood, North San Juan, secretary.

Location: Indian Hill Mining District, Secs. 22, 27, 28, 33, 34, T. 19 N., R. 9 E., 2 miles southwest of Indian Hill, thence 40 miles southerly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 3800′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The property comprises mineral entry rights to lots 37, 40, 41, 42, 43 and 44, located in the sections given above.

Pacific Group. Owners, James Jones, La Porte; Will Schwering, Howland Flat.

Location: Port Wine Mining District, Sec. 18, T. 21 N., R. 10 E., 2 miles northeast of Port Wine, thence 65 miles, by road, to Marysville (S. P. R. R.); Quincy 32 miles north by road. Elevation 5000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 602, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property consists of five locations, including the Roscoe, Jenny Lind, Excelsior and Dreadnaught, covering a length along the channel of two miles. It was located by Phil Doray, but purchased by the present owners from John Littick. The property was under bond in 1914 to Henry Valhoff of Los Angeles, who was working the Clipper Ship, which adjoins. The old Neocene river channel has not yet been encountered by the tunnel being run through bedrock and gravel.

Pennsylvania Claim. Owner, L. H. Molter, Table Rock. Bonded to Phelps.

Location: Poker Flat Mining District, Sec. 2, T. 21 N., R. 10 E., 3 miles east of Table Rock, thence 30 miles northerly to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Pioneer Mine. Owner, Mrs. Elizabeth A. Rodgers, Palace Hotel, San Francisco.

Location: Port Wine Mining District, portions of Secs. 13, 14, 23 and 24, T. 21 N., R. 9 E., 1½ miles northeast of Port Wine, thence 36 miles northerly to Quincy. Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XI, p. 412; XII, p. 270; XIII, p. 381.

The Pioneer property is patented, and contains 360.26 acres. From 40 to 50 acres have been hydraulicked, 10 acres of which produced from $300,000 to $400,000. The gravel is 80′ in depth and capped by pipe clay. At the top it is fine for 60′, then coarser gravel for 20′. All carried good pay, the top gravel 2¢ to 5¢ per yard.

Pleasant View Mine. Comprises the Pleasant View No. 1 and No. 2 (formerly called the Jackson and Roman) and the Flatiron claims, covering 220 acres, with 2250′ of channel still said to be unworked. The property is on Oregon Creek three miles from Camptonville, and thirty miles from Nevada City by wagon road. It is owned by E. E. Brownell, H. N. Stetson and Julia C. Wyncoop, and is leased, with option to purchase, to O. D. Woodman of Camptonville and Nevada City.

The deposit is in a deep channel and has been worked by tunnel 200′ below the surface. In the fall of 1918 the tunnel was 1635′ long, and a total length of 900′ of channel had been mined. The bedrock is slate, the capping pipe clay, and the pay gravel is said to be 65′ wide. Five feet of gravel and 10 inches of bedrock are mined.

Woodman reports a total operating cost of $1.50 a ton. Shallow flat holes are driven by hand and are shot with one-half a stick of dynamite. Round pine and fir timber is used. Gravel is washed in a line of sluices 175′ long, but the gold is coarse and most of it is caught in the first 20′. Marion Creek furnishes enough water for ten months work. Tailings are restrained by a dam, and a new dam 10′ high was planned. The present operator began work in December, 1916. He planned to employ five men in the winter of 1918–19. Miners are paid $3 a day and board. The total production of the property to date is said to have reached $100,000.

Poker Flat Gold Gravel Mining Company. Owners, Carl Bettinger and J. B. Lassiat. Bonded to Poker Flat Gold Gravel Mining Company, 110 Market street, San Francisco; E. J. Holt, president; Geo. Gray, secretary.

Location: Poker Flat Mining District, Sec. 10, T. 21 N., R. 10 E., 4 miles south of Table Rock, thence 30 miles north by road to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

This property consists of two claims, the Lassiat and Bettinger, a total of 120 acres with a length along the deposit of 2000′. The surface is flat.

In early days it was worked as a hydraulic mine, but was relocated by the present owners in 1908. Six men were employed at $4 per day in 1914.

The channel has been developed by a 505′ vertical 2-compartment shaft, 4′ by 8′. The west rim was struck at 505′ and an incline at 45′ was run following the rim for 300′, but gravel has not been encountered as yet. The channel is an old Neocene channel coursing south, capped with lava.

Equipment consists of a 2′ Pelton wheel, hoist, buildings, blacksmith shop and tools.

Poor Boy–Bella Union Group. Bonded to F. M. Phelps.

Location: Poverty Hill Mining District, Sec. 32, T. 20 N., R. 9 E., 4 miles by road and trail south of Port Wine, thence 34 miles north by road to Quincy. Elevation 4825′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 105, 108. U. S. Geol. Survey Folio 37, Downieville.

F. M. Phelps and associates started prospecting on the Poor Boy-Bella Union group with a Keystone drill in October, 1915. Following the location of the channel and determination of its width and depth, a long main tunnel will be driven to develop the holdings. Preliminary surveys indicate it will be necessary to extend the tunnel 2500′. From this point raises will be put up to open the channel to the best advantage. The owners hoped to locate the channel before snow flies, and to prosecute underground work during the winter months.

Pyro Group. Owners, Hunter Gold Mining Company.

Location: Poker Flat Mining District, Secs. 3 and 4, T. 21 N., R. 10 E., 2 miles east of Table Rock, thence 30 miles northerly by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Pyro and other claims, all patented, having a total area of 650 acres, comprise this property.

Rattlesnake Mine. Owner, Dillos, Downieville.

Location: Downieville Mining District. Downieville is 44 miles northeast of Nevada City (N. C. N. G. R. R.) by road.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

It was reported that gravel yielding $4 per car was being worked by Deal and Dillos during November, 1915. A recovery of 9 ounces of gold in 7 days was made by two men in December. The gold is becoming smoother and coarser as work progresses.

Riley Claim. Sold to state, 1914.

Location: Port Wine Mining District. Port Wine is 7 miles, by road, south of Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Ruby Mine. Owner, E. L. Case, Downieville. Bonded to W. F. Copeland, Alameda, and Mark N. Alling, Downieville.

Location: Forest Mining District, Secs. 10, 11, 14 and 15, T. 19 N., R. 10 E., 2 miles north of Forest City and about 40 miles northwest, by road, from Nevada City (N. C. N. G. R. R.). Elevation 4500'.
Bibliography: Cal. State Min. Bur. Rpts. XI, p. 406; XII, p. 271; XIII, p. 382. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Ruby property consists of the patented Guatemala and Guatemala Extension claims, 440 acres, and the Garnet placer (20 acres), and Rock Creek tailings locations, covering in all about 3000′ of the creek.

In 1856 an ancient channel was discovered by a shaft sunk on the bank of Rock Creek at the north end of the Ruby claims, and the gravel was worked for years. The property was purchased in 1871 by the Ruby Gold Gravel Mining Company, and in 1880 the 2200′ double compartment bedrock tunnel was started. Two years later the main Ruby channel was struck and the mine was then opened up on a large scale and profitably worked for 11 years, during which time portions of two distinct channels were mined. The Ruby channel, a quartz channel varying in width of pay gravel from 200′ to 600′, was lost about the center of the property and about 2000′ of this channel still remains intact within the limits of the Ruby claims. An intervolcanic channel was worked to the south boundary line of the property about 1000′ in 1894. Since 1896 the mine has been leased and bonded to two different parties who did some work searching for the lost Ruby channel, without success. It is now bonded to Copeland and Alling, who work this property in connection with the Bald Mountain and Bald Mountain Extension properties, and are endeavoring to reopen them as one mine.

Pay gravel in the Ruby channel averaged $3 per ton car, although much richer gravel was frequently found. That in the intervolcanic channel averaged $2.50 per ton car. The gold was mostly coarse and easily saved, although the gravel from the intervolcanic channel was somewhat cemented and the tailings ran high. Nuggets ranging from 1 to 45 ounces were common, and one was found which weighed 201.56 ounces, this being in the intervolcanic channel and along the contact of serpentine and Calaveras bedrocks where most of the coarse gold occurred. This so-called 'Line of Coarse Gold' extended in a north and south direction and was especially noticeable for about 800'. Quartz ledges rich in gold have been found in the Ruby, and one, although only a small ledge, has been considerably developed. The general course of the three Ruby channels is southerly although they have wound about and across each other.

The water-right in Rock and Little Rock creeks is owned and the mine itself discharges from 3 to 4 miner's inches. As the Yuba Hydroelectric Company has recently installed a power line to Forest City, it is the plan of the operators to install electric power for haulage and revolving trommels to disintegrate and thoroughly wash the gravel before dumping it into the creek, to be worked over later as heretofore.

Russell Hill Claim. Owner, W. S. Russell, Camptonville. (See U. S. Geol. Survey Folio.)

Location: On Depot Hill, 5 miles north of Camptonville.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 272; XIII, p. 382.

Scott Mine. (Manxman and Bluebell.) Owners, Jas. Scott and Brothers, P. L. Carmichael and J. C. Poor, Table Rock.

Location: Poker Flat Mining District, Secs. 2 and 3, T. 21 N., R. 10 E., 2 miles to Poker Flat by trail, Table Rock 6 miles west by trail; thence 30 miles north by road to Quincy. Elevation 5500' to 6000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Scott property consists of the Bluebell (80 acres), Commonwealth (160 acres) and the Manxman (160 acres), all locations. It is situated on the lava-covered ridge at the head of Tennessee Gulch and carries a good stand of timber. Although Tennessee Gulch was worked in early days, Corlett took $45,000 out of one-half acre during the year 1900.

This deposit is made up of old channel gravels, coursing N. 52° W. The gravel, with quartz boulders, is 12' deep, covered by 80' of pipe clay, and lies on bedrock composed of blue slate and quartzite. Water was encountered in too large a quantity to pump, the mine flowing 100 inches.

Development work on the Scott consists of a tunnel through 100' of slate, 60' through vein into pipe clay and 200' in intervolcanic gravel carrying some gold. A winze sunk 80' through pipe clay

from end of drift struck quartz gravel and boulders. Water and sand prevented reaching bedrock. A new tunnel is being started on a line between the Bluebell and Manxman. It is in 130′ in blue slate, and will strike the bottom of the old shaft at 1400′.

There is a blacksmith shop on the property, and electric power from Cañon Creek is available.

Adjoining mines are the Carlton, Bruckerman and Coal Cañon.

Sierra Geneva Mine. Owners, M. W. Davis and seven associates.

Location Forest Mining District, Secs. 31 and 32, T. 19 N., R. 10 E., 3 miles west of Alleghany, which is 31 miles northwest by road from Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Sierra Geneva property, covering 270 acres and nearly a mile of channel, promises to become one of the most important drift mining enterprises of the district. Much fine gold was panned here by old-timers, but the main deposit was overlooked owing to heavy timber and surface soil, until exposed a few years ago by a shaft in the Kate Hardy quartz mine on the east. The channel crosses the big Kate Hardy ledge from which rich surface pockets of gold undoubtedly fed the gravel, and is entirely below a serpentine dike.

Bedrock is slate. An inclined shaft is being sunk to the bottom of the channel on the northern rim to get into the dish of channel and work upstream. The old, rich New Jersey claims adjoin on the west.

Smith and Brundage Group. Owner, Rose Conlan, St. Louis, Sierra County.

Location: Port Wine Mining District; Port Wine is 37 miles south, by road, from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

South Fork Gold Mining Company. Owner, South Rio Antigua Mining Company, Los Angeles; A. E. Pomeroy, 701 Grant Building, Los Angeles, president; L. S. Field, Los Angeles, secretary; James H. Haine, 337 Douglas Building, Los Angeles, treasurer.

Location: Forest Mining District, Sec. 28, T. 19 N., R. 10 E., situated within the town of Forest, 39 miles by road northeast of Nevada City (N. C. N. G. R. R.). Elevation 5500′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 272; XIII, p. 383. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of one claim, the South Fork, 800 acres in extent. There is some second growth timber on the property.

It was discovered in 1873, and in early days the old Blue Lead was worked through the property. The present company leased the property in 1903 and purchased it in 1910. Ten men were working in 1913; three men were doing assessment work in 1914. It was bonded in December, 1915, to Thos. Wilson of Manhattan, Nevada, representing a Nevada company, who planned to soon begin active work.

The channel is developed by a 5500′ tunnel starting from Oregon Creek, below Forest. It runs southeast for about 700′, all timbered, then runs 1800′ N. 73° 28′ E., where a raise of 16′ struck gravel; then 1100′ in gravel and islands of bedrock, then east for 600′ and finally 1200′ to the side line of the claim. The tunnel cuts a flat deposit of gravel 1100′ in width carrying free gold. Numerous raises have been driven. It is probably a second period channel containing quartz and fine gravel. The course is north and south and it is capped with lava.

Equipment consists of one Temple-Ingersoll air electric drill, compressor, blower, blacksmith shop and timber shop. Electricity is used for power and lighting. Adjoining mines are the North Fork and the Red Star.

St. Charles Hill Group. Owner, Frank R. Wehe, Monadnock Building, San Francisco.

Location: Poverty Hill Mining District, Secs. 25 and 36, T. 20 N., R. 9 E., 5 miles west of Downieville, thence 44 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part 1, p. 600. U. S. Geol. Survey Folio 37, Downieville.

This property comprises the following claims: St. Charles Hill No. 1, No. 2 and No. 3, 298.53 acres in all, and the Cleveland lode, 18.63 acres.

Steamboat Mine. (Snowden.) Owners, Alleghany Mining Company; Evan R. Jones, Forest; W. W. Tairer, San Jose; Carl E. Thompson, Oakland; T. B. DeLauney.

Location: Alleghany Mining District, Sec. 2, T. 18 N., R. 10 E., 1 mile southeast of Alleghany, thence 31 miles, by road, to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 272; XIII, p. 383.

The Steamboat property is composed of two claims, the Snowden and St. Elmo, an area of 40 acres. It is situated on the lava-covered ridge on the east side of Kanaka Creek, and contains timber.

A vein 4′ in width is developed by a 40′ tunnel, which gives 40′ of backs. At 450′ in, the vein lies 4′ below where rich gold was found in gravels.

Suffolk Claim. Owner, A. Cuthill, San Francisco.

Location: Port Wine Mining District, Sec. 24, T. 21 N., R. 9 E., 1 mile northeast of Port Wine, thence 36 miles, by road, northerly to Quincy. Elevation 5520′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

This property was apparently abandoned in 1914. It was last worked a few years previous by Wm. Brady of San Francisco.

Telegraph Mining Company. (See under Lode Mines.)

Thistle Shaft Claim. W. C. Wingate, Gibsonville, manager.

Location: Gibsonville Mining District, Sec. 25 or 36, T. 22 N., R. 9 E., 2 miles southwest of Gibsonville, thence 26 miles northerly, by road, to Quincy. Elevation 6000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106, 107. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XI, pp. 330 and 419; XII, p. 265; XIII, p. 376.

True Grit. Owners, Meek Mercantile Company, and Mrs. Hathaway, Oroville. Bonded to J. C. Donnelly, Goodyears Bar.

Location: West bank of Oregon Creek, 8 miles from Camptonville and 30 miles by road from Nevada City.

This is an old drift mining property which has been idle for years. Lately there has been some talk of working the property by hydraulic mining, but this talk had not crystallized into actual work late in 1918.

True Grit and Eureka Consolidated Group. Owners, W. B. Meek, and Mrs. Hathaway, Camptonville. Bonded to J. C. Donnelly, Goodyear's Bar.

Location: Eight miles from Camptonville, in Indian Hill Mining District, Secs. 26 and 35, T. 19 N., R. 9 E., about 30 miles, by road, north of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Uncle Sam Placer Mine. (North Fork.) Owners, John S. Binning, Alleghany; H. J. Gould, O. T. Owens, Forest. Bonded to Wisconsin North Fork Gravel Mines, 116 Natoma street, San Francisco; G. E. Clark, president; D. E. Hayden, secretary.

Location: Forest Mining District, Secs. 15, 16, 21 and 22, T. 19 N., R. 10 E., 2½ miles north of Alleghany, thence 31 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 4600'.
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 380. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Uncle Sam property consists of the Uncle Sam gravel claim and the Uncle Sam Extension placer claim, unpatented. It covers a length along the channel of 6000', the surface being rough and hilly. There is good timber on the property on the north side of Ridge road. It was discovered and first worked in 1850, closed in 1853, reopened in 1869, closed in 1870, reopened in 1896 and closed in 1898. Swelling bedrock was the reason for closing each time. It has again been reopened, and after cutting through 1600' of old workings, the pay streak was found in September, 1914. Fourteen-inch timbers which have to be constantly repaired, are used to hold the swelling ground, the average cost per running foot amounting to $8 for a tunnel (9'x5')x8'.

The gravel is chiefly white quartz pebbles with some boulders, on soft bedrock of chloritic schist, talc and serpentine. The gravel is capped by rhyolitic tuff which is in turn capped by basalt. The channel courses southwest with pay gravel from 40' to 150' in width and 6" to 4' in depth.

Rich gravel was uncovered in April, 1915, the strike appearing to be the most important made in the district in years. The pay streak averaged 35′ wide, with the product yielding about $5 per car. Considerable coarse gold and many small nuggets have been extracted. The gravel is a portion of the White Bear channel, and is being operated through the same shaft as the North Fork mine.

Power is purchased from the Middle Yuba Hydroelectric Company at a rate of 1½¢ per kilowatt hour. Fourteen-inch round timbers are used, costing $3 per set. Ten men were employed in 1915 at a rate of $3.25 per 8 hours. The run averages 4 cars (2500 lbs. each) per day per man.

Union Group. Owner, Jane Tomb.

Location: Port Wine Mining District, Sec. 25, T. 21 N., R. 9 E., 1 mile east of Port Wine, thence 37 miles northerly by road to Quincy. Elevation 4750′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Two claims comprise this property, the Union No. 1 and No. 2. It is developed by a 30′ shaft and 600′ of drifts in the auriferous gravels.

Union Consolidated Mine. (Happy Hollow.) Owner, Timothy Judge, Gibsonville.

Location: Gibsonville Mining District, Sec. 29, T. 22 N., R. 10 E., 1 mile northeast of Gibsonville, thence 26 miles northerly, by road, to Quincy. Elevation 5600′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XII, p. 274; XIII, p. 384.

The Union Consolidated comprises the Union, Manzanita and Western claims.

The channel varies in width from 100′ to 250′, averaging 200′. It has been developed by 2000′ of tunnel, 1200′ of which paid $500 per foot of channel, giving a total production of $600,000.

Van Slyke Claim. Owner, Victor Titus, Sierra City.

Location: Sierra City Mining District, Sec. 11, T. 20 N., R. 11 E., in Big Cañon, about 6 miles northerly, by road, to Blairsden (W. P. Ry.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Virginia Mine. Owners, Mrs. P. L. Carmichael, Table Rock; Becker Estate, C. J. Becker, Marysville; W. H. Hartley, Table Rock.

Location: Poker Flat Mining District, 1 mile from Table Rock, 31 miles from Quincy, Sec. 5, T. 21 N., R. 10 E.

This is a relocation of the old Bonanza and adjoining ground. The deposit is old channel gravel capped with andesite. The Bonanza tunnel is being reopened.

The Miner's Home property adjoins on the southeast.

Wahoo Mining Company. Owners, same, Port Wine.

Location: Poverty Hill Mining District, Sec. __, T. 20 N., R. 9 E., east part lot 54, Mount Pleasant; 41 miles, by road, south of Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 600, 1896. U. S. Geol. Survey Folio 37, Downieville.

Watts Claim. Owner, Boston Company; Fred Joubert, superintendent.

Location: Indian Hill Mining District, Sec. 15, T. 19 N., R. 9 E., 2 miles northeast of Indian Hill, thence about 40 miles by road southerly to Nevada City (N. C. N. G. R. R.). Elevation 3500′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpt. XII, p. 274.

Welker and Rossi Group. Owner, Indian Hill Mining Company, Boston.

Location: Indian Hill Mining District, Sec. 20, T. 19 N., R. 9 E., ¼ mile north of Indian Hill, thence about 40 miles, by road, southerly to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

West Point–Monte Cristo Group. Owner, T. E. Winrod, Downieville.

Location: Downieville Mining District, Sec. 16, T. 20 N., R. 10 E., 5 miles northwest of Downieville, thence 44 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 5300′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property is composed of the following placer claims: the West Point, Exchange Extension, Bald Mountain, Eureka and Eureka tailings.

White Bear Mine. Owner, White Bear Mining Company; W. J. Blecher, Marysville, president. Leased to John Costa, Downieville.

Location: Downieville Mining District, Secs. 9 and 16, T. 20 N., R. 10 E., 6 miles north of Downieville, thence 44 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 5500′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The White Bear property consists of the White Bear, Brown Bear, Red Rock, Serpentine, Lava, Belcher, Black Bear and Polar Bear locations, having an area of about 100 acres and covering a length along the channel of a mile and a half.

The property was worked in early days, and a second time by Slavonians, working at intervals, about 1890. The White Bear channel was faulted toward the south, and Winrod is now trying to find the faulted part. Costa took over the property in July, 1906, and it has been worked ever since. Twelve hundred feet of channel yielded $200,000. A 2200′ tunnel through slate passed the channel and a total of about 1000′ of upraises did not disclose it. A new tunnel one-half mile north is 2000′ long. Three raises were put up, one 70′ and another 116′. From the latter drift was run 200′, then raised 130′, without passing out of bedrock. Twelve hundred feet of channel, width of from 60′ to 70′, depth of pay 4′, was worked from the adjoining Monte Cristo claim.

The deposit is old river channel gravels coursing NE.–SW. The gravel is composed of free white quartz lying on a bedrock of slates and serpentine and capped with lava. The depth of the deposit is 5′, the width 6′ to 100′.

In May, 1916, work was resumed in the New York tunnel to find the northern extension of the White Bear channel.

Equipment consists of houses and blacksmith shop. Three men were working.

Wide Awake Mine. (Argentine, Never Sweat and Germania.) Owners, H. H. Meyers and E. L. Case, Downieville. Bonded to Jason S. Frye and Blevins.

Location: Downieville Mining District, Sec. 12, T. 20 N., R. 10 E.; Downieville 9 miles south by trail; thence 44 miles by road southwest, to Nevada City (N. C. N. G. R. R.). Elevation 5600'.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 274; XIII, p. 384. U. S. Geol. Survey Folio 37, Downieville.

This property consists of the Wide Awake, Never Sweat, Germania and Argentine locations, an area of 200 acres, with a length of a mile and a half along the channel. It is situated on a lava-capped ridge and there is considerable timber on the property.

The Wide Awake was first discovered in 1884. It was worked as a drift mine up to 1894 and produced $100,000. The Never Sweat produced $10,000 by ground sluicing, and Rouse piped out $10,000 from the Argentine by hydraulicking. Four men were working and about $900 was spent on development work in 1914.

The channel courses NE.–SW. and is developed by three tunnels. The old No. 1 tunnel was run in lava 900', then in gravel 800', worked by incline. No. 2 tunnel is 2000' long, part in lava. No. 3 tunnel, 20' below No. 2, ran 1000', 700' of which was in lava, to strike the gravel, worked downstream at intervals for 1000', then ran north-northwest 700'. A front channel is supposed to have been opened by a new tunnel from the Never Sweat 'spell-out.' It is in slate 71', then 276' in workings, including 200' of gangways in gravel worth 80¢ a load.

The deposit consists of old Neocene channel gravel, 25' in depth, capped with 500' of andesite and pipe clay, and lying on bedrock of slate. The gravel is free, with some quartz and blue quartzite in large boulders.

The front channel is 60' deeper than the back channel, but the gravel is of the same character. Considerable water was encountered. Equipment consists of a boarding house, blacksmith shop, gas engine and homemade sawmill.

Winkeye Mine. (Hawkeye and Pittsburg.) Owners, George and Henry Goard, Table Rock; Chas. C. Giltner, Stanford Hotel, San Francisco.

Location: Poker Flat Mining District, Sec. 32, T. 22 N., R. 10 E. The mine is at Table Rock, 30 miles south of Quincy, by road. Elevation 5800'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Winkeye property consists of two claims, the Hawkeye and the Pittsburg, covering a length along the channel of 1600'. It is situated on the flat at the bottom of Table Rock, and what timber there is, is small.

J. Ross Brown began work on the Hawkeye in 1857, spending $30,000. The property was purchased from Aaron Todd, and worked by the present owners from 1900 to 1910.

The lower channel was mined in early days, though a block of ground is said to be left, and later bedrock was worked. Idle at present.

The deposit is old Neocene channel gravel on bedrock of volcanic sand and ash, and capped with andesite. It is opened by the Winkeye tunnel 2200′ in length with 300′ in gravel, and the balance in amphibolite and schist. An area of about 200′ by 200′ by 4′ has been mined in the upper channel. Water is obtained from the Sierra Union water ditch, owned by T. Donohue Estate and J. H. Thomas, Oakland. The Miner's Home property adjoins.

Wisconsin–North Fork Mine. Owner, Wisconsin-North Fork Gravels Mines, 405 Crocker Building, San Francisco.

Location: Forest Mining District, Sec. 15, T. 19 N., R. 10 E., 1½ miles north of Forest City, thence 39 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Assessment work only being done.

The company arranged in April, 1916, to drive a main drainage and working tunnel from the Wisconsin side of the ridge, which will effectively drain the property and avoid the use of pumps. The Uncle Sam adit has been abandoned. Numerous small nuggets, weighing from a few grains to 9 ounces, have been recently found in the channel. The company is also exploring the Blue Point claim. A tunnel was in 600′ in 1916 and is advancing to tap the north end of the channel adjoining the Ruby mine. A compressor and machine drills are to be installed at once to facilitate driving of the new Wisconsin tunnel.

Yellow Jacket and Bear Creek Group. Owner, J. W. Evans, Graniteville.

Location: Forest Mining District, Sec. 34, T. 19 N., R. 10 E. Forest is 39 miles by road northeast of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Young America Mine. Owners, Young America Mining Company, Forest City.

Location: Forest Mining District, Secs. 28 and 33, T. 19 N., R. 10 E., 1 mile south of Forest City, thence 39 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 5500′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax. Cal. State Min. Bur. Rpts. XII, p. 275; XIII, p. 384.

The last work was done on this property about 1910, and since then assessment work only has been kept up. Early in 1916 it was bonded to E. J. Wiley of Nevada City. The 1000′ adit was being repaired for resumption of work.

Photo No. 12. General view of Brandy City hydraulic mine.

Photo No. 13. Brandy City hydraulic mine. Close view of gravel bank overlain with volcanic tuff.

GOLD—HYDRAULIC MINES.

Agate Claim.

Location: Sierra City Mining District, Sec. 13, T. 21 N., R. 12 E., 10 miles north of Sierra City, which is 38 miles by stage from Hawley (W. P. Ry.). Elevation 7100′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

Property not worked.

American Hill Mine. Owner, Dos Pesos Company, New York.

Location: American Hill Mining District, Sec. 28, T. 19 N., R. 11 E., 7 miles southwest of Downieville. Elevation 4500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 142, 143. U. S. Geol. Survey Folio 66, Colfax.

There are 263 acres of patented ground. The Sharon Estate runs Columbia channel every winter, taking out pay gravel.

Brandy City Mine. Owners, E. L. Goldstein Company, 333 Kearny street, San Francisco; B. Trowenfeld, president; Geo. F. Taylor, Brandy City, manager; Chas. Allenberg, 333 Kearny street, San Francisco, secretary.

Location: Brandy City Mining District, Secs. 6 and 7, T. 19 N., R. 9 E. Property is in Brandy City, 30 miles north of Nevada City (N. C. N. G. R. R.) by road. Elevation 3700′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 262; XIII, p. 372. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 101. U. S. Geol. Survey Folio 43, Bidwell Bar.

The property consists of 1000 acres of unpatented placer locations, covering a length of two and one-half miles. There is some small and second growth timber on the claims.

The mine was worked extensively from 1883 to 1890; was idle for 17 years and then reopened in 1907 by the present owners. Ten to 12 men have been employed throughout the year, 35 during the season from June to August, when 2000 cubic yards per day are hauled.

The deposit consists of old Neocene river channel gravels, the gravel being small, cemented in spots and containing very few large boulders. The channel is winding, but has a general N.–S. course. The greatest depth is 200′ and the pay gravel has a width of from 700′ to 800′. It has a 40′ lava capping.

There are 6 monitors, 2 being used at a time, and 6000′ of 4′ by 4′ flume, with sawed blocks 1′ square laid on a grade of 2½″ in 12′. A Hendy water power tramway handles boulders up to 5 tons.

Two thousand inches of water from Cañon Creek and 1000 inches from Cherokee Creek under a 240′ head, are owned.

Transportation costs are $1.75 per 100 pounds from San Francisco. Labor was paid $3 to $3.50 per day in 1914 and the cost of mining 300,000 yards was $40,000.

With an abundant water supply, hydraulicking was being done with good returns in May, 1916.

Photo No. 14. Brandy City hydraulic mine. Shows tailing impounding dam built of hydraulic debris.

Photo No. 15. Method of starting hydraulic debris dam.

Burlington Claim. Owner, John Freeman, Sierra City.

Location: Sierra City Mining District, Sec. 2, T. 19 N., R. 11 E., 8 miles east of Downieville, thence 44 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 6000′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

Caledonia Mine. (McBride's Hydraulic.) Owners, A. McBride and Brothers, St. Louis, Sierra County.

Location: Port Wine Mining District, Sec. 12, T. 21 N., R. 9 E., 1 mile southeast of St. Louis, thence 32 miles by road to Mohawk (W. P. Ry.). Elevation 5535′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 602, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property covers an area 1500′ by 1600′, with a length along the channel of 1500′. There is no timber on the property.

The claims, first worked in 1854, were bought by the uncle of the present owners in the seventies, and worked at intervals until 1904, and it was again just opened up when the water supply was cut off. Three men were working, cleaning up.

The deposit is old Neocene channel gravels opened by a 2500′ tunnel on gravel, a good deal of which has been worked. The gravel is quartz, partly cemented, on a bedrock of schist and capped with andesite. There is a depth of from 75′ to 100′. Water was obtained from the Sierra Union Water Company, T. Donohue Estate.

Equipment consists of a blacksmith shop and houses.

Adjoining mines are the Star and Clipper Ship on the north and the Excelsior on the south.

Charcoal Ranch Claim. Owners, L. F. Fournier and J. Burne, Sierra City.

Location: Sierra City Mining District, Sec. 36, T. 20 N., R. 11 E., 4 miles west of Sierra City, 52 miles by road northeast of Nevada City (N. C. N. G. R. R.). Elevation 3800′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

Idle.

Coal Cañon Claim. Owner, C. R. Scott, Table Rock.

Location: Poker Flat Mining District, Sec. 3, T. 21 N., R. 10 E., 3 miles southeast of Table Rock, thence 30 miles, northerly by road to Quincy. Elevation 5050′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Craycroft Mine. Owner, W. H. Spaulding, 14 Sansome street, San Francisco.

Location: Downieville Mining District, Sec. 12, T. 20 N., R. 10 E., 4 miles north of Downieville, thence 44 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 6000′.

Bibliography: Cal. State Min. Bur. Rpts. XII, p. 263; XIII, p. 374. U. S. Geol. Survey Folio 37, Downieville.

This property comprises the following patented claims: The McMillan (11 acres), Eggleston (20.18 acres), Weil (24.94 acres), Milholland (27.91 acres), Holmes (33.24 acres), Eggleston and Mowry (2.47 acres) and the Blue Range (a location).

No work has been done for some time.

Crown Point. (See under Drift Mines.)

Depot Hill Mine. (Joubert Mine.) Owner, Joubert Company, Mills Building, San Francisco; Frederick Joubert, Camptonville, president; F. J. Joubert, Camptonville, secretary and manager.

Location: Indian Hill Mining District, Sec. 19, T. 19 N., R. 9 E., 5 miles northeast of Camptonville, by good road, thence 22 miles south to Nevada City (N. C. N. G. R. R.) by good road. Elevation 3100'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 111. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XII, p. 264; XIII, p. 375.

This property consists of 60 acres of placer locations, covering a remaining 400' of channel on the Pendola claim. It is situated on the nearly flat surface of a valley and all timber has been cut.

It was discovered in 1852 by J. Joubert, brother of the present owner, and has been run during the water season, from 4 to 6 months, continuously for the last 14 years. Five men are employed.

The deposit is on the same channel as the Brandy City, Grizzly Hill and Indian Hill mines. It is blue gravel 100' deep and 300' in width lying on a slate bedrock, and is cemented on the bottom 4' to 6' deep. The gravel averages about 10¢ per cubic yard, the gold being flaky like bran. Water is obtained from branches of Indian Creek. The amount depends on rainfall, varying from 400" to 800" under a 140' head. Monitors are used.

For impounding the tailings, there is a concrete dam, 54' high, 15' to 18' thick at the bottom, 6' wide on the top, and 240' long; 400,000 cubic yards were already stored in 1914 and 6' more were to be added for a total capacity of 500,000 cubic yards. Houses, blacksmith shop, pipe line, tools, etc., comprise the equipment.

Adjoining mines are the Indian Hill, Walker and Rossi, Italian Diggings, and the worked-out Indian Ranch.

Eureka Claim. Owners, Spaulding, Costa and Company, Downieville.

Location: Downieville Mining District, Sec. 7, T. 20 N., R. 10 E., 6 miles northwest of Downieville, thence 44 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 4800'.
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 375. U. S. Geol. Survey Folio 37, Downieville.

Excelsior Mine. (St. Lawrence.) Owner, John Costa, Downieville.

Location: Downieville Mining District, Sec. 15, T. 20 N., R. 10 E., 4 miles north of Downieville by trail, thence 44 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 4950'.
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 375. U. S. Geol. Survey Folio 37, Downieville.

This property consists of the following claims: St. Lawrence, Dead Broke, Saw Wood (1836), Excelsior, Excelsior No. 1, Excelsior No. 2 and Tonopah, a total of 860 acres covering a length along the channel of two miles. It is situated on a lava-covered ridge.

The deposit is old channel gravel, mostly white free quartz on a bedrock of slate. The channel runs south, and the gravel is 60′ to 80′ deep.

It was worked in the early days. The last hydraulicking was in 1883, and there has been practically no work since, although it is still equipped with a hydraulic plant. The output to date is unknown.

Tunneled from the east and west side of ridge 3500′ at slightly different elevations. In early days the St. Lawrence was on the east and the Empire on the west.

Gibsonville Water and Mining Company. G. N. Cox, agent, Table Rock.

Location: Gibsonville Mining District, Sec. 21, T. 22 N., R. 10 E., 3 miles east of Gibsonville, thence 26 miles northerly, by road to Quincy. Elevation 6000′.

Bibliography: Cal. State Min. Bur. Rpts. XII, p. 266; XIII, p. 376. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Gold Valley Mine. (Poverty Hill Hydraulic Mine.) Owner, Henry Kingdon, San Francisco.

Location: Poverty Hill Mining District, Sec. __, T. 20 N., R. 9 E., at Poverty Hill, 39 miles northerly by road to Quincy. Elevation 4500′.

Bibliography: Cal. State Min. Bur. Rpt. XII, p. 265. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 105-108.

Has not been worked for many years.

Happy-Go-Lucky Claim. Owner, W. S. Chestain, Table Rock.

Location: Poker Flat Mining District, Sec. 11, T. 21 N., R. 10 E., 2 miles east of Poker Flat, thence 33 miles northerly by road to Quincy. Elevation 5500′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Hardscrabble Mine. Owner, Mrs. Lamonte Brown, Poverty Hill.

Location: Poverty Hill Mining District, Sec. 34, T. 21 N., and Sec. 3, T. 20 N., R. 9 E., ¼ mile east of Mount Pleasant, thence 41 miles northerly, by road, to Quincy. Elevation 4500′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

The Hardscrabble is a patented claim with water right. Good hydraulic gravel has been struck.

Hidden Treasure Claim. Owner, Chas. F. Bettinger, Table Rock.

Location: Poker Flat Mining District, Sec. 10, T. 21 N., R. 10 E., ¼ mile south of Poker Flat, thence 33 miles northerly, by road, to Quincy. Elevation 5050′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Hilda Mine. Owner, Hilda Gravel Mines Company, 948 Market street, San Francisco.

Location: Sierra City Mining District, Secs. 2 and 3, T. 19 N., R. 12 E., 2 miles south of Sierra City, thence 56 miles southwesterly by road to Nevada City (N. C. N. G. R. R.).

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

This property includes the Hilda, Etta, Sierra, Delia, Ethel, Alonia, Paris, Isabel, Bluff, San Francisco and Sacramento placer claims, water rights, ditches, etc.

Hilo Claim. Owners, Hilo Mining Company, 41 Market street, San Francisco.

Location: Downieville Mining District, Sec. 17, T. 20 N., R. 10 E., 5 miles northwest of Downieville, thence 44 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 4900'.

Assessment work only being done.

Homestake Claim. Owners, Atkinson Brothers, Camptonville.

Location: Sierra City Mining District, Sec. 14, T. 21 N., R. 12 E., 10 miles north of Sierra City, 19 miles south of Blairsden (W. P. Ry.). Elevation 7000'.

Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 378. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

Indian Hill Claim. Owners, Indian Hill Hydraulic Mining Company, Boston, Massachusetts.

Location: Sec. 20, T. 19 N., R. 9 E., at Indian Hill, 32 miles northerly by road from Nevada City (N. C. N. G. R. R.). Elevation 2800'.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 111. U. S. Geol. Survey Folio 37, Downieville.

Kirkpatrick Mine. (Eclipse.) Owners, Kirkpatrick Estate, San Francisco; John C. Donnelly, manager.

Location: Forest Mining District, Sec. 15, T. 19 N., R. 10 E., 2 miles by trail north of Forest City, 4 miles by trail south of Downieville, 39 miles by road Forest City to Nevada City (N. C. N. G. R. R.).

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112,113, 142. U. S. Geol. Survey Folio 66, Colfax.

A 1700' tailings flume was completed during the summer of 1915 and operations were resumed. The flume conveys the debris to a safe dumping ground, where it is prevented from escaping to neighboring streams. Rich gravel was recently encountered, and the company is washing a large yardage.

Ladies Cañon Mine. Owners, J. Laveroni, Sierra City; John and Tom Costa, Downieville.

Location: Sierra City Mining District, Sec. 13, T. 20 N., R. 11 E., 4 miles northwest of Sierra City, thence 36 miles northeast to Loyalton (B. & L. R. R.), or 50 miles southeast to Truckee (S. P. R. R.). Elevation 6500'.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The Ladies Cañon property is patented ground covering a length along the channel of one mile. The present owners have had it for 25 years and have worked it on a small scale every summer. It was one of the early producing properties and the total yield is probably $500,000.

Mayday and Undine Group. Owners, E. L. Case, H. H. Meyer and Jas. McGregor, Downieville; John F. Owens, Forest.

Location: Sierra City Mining District, Secs. 13, 23 and 24, T. 21 N., R. 12 E., 9 miles north of Sierra City, 11 miles south of Blairsden, by road.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property was discovered in 1901 and worked for eight seasons, to January, 1909. There are two claims, the Mayday and Undine,

patented, an area of 39.89 acres, covering one-half mile along the channel. Idle.

The Oxford mine adjoins.

Miner's Home. (See under Drift Mines.)

Morristown and Angora. (See under Drift Mines.)

Mugginsville Claim. Owner, W. A. Morse, Downieville.

Location: Downieville Mining District, Sec. 18, T. 20 N., R. 10 E., 4 miles north of Downieville, thence 44 miles, by road, southwest to Nevada City (N. C. N. G. R. R.). Elevation 5000'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Neocene Placer Mining Company. Owners, Neocene Placer Mining Company, 624 I. W. Hellman Building, Los Angeles; J. V. Akey, president; N. Raymer, 420 Citizens National Bank Building, Los Angeles, manager.

Location: Poverty Hill Mining District, Sec. __, T. 20 N., R. 9 E. Scales, near the mine, is 59 miles by road from Marysville; 41 miles by road east of Oroville. Elevation 4500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 105-108. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 600, 1896. U. S. Geol. Survey Folio 37, Dowieville.

The Neocene Placer Mining Company's property consists of the following claims: Cleveland and Sierra hydraulic (98.86 acres), Oversight (110.45 acres), Gold Cup (136.61 acres), Reservoir (150.04 acres), Relocation (104.94 acres), Lincoln (58.54 acres), Baltimore (20.70 acres), Good Hope (112.50 acres) and Southern (93.96 acres), a total of 896.6 acres, all patented. It is situated on the gently sloping plateau between Mount Pleasant and Scales, and there is good timber on the property.

These claims have been worked since early days. In working the channel, owing to the extreme difficulty of breaking up and transporting the boulders which have to be handled by derrick or slack cable, only about three hours a day can be devoted to piping during a working water season of four months. Six hundred feet of the channel has been worked, but very little of the lower gravel has been touched in the last ten years, owing to the boulders. The method of working is by sluices, tunnel and undercurrents. A system has been used here which it seems could be successfully applied to other hydraulic mines. The boulders are piled up across the channel and then a small sluice with a drop of 4″ in 12′ carries the fine sand and gravel to the piled rock, there depositing them to form a dam. The present company built a dam about four miles below Scales costing $12,000, but it was filled up in one year by the piping and gravel from natural erosion, and they are now considering putting in another one at a point where it is estimated that a dam 400′ high would impound all the available gravel in the district.

Neocene river gravels below the junction, probably, of the La Porte and Port Wine channels form this deposit. It consists of large boulders lying in volcanic ash and fine gravel, partly cemented from 50′ to 150′ in depth in a channel coursing south on slate bedrock. Most of the hydraulicking has been done on top gravel, 30′ above bedrock. It is estimated that the gravels will average 50¢ a cubic yard, some ground in the Scales pit having gone $2 or $3 per cubic yard. Three men were working in 1915.

Equipment consists of three derricks, slack cable hoist, pipe lines, reservoirs, etc. An electric generating plant was installed about 1910, but was only used for a short time. Water, under 150′ head, is obtained from two reservoirs capable of holding sufficient water for a two weeks' run.

The Poverty Hill, Washington drift and Iowa mines adjoin.

New York Gravel Mines. Owners, Westall and Hughes, Sierra City.

Location: Sierra City Mining District, Secs. 13, 14, 23, 24 and 26, T. 21 N., R. 12 E., 8 miles north of Sierra City, 20 miles south of Blairsden (W. P. Ry.). Elevation 6800′.
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 378. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

This property is composed of three patented placer claims: the Yuba (93.43 acres), New Year (149.45 acres) and New York (57.5 acres). A little work is being done.

North American Consolidated Gold Mining Company. Owner, same, Garden City Bank Building, San Jose.

Location: Gibsonville Mining District, claims at Hepsidam, near Gibsonville, Sec. 30, T. 22 N., R. 10 E., 26 miles by road south of Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Property consists of the Nevada claims at Hepsidam.

Old Doherty Claim. Owner, Hong Fat, Table Rock.

Location: Poker Flat Mining District, Sec. 32, T. 22 N., R. 10 E., ½ mile north of Table Rock, thence 30 miles by road northerly to Quincy. Elevation 5600′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Pig Cañon Claim. Owners, Dan R. Thompson and Brother, Sierra City.

Location: Downieville Mining District, Sec. 10, T. 20 N., R. 11 E., 6 miles northeast of Downieville, thence 44 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 6000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Reese Ravine Claim. Owner, Reese Ravine Mining Company, 655 Congress street, Portland, Maine.

Location: Poker Flat Mining District, Sec. 22, T. 21 N., R. 10 E., 2 miles south of Poker Flat, thence 32 miles northerly, by road, to Quincy. Elevation 6000′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 270; XIII, p. 382. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Renaissance Claim. Owner, Fred Bruckermann, Table Rock.

Location: Poker Flat Mining District, Sec. 3, T. 21 N., R. 10 E., 2 miles east of Table Rock, thence 30 miles northerly to Quincy. Elevation 5800'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Sierra Union Claim. Owners, J. H. Thomas, Oakland; T. Donohue Estate, San Francisco.

Location: Port Wine Mining District, Sec. 12, T. 21 N., R. 9 E., ½ mile north of St. Louis, 33 miles south of Quincy. Elevation 5050'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Smith Claim. Owner, Dan R. Thompson, Sierra City.

Location: Downieville Mining District, Sec. 10, T. 20 N., R. 11 E., 7 miles northeast of Downieville, thence 44 miles southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 6000'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Tippecanoe Claim. Owner, George Parent, Pike City.

Location: Pike City Mining District, Sec. 3, T. 18 N., R. 9 E., 3 miles northeast of Pike City, thence 28 miles southerly by road to Nevada City (N. C. N. G. R. R.). Elevation 4200'.
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 384. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 138. U. S. Geol. Survey Folio 66, Colfax.

Union Hill Claim. Owner, Billy Reed, Brandy City.

Location: Poverty Hill Mining District, Sec. 18, T. 20 N., R. 9 E., 1 mile west of Scales, thence 42 miles northerly by road to Quincy. Elevation 4500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

Washington Claim. Owner, C. M. Cox, Table Rock.

Location: Gibsonville Mining District, Secs. 20 and 21, T. 22 N., R. 10 E., 2 miles northeast of Gibsonville, 27 miles by road northerly to Quincy. Elevation 5500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Westall Claim. Owner, E. J. Westall, Sierra City.

Location: Sierra City Mining District, 9 miles north of Sierra City, 11 miles south of Blairsden (W. P. Ry.).
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 378. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118.

Willow Claim. Owners, J. Hayes, Arthur Pride, N. B. Willets, Sierra City.

Location: Sierra City Mining District, Sec. 14, T. 20 N., R. 12 E., 3 miles northeast of Sierra City, thence 20 miles northerly by road to Blairsden (W. P. Ry.), or 56 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 5600'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Yuba Claim. Owner, Ed Westfall, Sierra City.

Location: Sierra City Mining District, Secs. 13, 14, 23 and 24, T. 21 N., R. 12 E., 9 miles by road north of Sierra City, thence 56 miles, by road, southwesterly to Nevada City (N. C. N. G. R. R.); 11 miles by road northerly to Blairsden (W. P. Ry.). Elevation 7000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

GOLD—LODE MINES.

Adelaide Mine. Owners, Adelaide Gold Mining and Milling Company, Sierra City.

Location: Sierra City Mining District, Sec. 24, T. 21 N., R. 12 E., 9 miles north of Sierra City by road; 56 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.) or 20 miles by road northerly to Blairsden (W. P. Ry.). Elevation 6800'.

Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 371. U. S. Geol. Survey Folio 37, Downieville.

No work has been done on this property for years.

Albany Consolidated Group. Owner, Martin White, Table Rock.

Location: Forest Mining District, Secs. 5 and 6, T. 18 N., R. 10 E., 3 miles southwest of Alleghany, 44 miles by road northeasterly from Nevada City (N. C. N. G. R. R.). Elevation 3500'.

This property consists of two patented claims with an area of 41.16 acres.

Alhambra Group. (Sierra Phoenix.) Owner, J. Freeborough, Table Rock.

Location: Poker Flat Mining District, Sec. 10, T. 21 N., R. 10 E., 3 miles by road southeast of Table Rock, which is 72 miles, by road, northeast of Marysville (S. P. R. R.), 30 miles by road south of Quincy and 27 miles, by road, southwest of Mohawk (W. P. Ry.). A daily stage, when weather permits, from Marysville to Quincy. Elevation 4000'.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paepr 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

This property consists of two claims, the Alhambra and Alhambra Extension, an area of 40 acres covering a length along the lode of 3000'. It is situated on both sides of Cañon Creek. There is no timber on the property.

It was first located by Lindsay and leased by a Scotch company (Sutherland). Abandoned and relocated by P. Carmichael. Bought from him by present owner in 1895. Freeborough has taken out $10,000 from pockets. Assessment work only was being done in 1914.

The lode has been developed by a 350' tunnel on the vein in the hanging wall, a 150' shaft and two crosscuts 300' and 35' in length toward the foot-wall. Very little stoping has been done.

The deposit is along the contact of serpentine and slates. There is a 140' fissure filled with mariposite, quartz and altered rock, in which free gold is found in decomposed stringers in the slate hanging wall. The ore contains free gold, pyrite and galena. The quartz veins vary from 2' to 3' in width, strike N. 57° W., dip 45° E., and have a proven length on the surface of 3000'.

Water rights on 600 inches of water under 130' head from Cañon Creek are owned and the property is equipped with a Huntington mill, Sears roller quartz mill, house and blacksmith shop, and a sawmill built in July, 1914.

It was bonded to M. Caulfield and J. S. McFarlane of Downieville and a small crew of men put to work in 1915. Ore was being taken out and further work was planned for the spring of 1916.

Alhambra Mine. Owners, F. O. Richardson, Downieville; J. H. Rixey and E. Spoindli, Hayward.

Location: Downieville Mining District, Sec. 21, T. 19 N., R. 11 E., 6 miles by trail or 9 miles by road southeast of Downieville. Elevation 5000′ to 5500′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property consists of eleven claims, including the Alhambra, Alibaba, Comet and Jumbo. There are 220 acres in all, with a length along the lode of 6000′. The surface is steep, rising from Jim Crow Cañon to the lava-capped ridge.

The property was worked by Jesse Carney in 1875 with a 5-stamp mill. The present owners bought it in August, 1912, and located the northern extension. Three men were working in 1914, two in the mine and one in the mill.

The Alhambra vein is developed by a 360′ tunnel on the vein, which reaches a depth of 175′ below the outcrop, and 300′ of open cuts on the surface. On the Comet claim there is a tunnel 350′ through slate, then on the ledge south 200′. One hundred feet above the lower tunnel 250′ has been driven on ledge to the south. There are numerous crosscuts on the Comet, but the ground is not well opened up, and very little ore has been stoped.

There are six parallel veins on this property. The Alhambra vein may or may not be the northern extension of the Comet vein. The ore contains free gold and arsenopyrite, and lies between a porphyry foot-wall and a hanging wall of slate. The whole country rock is decomposed and altered. The vein varies from 6′ to 8′ in width, strikes N. 10° W. and dips 80° W. The 30′ lode on the Comet property is said to vary from $1 to $9 per ton for a width of 14′.

There is good timber on the property. The equipment consists of a sawmill driven by a 10-h.p. Peerless gasoline engine, a Rix 20-h.p. 6″x 6″ Duplex upright compressor, lighting dynamo, a complete 3′ Sears roller mill driven by a water wheel, mill building and boarding house.

Gasoline and water are both used for power; 12 inches of water under 300′ head is available.

The Ironsides mine adjoins.

American Exchange and Buffalo Group. (Primrose.) Owner, Geo. T. Morrison, Sierra City.

Location: Sierra City Mining District, Secs. 12 and 13, T. 20 N., R. 11 E., 7 miles, by road, northwest of Sierra City. The latter is 56 miles, by road, northeasterly from Nevada City (N. C. N. G. R. R.). Elevation 7000′.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. Cal. State Min. Bur. Rpt. XIII, p. 371.

The American Exchange mine, Sec. 12, and the Buffalo and Primrose, Sec. 13, are all owned by Morrison. No work has been done in a number of years.

American Flag Claim. Owner, Mrs. T. Jackson, 1620 Larkin street, San Francisco; A. T. Hathaway, San Francisco, manager.

Location: Sec. 32, T. 19 S., R. 9 E.

This property is not being worked.

Andy Fitz Mining and Milling Company. Owners, same.

Location: Forest Mining District, Sec. 17, T. 19 N., R. 10 E.
Bibliography: Lindgren, W., U. S. Geol. Survey, Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property was examined by Andrew Fitzgerald in the summer of 1914 and arrangement for underground development work and the construction of a new surface plant were completed. In November, 1915, a permit from the State Corporation Department to sell 75,000 shares at 25¢ per share for exploration and development of the quartz lode on the claims was received. The property includes the Fruitvale claim.

Ante Up Claim.

Location: Forest Mining District, Sec. 17. T. 19 N., R. 10 E., 37 miles, by road, northeast of Nevada City (N. C. N. G. R. R.). Elevation 4000'.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Atom Group. Owners, C. W. Turner, Chas. Turner, Camptonville, Yuba County.

Location: Camptonville Mining District, Sec. 30, T. 19 N., R. 9 E., 4 miles northeast of Camptonville, 17 miles southwest of Downieville by Downieville-Camptonville road; 51 miles, by road, northeast of Marysville (S. P. R. R.) and 27 miles by road north of Nevada City (N. C. N. G. R. R.). Elevation 3500'.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 261; XIII, p. 371. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 105-108. U. S. Geol. Survey Folio 18, Smartsville.

This property consists of two locations, the Atom lode and a placer claim, covering 20 acres in area and a length along the lode of 1500'. It is situated at the head of Williamson Creek, and contains some timber. Cochrane and Turner located the property 25 years ago.

The vein is developed by a 50' tunnel driven on it, and by hydraulic glory holes 100' deep. Both walls are made up of slates and porphyry. The vein is 20" wide, strikes northeast, and has a vertical dip. It is covered by gravel except where exposed by hydraulic workings. Assessment work only being done at present.

A cabin and a blacksmith shop are on the property.

Bank Mining and Promoting Company. Owners, same, 318 Prudential Building, Buffalo, N. Y.; W. H. Barnhardt, Nevada City, agent.

Location: Pike Mining District, Sec. 12, T. 18 N., R. 9 E., 4 miles east of Pike City. From the latter point it is 28 miles, by road, southerly to Nevada City (N. C. N. G. R. R.). Elevation 4200'.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

This property consists of one location in Sec. 12 and also the east one-half of one-quarter of Sec. 2.

Bannister Claim. Owner, Luke Bannister.

Location: Downieville Mining District, Sec. 2, T. 19 N., R. 10 E. Downieville is 44 miles, by road, northwest of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Rich ore was encountered on this property by W. O. Frost in doing assessment work, early in 1916. Development was planned by the owner in the spring.

Bella Union Consolidated Group. Owner, E. Caya, La Porte.

Location: Poverty Hill Mining District, Sec. __, T. 20 N., R. 9 E., at Mount Pleasant, near Lewis Ranch, 41 miles, by road, south of Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, 1896, p. 600. U. S. Geol. Survey Folio 37, Downieville.

Bessler Mine. Owner, Mrs. Annie Bessler, Baker City, Oregon.

Location: Downieville Mining District, W. ½ of SW. ¼ Sec. 26, T. 20 N., R. 10 E., ½ mile north of Downieville, thence 44 miles southwesterly by road, to Nevada City (N. C. N. G. R. R.). Elevation 2600′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property comprises one unpatented claim, located on the Downieville-Alleghany serpentine belt.

The mine, a former 'high grade' producer, was reopened in March, 1916. The main tunnel was retimbered and the north drift extended 60′ to tap the pay shoot. Good values have been found in the new ground opened.

Bigelow Mine. Owner, Croesus Mining Company; Hugh McCormick, superintendent.

Location: Sierra City Mining District, Sec. 28, T. 20 N., R. 12 E., ½ mile north of Sierra City, thence 56 miles southwesterly, by road, to Nevada City, 20 miles by road, north to Blairsden (W. P. Ry.). Elevation 4400′.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

It was reported in April, 1916, that high grade ore had recently been struck. The property was being developed by the Croesus Mining Company.

Black Jack Claim. Owners, Deforest Brothers, 30 Broad street, New York.

Location: American Hill Mining District, Sec. 16, T. 19 N., R. 11 E., 8 miles by road, a little north of east from Forest City, from thence 13 miles to Downieville, by road, or 39 miles by road, to Nevada City (N. C. N. G. R. R.). Elevation 5400′.
Bibliography: Lindgren W., U. S. Geol. Survey Prof. Paper 73, p. 143. U. S. Geol. Survey Folio 60, Colfax.

This property consists of one patented claim, last worked in 1883. All workings are inaccessible.

Black Warrior Claim. Owner, H. J. Gould, Downieville.

Location: Downieville Mining District, Sec. 22, T. 20 N., R 10 E., 4 miles northerly by wagon road from Downieville, thence 44 miles southwest to Nevada City (N. C. N. G. R.R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Situated north of the Baker mine.

A 320′ crosscut was run to a contact of serpentine and slate, but no vein was encountered.

Bolivia Claim. Owner, John Avignoni, Sierra City.

Location: Sierra City Mining District, Sec. 31, T. 20 N., R. 12 E., 2 miles west of Sierra City, 54 miles northeast of Nevada City (N. C. N. G. R. R.) by road. Elevation 4300'.

Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. U. S. Geol. Survey Folio 37, Downieville.

One claim located. Assessment work only being done.

Bonanza Claim. (Banquet.) Owners, J. Wise, Seattle; E. Edwards, Alleghany; Frank Hillier, Alleghany.

Location: Forest Mining District, Secs. 2, 3, 5 and 8, T. 18 N., R. 10 E., 1 mile south of Alleghany, by trail, and 32 miles from Nevada City. Elevation 4200'.

This property consists of one claim, the Banquet, with an area of 20 acres and a length along the lode of 1500'. It lies on the ridge north of Kanaka Creek. There is some timber on the property.

It was first located by Rorig and Apple, owners of the adjoining Mariposa, but was relocated in 1911 by the present owners.

A 25' vertical shaft cuts a vein of white quartz, containing free gold and arsenopyrite, which is the southern extension of the Mariposa vein. The foot-wall is serpentine and the hanging wall jasper. It strikes N. 15° W., and dips 70° E. Faulted.

Brush Creek Claim. Owner, Frank Wehe, Call Building, San Francisco.

Location: Forest Mining District, Sec. 20, T. 19 N., R. 10 E., 35 miles northeast by road from Nevada City (N. C. N. G. R. R.). Elevation 4500'.

Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Bran Campbell Claim. Owner, Jas. Jones, La Porte.

Location: Poverty Hill Mining District, adjoining Gold Valley claim.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 600, 1896. U. S. Geol. Survey Folio 37, Downieville.

Bullion Mine. (Colombo.) Owners, F. J. Cook, Sierra City; J. Spaulding, S. V. and Leon Heintzen, Browns Valley.

Location: Sec. 30, T. 20 N., R. 12 E., 3½ miles northwest of Sierra City, thence 43 miles southeast by road to Boca (S. P. R. R.). Elevation 5000'.

Bibliography: Cal. State Min. Bur. Rpts. X, p. 648; XIII, p. 374. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property consists of eight claims: the Bullion, Bullion No. 1 to No. 5 inclusive, California Boy and California Girl. There are 150 acres with a length along the Bullion lode of 7500' and 3600' along the California. It is situated on the steep west bank of the North Fork Yuba River, and contains sufficient timber for mining purposes.

J. Arenoni and others first discovered this property in the '70's. It was sold to Roebling Brothers, who put up a 20-stamp mill and worked it from 1886 to 1896. Later relocated by the present owners. It was worked in 1910 and 1911 by Chas. R. Thompson for Geo. N. Truman of San Francisco, $18,000 being spent.

The total output to date by Roebling Brothers and lessee is said to be $365,000.

The Bullion vein has been developed by three tunnels. The Upper tunnel is a 180′ crosscut and 1070′ driven northwest on the vein; it is inaccessible. The Middle tunnel, 180′ below, is a 900′ crosscut and 300′ on the vein, but is caved for 400′. The Lower tunnel, 130′ below the Middle tunnel, is an 1100′ crosscut adit with 75′ to go to cut the vein. There are 600′ of backs running into the hill from the Upper tunnel. Ore has been stoped for 80′ above the tunnel level, 10′ by 200′. A winze in the Middle tunnel 20′ deep showed a 9′ vein of ore going $12. There are surface workings only on the California vein. The Lower tunnel is open in slate and serpentine. It will be necessary to drift 400′ northwest on the vein from where the Lower tunnel will intersect it to strike the big shoot.

The veins are both quartz fissure veins, carrying free gold, pyrite and galena. The foot-wall is slate, the hanging wall is 'porphyry,' red oxide of iron full of quartz stringers, and there is gouge on both walls. The Bullion vein varies from 3½′ to 12′ in width, strikes northwest, dips 50° NE., and has a proven length on the surface of 7500′. Three pay shoots developed, one 70′ long and 3½′ wide plated $15, another 100′ by 5′, and a third 300′ by 6′ plated between $7.50 and $12. Between the Upper and Middle tunnels there are 30,000 tons of ore in main shoot reported to average on the plates $7.50. The California vein shows a width on the surface of 6′. It strikes east and dips 50° N.

There is a new two-story boarding house and a blacksmith shop on the property, also cars, rails and pipe.

Water is used for power, 150 inches under a 1000′ head is available for six months of the year from Black Cañon, and 27 inches is obtained from the Middle tunnel under a 400′ head.

The Lee and Sierra Buttes mines adjoin.

Bullion and El Dorado Group. (See El Dorado.)

Butcher Ranch Group. Owner, G. Ponta, Downieville.

Location: Sierra City Mining District, Secs. 1, 11 and 12, T. 20 N., R. 11 E., 6 miles northwest of Sierra City, thence 56 miles by road, southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 6500′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpt. XIII, p. 373.

This property comprises five and a fraction patented claims, a total of 69.15 acres. Idle. There is said to be a vein 6′ wide, striking north.

Cedar and Baltimore Group. (Rising Sun.) Owner, T. Z. Blakeman.

Location: Forest Mining District, Secs. 34 and 35, T. 19 N., R. 10 E., 1 mile east of Alleghany, thence 31 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 263; XIII, p. 374. U. S. Geol. Survey Folio 66, Colfax.

The property comprises two patented claims, area 22.88 acres.

City of Six Mine. Owners, Hodgkinson and Henderson, Los Angeles.

Location: Downieville Mining District, Sec. 2, T. 19 N., R. 10 E., 1½ miles south of Downieville, thence 44 miles southwesterly by road to Nevada City (N. C. N. G. R. R.).

A new adit in which rails and an air pipe line are being placed, was being driven in 1914 to cut the vein which occurs in a contact of serpentine and porphyry. In September, 1915, a contract was let for extending the lower adit 100′, it being expected that it will intersect the rich shoot formerly worked near the surface, giving 400′ of backs on the vein. Henry Appilom was superintendent.

Cleveland Mine. Owners, John Costa and Lavaroni, Sierra City. Bonded to R. G. Gillespie of Pittsburg.

Location: Sierra City Mining District, Sec. 35, T. 20 N., R. 11 E., 4 miles west of Sierra City, by road, and 8 miles east of Downieville, by road. Elevation 4250′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

An electric plant was installed and put in operation early in 1916, supplying the various buildings with lights. This mine is run in conjunction with the Monarch, which is also bonded to Gillespie. By the middle of February, 1916, shaft sinking had reached 350′ and was progressing rapidly. A 10-stamp mill was working one shift, and an Ingersoll-Rand compressor was being installed to facilitate mining. Ben McMonigal was manager, and there were 35 men employed.

Cleveland Claim. Owner, A. L. House, 304 Kohl Building, San Francisco.

Location: Forest Mining District, Sec. 4, T. 18 N., R. 10 E., 2 miles southwest of Alleghany, thence 33 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 3500′.

Bibliography: Cal. State Min. Bur. Rpts. X, p. 650; XI, p. 414; XIII, p. 374. U. S. Geol. Survey Folio 66, Colfax.

This property consists of one patented claim, the Cleveland, with an area of 20.6 acres.

Colorado-Yellow Jacket Mine. Owner, C. C. Craig, Alleghany.

Location: Forest Mining District, Sec. 34, T. 19 N., R. 10 E., 3 miles southwest of Alleghany, 34 miles by road northwest of Nevada City (N. C. N. G. R. R.). Elevation 4500′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp 112, 113, 143. U. S. Geol. Survey Folio 66, Colfax.

The Colorado-Yellow Jacket mine consists of three claims, the Colorado, Colorado Extension and Yellow Jacket, a total of 37.66 acres of patented ground. After having been practically abandoned, this mine has suddenly become one of the most promising in the district. In July, 1914, the caretaker in charge, an experienced prospector, discovered a large shoot of gold-bearing quartz, and the owner returned to develop the property. An electrically operated air compressor will be installed and ore will be opened up by drifts. The mine is on Kanaka ridge and is a south extension of the El Dorado.

Continental Claim. Owner, Continental Mining Company; B. B. Lewis, Alleghany.

Location: Forest Mining District, Sec. 26, T. 9 N., R. 10 E., 1 mile east of Forest City, thence 37 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Dayton Consolidated Group. Owner, S. Stephenson, Sierra City.

Location: Sierra City Mining District, Sec. 36, T. 20 N., R. 11 E., 4 miles west of Sierra City, 52 miles northeasterly, by road, from Nevada City (N. C. N. G. R. R.). Elevation 4750′.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. U. S. Geol. Survey Folio 37, Downieville.

Del Norte and Scotia Mine. Owner, E. L. Crafts, Forest City.

Location: Forest Mining District, Sec. 4, T. 18 N., and Sec. 33, T. 19 N., R. 10 E., 1½ miles southwest of Alleghany. Alleghany is 31 miles by road northeast of Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 272; XIII, p. 382 (Scotia). Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of two claims—the Del Norte (10 acres), and the Scotia (20 acres), both locations, covering a length along the lode of 1300′. They are covered with a good stand of second growth timber.

The deposit is made up of kidney veins of quartz, in schist, carrying free gold, some arsenopyrite and pyrite. The foot-wall is diabase, the hanging wall serpentine. The width of the kidneys varies from 1′ to 3′, with a maximum length 100′. Strike is north, dip 15° W., and the pay shoot developed is 2′ wide by 50′ long.

Electric power can be obtained from Middle Yuba Hydroelectric Company.

Development work consists of a 400′ tunnel on the vein, reaching a vertical depth of 250′ below the outcrop, also open cuts and prospect holes.

There is a 2-stamp (1000-lb.) triple discharge mill, driven by a Union Iron Works 10-h.p. horizontal engine with locomotive boiler, on the property, and 100 tons of ore were milled, 40 tons of which averaged $6.25.

The Oriental and Cleveland mines adjoin.

Diadem Claim. Owner, J. M. Harper, Forest.

Location: Forest Mining District, Sec. 28, T. 19 N., R. 10 E., near Forest City, 39 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 4700′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Assessment work only.

Docile Claim. Owner, Edwin E. Smith, 71 First street, San Francisco.

Location: Forest Mining District, Sec. 35, T. 19 N., R. 10 E., 1 mile east of Alleghany, thence 3 miles by road southwest to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 264; XIII, p. 375. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of the Docile claim (10.61 acres), patented, and the Loosner location. The last mill run was made about 1894, and the mine has been idle since. Total production about $100,000.

It was developed by tunnels on the vein and upraises. Gold was not found in the quartz filling, but in the schist hanging wall. The foot-wall is serpentine.

Dreadnaught Mine. Owners, Evan R. Jones and Owen T. Owen, Forest.

Location: Forest Mining District, Sec. 35, T. 19 N., R. 10 E., 1 mile east of Alleghany, by road, thence 31 miles southwest, by road, to Nevada City (N. C. N. G. R. R.) Elevation 4400′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. Cal. State Min. Bur. Rpts. XII, p. 264; XIII, p. 375.

There are two claims in this property, the Dreadnaught, 20 acres, and the Seneca Fraction, 5 acres, covering a length along the lode of 1600′. They are situated on the northwest bank of the South Fork Kanaka Creek, and have some timber on them.

Development consists of a 280′ crosscut to the vein and 320′ run on it, reaching a vertical depth below the outcrop of from 200′ to 250′. A raise connects with old workings, and a winze has just been started.

The vein is a quartz filled fissure, the foot-wall being serpentine and the hanging wall schist. It averages 4′ in width, strikes N. 12° W., and dips 45° W., and has a proven length on the surface of 1500′, but may be faulted. A 200′ pay shoot was encountered.

This property has been under the present ownership for the past ten years. It is now bonded to Walter Harris, F. B. Delaney and Jerry Wood, all of Alleghany. Harris and one man were working the property in 1915. The total output to date is between $50,000 and $100,000. It is equipped with a 1-stamp mill.

Adjoining mines are the Gold King and the Docile.

Durston Gold Mining Company. Owners, same, 903 Merchants' National Bank Building, San Francisco.

Location: Forest Mining District, Secs. 3 and 4, T. 18 N., R. 10 E., about 40 miles, by road, northwest of Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

C. O. Jackson took the Louise and Sphoon claims under bond in November, 1913, for the above company. Twenty men were employed grading for buildings and developing quartz veins on both claims. During December, 1913, the Eastern and Western Cross and the Morning Fraction claims were bonded. Most of these properties have produced good ore, but have never been developed to much depth.

Eastern Star Mine. Bonded to C. A. Jackson.

Location: Forest Mining District. Forest City is 41 miles northeast of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

It was reported in March, 1916, that good ore had been opened up on this property. A compressor and other machinery will be erected as soon as the roads are in shape for transportation of heavy equipment. It is operated under bond by C. A. Jackson, representing Middle West investors.

Edwards Group. Owner, A. W. Edwards.

Location: Sierra City Mining District, Secs. 10 and 15, T. 21 N., R. 12 E., 10 miles by road south of Blairsden (W. P. Ry.).
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112–113. U. S. Geol. Survey Folio 37, Downieville.

The Edwards property consists of the Tunnel quartz claim (12.85 acres), the Consolidated Gold Lake quartz claim (54.28 acres) and the Philo Hayden placer claim (302.25 acres), all patented.

Eighty-Nine Claim. Owner, Geo. W. Cox, 2955 Claremont avenue, Berkeley.

Location: Gibsonville Mining District, near Howland Flat, thence 28 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

This property consists of one claim, the '89.'

Elcy Mine. (Buckingham.) Owners, J. L. Buckingham, Downieville and H. J. Noyes, Downieville or Los Angeles.

Location: Downieville Mining District, 7 miles southeast of Downieville, by road and trail, thence 44 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property consists of two claims, the Elcy and Mariposa, a total of 40 acres, covering a length along the lode of 1500′.

Buckingham located the property September 6, 1896. Development and assessment work has been done ever since. In 1914 it was bonded to Alfred Van Hovenberger, 717 Pacific Building, San Francisco; formerly was bonded with the Emerald quartz group to Clifford Smith and others, of San Francisco.

Development consists of a 643′ adit on a vein, which may not be the Elcy vein, also a 75′ shaft and open cuts.

There are two main veins, the Elcy and Mariposa, and a number of other veins and 'blowouts.' The Elcy is a quartz fissure vein containing free gold, pyrite and arsenopyrite, between a foot-wall of slate, and a hanging wall of granite ('porphyry'). It varies from 2½′ to 4′ in width, strikes north, following the contact, dips 45° E., and has a proven length of 2000′ on the surface. The Mariposa vein varies from 18″ to 2′ in width, strikes northeast and dips vertically between walls of granite. Ore in the Elcy shaft ran $27, and that

now being milled from open cuts goes $15 to $20. Concentrates run high in value. The total output to 1914 was about $5000.

There is a 5-stamp mill run by water power, obtained from springs through 800′ of pipe under a 243′ head; also a cabin and blacksmith shop. There is good timber on the property.

El Dorado Mine. Owners, Fessler Estate, Alleghany.

Location: Forest Mining District, Secs. 34 and 35, T. 19 N., R. 10 E., and Secs. 2 and 3, T. 19 N., R. 10 E., ½ mile east of Alleghany, thence 31 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 4000′.
Bibliography: Cal. State Min. Bur. Rpts. XI, p. 407; XII, p. 262; XIII, p. 372. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

Three claims, the El Dorado, the El Dorado Extension and the Terrible, make up this property, which adjoins the Tightner. There are 45 acres covering a length along the El Dorado lode of 1800′ and along the Terrible of 1500′. It is situated on the steep south side of the South Branch of Kanaka Creek and contains some timber.

The owners have held this property for 35 years, but in 1915 it was bonded by Fessler Brothers to J. L. and J. W. Armstrong of Alleghany. A total of $150,000 had been taken out to 1914, the greater part by Fessler.

The El Dorado is developed by an 1100′ tunnel on the vein, 900′ bearing S. 58° to 70° E., then 200′ bearing S. 2° W. The vertical depth below the outcrop, at the end of the tunnel, is 700′. At a distance of 980′ in from the tunnel mouth is a 25′ winze in good ore; 800′ in an 18′ main raise. At 980′ there is an upraise of 225′, with ore stoped on each side for a width of 30′.

The El Dorado vein is a fissure with well defined walls, filled with quartz, mariposite, and altered wall rock and carrying free gold and arsenical pyrite. The foot-wall is serpentine and mariposite, the hanging wall amphibolite schist. The vein varies from 3′ to 10′ in width, strikes S. 58° to 78° E., curving and striking S. 2° W., dips 60° SW., and has a proven length on the surface of 1500′. Three pay shoots were encountered, as follows: 190′ from mouth of tunnel a pay shoot 40′ long and 3′ wide; 800′ in, one 60′ long and 3′ wide; 980′ in, one 125′ long and 2′ to 3′ wide. Ore from the inside stope averaged $40 per ton for a width of 2′. The ore carried 1.2% concentrates, worth $70 per ton.

Mine equipment consists of blacksmith shop and a cabin, tools, a compressor (water power), 2 Waugh and 1 Ingersoll drills. The reduction equipment consists of a 10-stamp 750-lb. Risdon mill and 2 Johnson concentrators driven by a Pelton water wheel.

A water right to 150 inches under 115′ head from South Fork Kanaka Creek is owned.

[The property was worked for about three months in 1917 by the Croesus Gold Mining and Milling Company. Operation ended when a pocket or small ore shoot was worked out, and the property is idle (1918).—C. A. Logan.]

Emerald Quartz Group. Owners, D. W. Smith and Wm. Shipsey.

Location: Downieville Mining District, Sec. 9, T. 19 N., R. 11 E., 7 miles southeast of Downieville by road and trail, thence 44 miles southwest to Nevada City, by road.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Bonded in February, 1915, with the Elcy, to Wolfram and Rann of San Francisco. A 5-stamp mill was erected for a test run of ore developed on the property. C. S. Smith in charge.

Bonded in March, 1916, to James H. Bacon of San Francisco. Prospecting is said to have revealed a large ledge carrying free gold.

Empire Group. Owners, Empire Gold Mining Company, Humboldt Bank Building, San Francisco.

Location: Sierra City Mining District, Secs. 25 and 26, T. 21 N., R. 11 E., 8 miles, by road, northwest of Sierra City, thence 56 miles southwesterly, by road to Nevada City (N. C. N. G. R. R.). Elevation 7000′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 265; XIII, p. 375. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. U. S. Geol. Survey Folio 37, Downieville.

This property consists of patented ground having an area of 22.25 acres. It is equipped with a mill, an electric plant, office building, etc.

F. and F. Group. Owners, James Finan, Forest; O. H. Fuller, Grass Valley.

Location: Forest Mining District, Secs. 28, 29 and 30, T. 19 N., R. 10 E., 2 miles southwest of Forest, thence 39 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Federal Mine. Owners, Federal Mining Company, Nevada City; J. M. Harper, president, Fairmont; J. W. O'Neil, secretary, Nevada City.

Location: Forest Mining District, Sec. 27, T. 19 N., R. 10 E., within 1 mile of Forest City, thence 39 miles, by road, southwest to Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142.

This property comprises four locations, part placer and part lode, a total of 120 acres covering a length along the lode of 3000′.

The vein is developed by a 600′ crosscut tunnel to a serpentine contact, then a southerly drift along the contact vein for 500′.

It varies in width from 6″ to 2′ or 3′, strikes north and dips slightly to the west.

The Red Star mine adjoins.

Forest Queen Mine. Owner, J. F. Parkinson, Palo Alto.

Location: Sierra City Mining District, Sec. 21, T. 21 N., R. 12 E., 10 miles north of Sierra City, and 19 miles south of Blairsden (W. P. Ry.). Elevation 6650′.

Four Hills Mine. Owner, Wm. Acland Hood, Camptonville.

Location: Sierra City Mining District, Secs. 2, 9, 10 and 11, T. 21 N., R. 11 E., 12 miles south of Johnsville, by poor wagon road, 7 miles by trail; Blairsden 18 miles northeast by good road, Johnsville to Blairsden, 6 miles over poor road. Elevation 7374'.

Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 293. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

There is a total area in this property of 887 acres, all patented, as follows: Franklin, Napoleon, Luther, Wallace, Hull, Four Hills, Reynolds and Southeast Extension of Four Hills, quartz claims of 180 acres total; Whippoorwill placer, 160 acres, and Gibraltar placer, 147 acres, covering the outlet of Spencer Lakes and Middle Fork Yuba River; timber land in the SW. ¼ of Sec. 11-21-11; SW. ¼ of Sec. 35-22-11, SE. and NE. ¼ of SE. ¼, Sec. 11-21-11, 400 acres. The property covers a length along the lode of 3000'. It is situated on the high lava-capped ridge between Jamison Lakes and Gold Valley near the headwaters of East Fork and Middle Fork of the North Fork Yuba River. There is very little timber at the mine, but the timber tracts are well wooded.

The mine was worked in early days by Mexicans. Later a 4-stamp mill was erected by a man named Spencer. The Four Hills Company took out from $250,000 to $500,000 in one pocket from a hole 15' below the surface. Since the purchase of the property by the present owner, very little real development work has been accomplished, and only pocket mining has been done the last two years. Pockets ranging from $1500 to $6000 have been taken out from near the surface during this time. Two men are working the outcrop.

The main vein is developed by a 300' vertical shaft. A drain tunnel crosscuts 1100', then runs 200' south on the vein and cuts the shaft at the 150' level. From this point 1300' of drift was run south on the vein. Sixteen hundred feet was run on the vein by the Upper Mill or Mexican tunnel into the hanging wall to intersect the raise. Numerous crosscuts have been run at different points in the workings without results. A number of shoots have been stoped, ranging from 100' to 300' in length; 'Big Stope,' from the mill level to surface, a width of 6' and length of 200', was said to average $60 per ton; $20,000 is said to have been taken from one 'Main Stope' put up 70' from the Drain Tunnel when the ore pinched out, and by drifts from the shaft 100' below the Drain tunnel level for a length of 300'.

The above is the only vein so far developed, though there are others on the property. It is a quartz filled fissure vein. Large bodies seem to be formed by the intersection of veins and stringers with the main fissure, and the ore is said to be enriched at these points. The ore carries free gold near the surface, many rich pockets of oxidized ore having been taken out at shallow depths. In some places sulphides

(pyrite, chalcopyrite, galena and arsenopyrite) come to the surface. The walls are quartz porphyry and schist, and the vein varies in width from 1′ to 20′, the average being 4′ to 5′. On the north end it strikes east, on the south end north, forming a horseshoe. It dips 45° SW., and has a proven length on the surface of 3000′. There are said to be a number of shoots of ore averaging $5, which have never been stoped. On the surface, there is an outcrop 20′ in width, in which the best values occur along the foot and hanging walls, the rest of the vein being massive white quartz. This property in many ways resembles the Plumas Eureka, being on the same belt of quartz porphyry as the Plumas Eureka, four miles to the north, and the Sierra Buttes, ten miles to the south.

Equipment consists of Pelton wheels and generator capable of developing 300 horsepower, but it would cost $600 to put them in shape. There is also an electrically driven compressor, a hoist driven by compressed air, and a 20-stamp mill, 850-lb. and 950-lb. stamps, only 5 of which are being used.

Water from Spencer Lakes is taken down to Middle Fork under 950′ head, and there is also a water supply from springs.

Adjoining mines are the Empire and Sierra Iron.

Gabland Mine. (Little John and Klondike.) Owners, Mitchner Mining Company, Harry Mitchner, San Francisco.

Location: Sierra City Mining District, Sec. 7, T. 19 N., R. 12 E., 3 miles southwest of Sierra City; 13 miles east by road from Mountain House, thence 35 miles southwest by road to Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

There is a 3′ vein having a proven length on the surface of 200′, coursing north and dipping 25° W. The foot-wall is slate; the hanging wall, porphyry.

The vein is developed by a number of tunnels, one 125′ long, and a 20′ crosscut. Assessment work is being done. In 1900 Russel put in a roller mill, but never used it.

Garibaldi Claim.

Location: Sierra City Mining District, in Gold Valley, ½ mile southeasterly from the Empire, Sec. 36, T. 21 N., R. 11 E.
Bibliography: Cal. State Min. Bur. Rpt. XIII, p. 376. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. U. S. Geol. Survey Folio 37, Downieville.

General Grant Group. Owner, Elam Biggs, Grass Valley.

Location: Pike Mining District, Sec. 19, T. 18 N., R. 9 E., 3 miles southwest of Pike City, thence 26 miles southerly, by road to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

This property comprises two patented claims, the General Grant (17.79 acres) and the Blue Anchor (18.49 acres).

No work being done at present.

Gold Bluff Mine. (See Oxford-Gold Bluff Group.)

Gold Cañon Mine. (Two Counties Mine.) Owner, Mrs. C. Hill, 37 Croxton avenue, Oakland. Bonded to Gold Cañon Mines Company of Nevada City; Edwin T. Blake, president, Oakland Bank of Savings, Oakland; Chas. C. Derby, manager, Nevada City, California.

Location: Alleghany Mining District, Sec. 11, T. 18 N., R. 10 E., 3 miles south of Alleghany, Sierra County. Elevation 3000'.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

The Gold Cañon property, embracing the Gold Cañon patented claim and the Gold Queen, Fortune and Gold Cañon Extension locations, a total area of 72 acres, lies on both sides of the Middle Fork of the Yuba River, which forms the boundary between Sierra and Nevada counties.

The mine was discovered in the '60's. It has been worked at intervals since and is credited with a production of $730,000, the greater portion of which came from above the adit level. There are two main quartz veins known as the Gold Cañon and Gold Queen, but most of the exploratory work has been done on the Gold Cañon vein. The Gold Queen vein has been opened to a depth of from 30' to 50' by a 100' crosscut and a drift on the vein 150' in length. The development work on the Gold Cañon lode, which can be traced for a distance of 1800' on the surface, consists of an adit tunnel, driven as a crosscut a distance of 600' and then on the vein for 1600', giving a depth below the outcrop of from 80' to 300'.

An incline shaft was sunk to a depth of 370' and connected with the adit, and 160' below the connection a drift was run northwest on the vein a distance of 500'.

The Gold Cañon vein is said to vary in width from a few inches to 4', and the Gold Queen to average about 2'. The veins are quartz-filled fissure veins with a general strike of N. 40° W., and a dip of 45° NE.

They cross the contact of serpentine and amphibolite schist, the orebodies occurring in the schist within a few hundred feet of the contact. The well known Plumbago and Tightner mines occur in this same area of amphibolite schist and serpentine and the occurrence of orebodies and the mineralogical content of the ore in the Gold Cañon vein is characteristic of the other mines of the district. The ore is quartz carrying free gold and arsenopyrite, containing a high percentage of gold; some pyrite, chalcopyrite, galena and zinc blende. The ore shoots are as a rule small and irregularly distributed throughout the vein, generally being found near the foot-wall.

The property is equipped with a 5-stamp mill (1000-lb.), a 400 cubic foot Hendy air compressor, a small 8 x 10 duplex hoist, drill tools, boarding house and other buildings. Electric power is supplied

to mine and mill from a hydroelectric plant owned by the company. The mine was closed in July, 1914.

Golden King Mine. Owner, Golden King Mining Company, 118 California street, San Francisco.

Location: Forest Mining District, Sec. 35, T. 19 N., R. 10 E., 1½ miles east of Alleghany, thence 41 miles southwest by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: Cal. State Min. Bur. Rpts. XI, p. 417; XII, p. 266; XIII, p. 377. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Golden King consists of two claims, the Gold King and Gold King Extension, an area of 40 acres and covering a length of 3000′ along the lode on both sides of Kanaka Creek. It was last worked in 1895. Production 1890-1895, $250,000.

The vein is of the quartz fissure type, containing free gold and arsenopyrite, with a foot-wall of schist and a hanging wall of serpentine. It varies from 1′ to 12′ in width, strikes northwest and dips 45° NE., and has a proven length of 3000′ on the surface.

It was developed by a 400′ vertical shaft, on the west side of the creek, 100′ above the creek level, and an adit tunnel 800′ long, driven on the vein from the collar of shaft. Ore stoped to the surface is said to have gone $25 per ton. On the 400′ level a drift was run from the shaft, northwest 600′.

The mine is equipped with a good 10-stamp Hendy mill and 3 Frue vanner concentrators driven by water and steam, also a bunkhouse, superintendent's house and assay office.

Golden Fraction Mine. Owner, E. Carlsen, superintendent.

Location: Forest Mining District, situated on the east side of Kanaka Creek. Forest City is 39 miles by road northeast of Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

Work was resumed on the Golden Fraction in August, 1915, with several buildings under construction. The mine has produced some rich ore, though never worked along broad lines.

Golden Scepter. (See under Placer Mines.)

Gold King Claim. Owner, Marie H. Welden, Post Office Box 803, Grass Valley.

Location: Forest Mining District, Sec. 5, T. 18 N., R. 10 E., 3 miles southwest of Alleghany, thence 41 miles southwesterly by road, to Nevada City (N. C. N. G. R. R.). Elevation 4000′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

This property consists of one patented claim, the Gold King, containing 20.66 acres.

Operations were resumed during March, 1916, by W. H. Weldon, and it was planned to install a compressor and machine drills with the arrival of good weather. (Work was suspended without any important developments and the mine was idle in September, 1918.)

Gold Lake Claim. (Glidden.) Owner, Arthur Edwards, Prescott, Arizona.

Location: Sierra City Mining District, Sec. 15, T. 21 N., R. 12 E., 10 miles north of Sierra City, 19 miles south of Blairsden. Elevation 6800'.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 266; XIII, p. 376. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. U. S. Geol. Survey Folio 37, Downieville.

Not working at present.

Gray Eagle Mine. (Gold Point.) Owner, Mrs. Patton, Cadillac Hotel, San Francisco. Bonded by W. H. Remington, Mills Building, San Francisco.

Location: Downieville Mining District, Sec. 28, T. 20 N., R. 11 E., 6 miles east of Downieville, by road, thence 44 miles southwest by road, to Nevada City (N. C. N. G. R. R.). Elevation 3800'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The Gray Eagle property consists of the following locations: Gray Eagle, Gray Eagle Extension and South Extension, Wood, Annex A., Annex B., East, Gray Eagle Annex No. 2, Gray Eagle Extension No. 2, Gray Eagle Annex No. 9, Gray Eagle Annex No. 12, 3 millsites. Four men are doing assessment work.

A 10-stamp mill and tramway with electrical equipment are on the property, and water rights are owned.

Was to be sold November 30, 1914, at sheriff's sale to satisfy labor liens.

Graphic Claim. Owner, Thos. Rose, Camptonville.

Hartman Claim. Owner, Henry Hartman.

Location: Pike City Mining District; Pike City is 28 miles by road north of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

This property covers a gold-bearing ledge 3′ to 5′ wide on the Alleghany serpentine belt. Much rich float indicates the possibility of another high-grade producer.

High Commission Mine. Owners, John A. and Annie Reid, Downieville.

Location: Downieville Mining District, Secs. 25 and 36, T. 20 N., R. 10 E., 1 mile east of Downieville, thence 44 miles southwest by road to Nevada City. Elevation 4000′ to 5000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The property consists of two claims, the High Commission North and High Commission South, also the High Commission North Extension, a fraction, making up a total of 50 acres and covering a length along the lode of 3600′. It covers the surface from the South Fork of the North Yuba to Ben Pauly Ravine on the East Fork of North Yuba. There is some timber on the property.

Judge Davidson discovered this property about 1888 and took out $18,000 in a bunch of arsenopyrite by sinking an 18′ shaft. It was held by him until relocated in 1905 by the present owners, who have

since taken out about $1700. Two men worked during the summer of 1914.

There are two veins, the High Commission and Big Ledge. There is an adit tunnel on the former, 280′ long; 250′ vertically below, a crosscut tunnel 38′ long was run and tapped the Big Ledge, showing 11′ of vein matter, mostly slate, porphyry and quartzite. On the High Commission South claim there is a 15′ tunnel on each vein. The 280′ tunnel is 900′ above the road and 700′ below the top of the hill.

The High Commission is a quartz vein carrying free gold and arsenopyrite. It averages 4½′ in width, strikes north and dips nearly vertically with a proven length on the surface of three miles. The foot-wall is slate, the hanging wall porphyry. The Big Ledge vein, parallel and 60′ distant, is an 11′ vein, dipping vertically and filled with quartz, slate and decomposed porphyry carrying free gold and no sulphides.

The Mexican mine adjoins and the High Commission vein is parallel to and 300′ east of the Mexican vein.

Homestake Claim. Owner, Mrs. B. Haskell, General Delivery, Oakland.

Location: Downieville Mining District, Sec. 9, T. 9 N., R. 10 E., 3 miles southwest of Downieville, 38 miles, by road, northeast of Nevada City (N. C. N. G. R. R.). Elevation 5600′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Assessment work only being done.

Ina Claim. Sold to state in 1904 for taxes.

Location: Gibsonville Mining District, near Howland Flat, 1 mile northwest of Table Rock, thence 30 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Independent Claim. Owner, F. A. Pearson, Alleghany.

Location: Forest Mining District, Sec. 12, T. 18 N., R. 10 E., 3 miles southeast of Alleghany, thence 31 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 3200′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Property consists of one patented claim of 18.35 acres.

Ireland Mine. Owner, K. K. Ash, engineer in charge.

Location: Forest Mining District, north of the Plumbago mine, on ridge between it and Alleghany (town).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Early in 1916 another rich deposit was encountered in the upper tunnel, 860′ from the mouth. A survey of this section of the mine has been made and plans drawn for extensive work. Idle in September, 1918.

Ironsides Mine. (Sierra Del Oro Company.) Owners, H. B. McCormick, W. I. Redding, Downieville; John Mayer, Sierra City.

Location: American Hill Mining District, Sec. 20, T. 19 N., R. 11 E., 9 miles east of north of Mountain House, by trail and road, thence 35 miles southwest to Nevada City (N. C. N. G. R. R.) or 57 miles southwest to Marysville (S. P. R. R.) by road. Elevation 5000'.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 142-143. U. S. Geol. Survey Folio 66, Colfax.

The Ironsides mine adjoins the Alhambra and consists of eight claims, the Sierra Del Oro, South Extension, North Extension, North No. 1, North Extension No. 2, East Extension, West Extension, and West Extension No. 1, a total of 160 acres, covering a length along the lode of 7500'. It is situated in a steep cañon dropping from the lava covered divide between North Fork and Middle Fork Yuba River. Some timber grows on the property.

Jack Ironsides discovered this property in the '60's. A small mill was erected and a little stoping done, but later the mill burned down. The ground was relocated by the present owners in 1910. From nine to fourteen men worked up to May, 1914, and it was expected to work six or seven men during the winter of 1914-1915.

The deposit includes the Ironsides and some other parallel veins which have not been developed except by open cuts. The Ironsides is a fissure vein with a filling of quartz, slate and porphyry, carrying free gold, arsenopyrite and galena, cutting the strike of the slates at an angle. Both the foot and hanging walls are sometimes slate and sometimes porphyry. It varies in width from a small stringer vein to 16', strikes north, dips 61° E., and has a proven length on the surface of 7500'. The main pay shoot developed was 200' long and from 4' to 12' wide.

The Ironsides is developed by an 80' crosscut to the vein, then 600' on the ledge to the first shoot 110' long (stoped to surface). At a point 60' further the top of another shoot 32' long and 3' wide was struck, and a winze sunk 10' in ore. The upper tunnel, 70.5' above the lower one, is an 80' crosscut driven to the vein, then along it for 240' through pay ore, which was stoped 72' to the surface. A winze was sunk 200' from the crosscut for 42' in good ore. A short tunnel on the south side of the gulch, 52' above the lower tunnel, struck another shoot 90' long, which was worked to the surface. A crosscut tunnel 1500' long from the creek would give 575' of backs below the lower tunnel level.

A blacksmith shop, a lighting dynamo, and a Nissen 1-stamp mill having a capacity of 8 tons of quartz per 24 hours, driven by a 12-h.p. Fairbanks-Morse distillate engine, comprise the mine equipment.

The Pilgrim ditch, two miles in length, takes water from Harris Meadow. A minimum of 28" and a maximum of 150" under a 450' head is available. The operators were putting in a pipe line in 1914.

More water can be developed from Nigger Cañon by a ditch three-fourths of a mile in length.

Labor cost $3 per day or $2.25 per day and board. Lumber cost $45 per thousand feet and distillate 9½¢ at Marysville in 1914. Freight from Marysville was $1.50 per hundred pounds; from Nevada City, $1.35 per hundred.

Jim Crow Claim. Owners, L. and Thomas Buckingham, Yuba City; G. Powell, Marysville.

Location: American Hill Mining District, Sec. 9, T. 19 N., R. 11 E., 6 miles southeast by road and trail from Downieville, thence 44 miles southwest to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 142-143. U. S. Geol. Survey Folio 66, Colfax.

The Jim Crow property consists of one claim, the Jim Crow, twenty acres in area, located in 1897 by the present owners, and covering a length along the lode of 1500′.

There are two veins, the North Extension of the Elcy, and the Blanket vein, both quartz fissure veins. The former varies from 18″ to 3′ in width, strikes north and dips 45° E. The foot-wall is slate, the hanging wall granite. The Blanket vein varies from 6″ to 2′ in width, dips 10° E. and has slate walls.

There is a 40′ shaft driven to the Blanket vein and a 400′ tunnel on the contact. No quartz was encountered, so the mine was abandoned.

The Elcy mine adjoins.

Jumper and Tippecanoe Group. Owner, John Reid, Downieville.

Location: Downieville Mining District, Sec. 1, T. 19 N., R. 10 E., on main road Downieville to Sierra City, 1 mile east of Downieville, thence 44 miles southwest to Nevada City (N. C. N. G. R. R.). Elevation 4500′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The property consists of two claims, the Jumper and Tippecanoe, a total of 40 acres, covering a length along the lode of 3000′. It is situated south of the South Fork of the North Yuba at the head of Slate Castle Ravine, extending to the top of the ridge, between Slate Castle and Secret ravines. There is good timber on the property.

Wm. Kidd first located the claims in 1900. They were purchased from Kidd by Julian and Sergent, lapsed and relocated by the present owner in 1910. Two men were working in 1914, putting ore through an arrastra, run by means of an overshot wheel, which used water from a large spring.

There are two veins on the property: the Big Ledge and Little Ledge, parallel and 250′ apart. No work has been done on the Big Ledge, which is hard quartz. The Little Ledge is a 3½′ vein composed of clay gouge with sulphides. It strikes north, and has a proven length on the surface of 300′. The dip is probably vertical, but may be a little to the east.

Development consists of a 30′ incline on the Little vein, and a 90′ crosscut tunnel which has not yet reached it. The upper tunnel is only 8′ above the lower one. The workings are in a slide.

The Moore mine lies between the Jumper and Tippecanoe property and the High Commission, all being on the same formation. This deposit is a southern extension of the High Commission.

Kanaka Claim. Owner, L. Foss, Downieville.

Location: Downieville Mining District, midway between Downieville and Sierra City, 50 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: Cal. State Min. Bur. Rpts. XI, p. 404; XIII, p. 379. U. S. Geol. Survey Folio 37, Downieville.

Kate Hardy and Derelict Mines. Owners, Jose Realty Company, Knox Building, San Jose. Bonded to Kate Hardy Mining Company, Knox Building, San Jose; W. M. Cooper, president.

Location: Forest Mining District, Secs. 29 and 32, T. 19 N., R. 10 E., 2 miles southwest of Forest City, 30 miles by road southwest to Nevada City (N. C. N. G. R. R.). Elevation 4200′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 181. U. S. Geol. Survey Folio 66, Colfax.

This property consists of the Kate Hardy and Derelict claims, patented, covering 2900′ along the lode; also the Blue Bird, Blue Bird Extension, and Hooligan unpatented; and an undivided half-interest in the Brush Creek Placer claim; a total area of 240 acres. The Kate Hardy lies on the south side of Oregon Creek, and the Derelict on the north. There is some timber on the property.

The Kate Hardy mine has been worked at intervals since about 1860 and has a reported production of $225,000. Baggs purchased the property from Tyler Dudley in 1908. Twelve men were employed, 2 on top, 7 in the mine, and 3 in the mill, in 1914.

The vein on the Kate Hardy is developed by a lower tunnel 650′ long, the face being 275′ below the surface, and an upper tunnel, 300′ long, 160′ above the lower one. A raise, 360′ in the lower tunnel, strikes a middle tunnel 90′ above, 300′ in. There is a crosscut 27′ long, and 360′ in on the lower tunnel, to the hanging wall. From the bottom of a 45′ winze from the lower tunnel crosscut, another driven to the hanging wall shows 15′ of quartz. A tunnel on the Derelict claim is run 150′ on the vein at the same level as the lower Hardy tunnel. All the tunnels are run on the foot-wall. A surface crosscut on top of the hill, 350′ to 400′ beyond the face of the tunnel, shows 42′ of quartz. The present operators propose to sink 500 feet.

The deposit is a quartz fissure vein, the ore having a ribbon structure and carrying free gold, pyrite and arsenopyrite. The ore is partly oxidized, but contains considerable quantities of sulphides, which commonly consist of small patches of finely crystalline pyrite, the latter rarely going over $10 per ton. The foot-wall is serpentine, and the vein varies from 10′ to 30′ in width. It strikes N. 24° W.

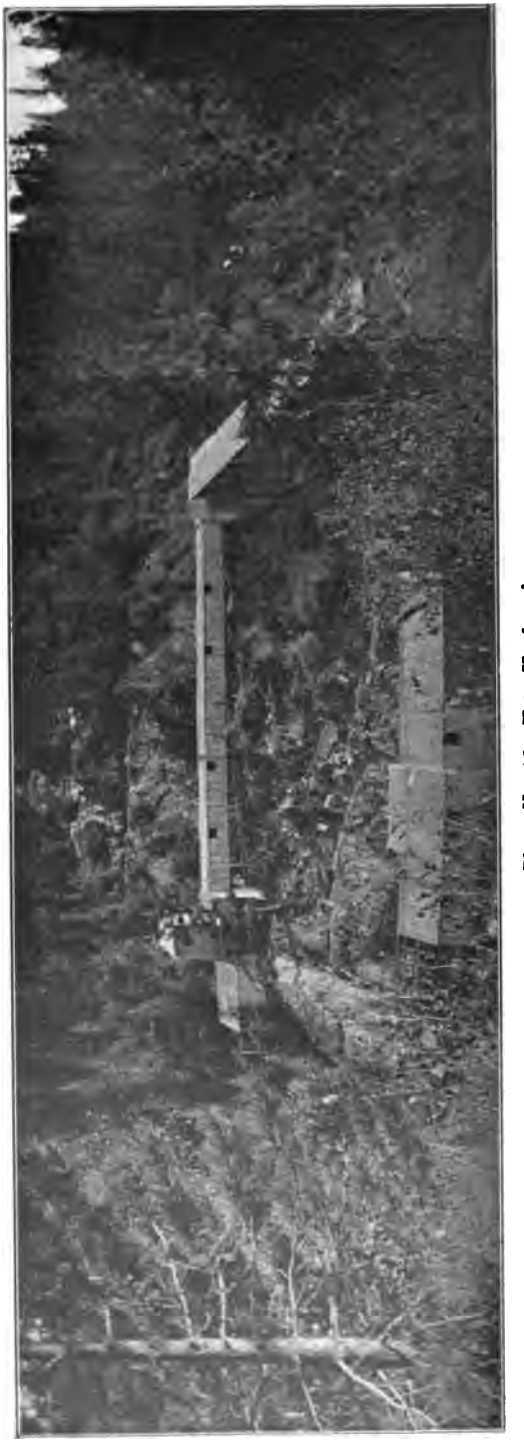

Photo No. 16. Kate Hardy mine.

and dips 83° W. Six pay shoots are developed. The gold ranges in value from $16.30 to $16.75 an ounce.

Equipment consists of a Dow duplex compressor, 12″x 12″, electric driven, 600 cubic foot capacity; blacksmith shop, 3-stamp Hendy mill, and a Wilfley table and electric pump. Electricity from the Yuba Hydroelectric Power Company, at Colgate, is used for power.

The Brush Creek mine adjoins.

Kenton Mine. Owner, Dr. Royal, Pasadena, California.

Location: Forest Mining District, Sec. 4, T. 18 N., R. 10 E., 1 mile southwest of Alleghany, thence 31 miles southwest by road, to Nevada City (N. C. N. G. R. R.). Elevation 3200′.

Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 175. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Kenton property consists of the Kenton, King Solomon, and King Solomon millsite locations, covering 60 acres, and extending 3000′ along the lode.

It was discovered in 1860 and is supposed to have had a large production. Eight stamps were installed in 1864 and 10 more added in 1882, but for the last few years practically no gold has been obtained. It was last worked about 1912 by Judge Polk, of Los Angeles. Bonded in April, 1915, to New York people, represented by Judge Case.

A 90′ crosscut tunnel strikes the vein 125′ below the outcrop, 400′ was drifted on the vein and from 4½′ to 9′ stoped on the hanging wall side. A crosscut tunnel runs 120′ below the upper tunnel, 513′ to the ledge and 14′ south on the vein. On the King Solomon claim there is a 150′ crosscut tunnel and a 350′ drift south in broken country rock, but no well-defined vein was encountered.

The Kenton quartz vein carries free gold and patches of pyrite, and arsenopyrite throughout. It varies from 4′ to 16′ in width, strikes a little east of north and dips 45° E., between walls of schist or diorite.

Besides the old 18-stamp mill containing 4 Union vanners, there is a boarding house and bunkhouses.

Preparations were being made in 1914 to again operate this property, with A. Madden in charge.

Kentucky Mine. Owner, E. A. Loeffler, Sierra City.

Location: Sierra City Mining District, Sec. 27, T. 20 N., R. 13 E., 1 mile northeast of Sierra City, thence 50 miles by road to Truckee (S. P. R. R.) or 36 miles northeast to Loyalton. Elevation 4500′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The Kentucky mine consists of two claims, the Grandma and the Kentucky. The total area is 40 acres and the length covered along the lode is 3000′. It is one of the early discoveries, relocated by the present owner in 1910.

The vein is developed by a 700′ tunnel. The crosscut cuts the vein at 530′, giving 250′ of backs, but no drifting has been done. A new tunnel was being run on the Grandma claim in 1914.

Keystone Mine. Owner, Sam W. Cheney.

Location: Sierra City Mining District, Secs. 5 and 6, T. 19 N., R. 12 E., 3 miles southwest of Sierra City, thence 19 miles north by road, to Blairsden (W. P. Ry.). Elevation 5500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property comprises three patented claims, a total of 50 acres, and also the Martini quartz location. It is bonded to Whitcomb of Sierra City, representing the Alta Sierra Gold Mining Company of 237 First street, San Francisco.

Rich ore was encountered in the mine in December, 1914. In February, 1916, ore averaging $10 per ton was being milled, 10 stamps, dropping one shift per day. Mine developments continued to open fair grade ore. Nine men were employed breaking ore in the stopes.

The property is equipped with a mill and other buildings, cars, tools, etc., and was being operated in 1916 on a lease by Bigelow and Gilbreath.

Keystone Gold Mining Company. Owners, same; J. R. Powell, Plymouth, Pennsylvania.

Location: Forest Mining District, Sec. 24, T. 19 N., R. 10 E., about 3 miles east of Forest City, thence 40 miles southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

The Keystone property consists of the following locations: the Columbia (quartz), the Mountain View, Mountain View Extension and Pliocene (placer).

King Consolidated Group. (Hayes Consolidated.) Owner, John Hayes, Sierra City.

Location: Sierra City Mining District, Sec. 31, T. 20 N., R. 12 E, 3 miles west of Sierra City, and 53 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. U. S. Geol. Survey Folio 37, Downieville.

Kinselbach Mine. Owners, Dr. J. C. Frazer Estate, J. T. Church and Gardner Smith, Pasadena.

Location: Forest Mining District, Sec. 36, T. 19 N., R. 10 E., 3 miles southeast of Forest City, and 39 miles southwest by road, to Nevada City (N. C. N. G. R. R.). Elevation 4000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

There is a total area of 60 acres, covering a length along the lode of 4500′. It was worked in early days.

The vein shows a width of 6′ at the outcrop, strikes N. 15° W., dips 85° E., and has a proven length on the surface of 4500′. It is developed by a 150′ tunnel located 55′ north of the creek on a contact. Some pockets have been taken out.

Lawler Claim. (Mount Moriah.) Owner, D. R. McIntosh, San Francisco.

Location: American Hill Mining District, 7 miles northeast of Minnesota, thence 44 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax. Cal. State Min. Bur. Rpts. XII, p. 269; XIII, p. 380.

Lonesome Pine Mine. (Dolly Varden.) Owners, Homer Gould, Downieville; John Donnelly, Sacramento.

Location: American Hill Mining District, Sec. 8, T. 19 N., R. 11 E., 5 miles southeast of Downieville, thence 44 miles by road southwest to Nevada City. Elevation 4000′.
Bibliography: Lindgren W., U. S. Geol. Survey Prof. Paper 73, pp. 142-143. U. S. Geol. Survey Folio 66, Colfax.

The Lonesome Pine property contains two claims, the Lonesome Pine North and the Lonesome Pine South, a total area of 40 acres with a length along the lode of 3000′. The surface is quite steep and contains some timber.

This property was discovered in the early days by placer miners, and is said to have produced to date $15,000 from pockets. It was worked during the summer of 1914.

The vein is of quartz and altered wall rock, carrying free gold and arsenopyrite. It strikes north and dips east between a hanging wall of slate, and foot-wall of porphyry.

It is developed by two tunnels, one 80′ on the vein from the creek level and another crosscut adit 120′ to the vein and 100′ on it. A 60′ shaft is caved.

There is a house and blacksmith shop. It would be possible to get 300″ of water under a 125′ head with an 1800′ ditch.

The Pappoose mine adjoins.

Lone Star Group. Owner, Lone Star Consolidated Gold Mining Company; Mr. Thomas, Citizens Bank, Grass Valley, secretary.

Location: Sierra City Mining District, Sec. 25, T. 21 N., R. 11 E., 8 miles by road northwest of Sierra City. Elevation 6750′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XI, p. 405; XII, p. 268; XIII, p. 379.

The property comprises three patented claims, the Mount Pleasant, Mount Pleasant Extension and the Rough and Ready, a total of 52.44 acres. No work has been done for years.

Lorenzo Claim. Owner, P. Lorenzo, Johnsville.

Location: Sierra City Mining District, Sec. 26, T. 21 N., R. 11 E., 8 miles by road northwest of Sierra City. Elevation 6000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Lost Treasure Mine. Owners, Fred Phippiner, Wm. Davies, Forest City.

Location: Forest Mining District, Sec. 20, T. 19 N., R. 10 E., 3 miles west of Forest City, 35 miles northeast of Nevada City (N. C. N. G. R. R.) by road. Elevation 4500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Lost Treasure property consists of two claims, the Comet and the Lost Treasure, an area of 40 acres covering 1500′ along each lode. The surface is steep and rugged, with a good stand of timber. It was located in 1909 by the present owners.

The Lost Treasure vein is developed by a 70′ tunnel on the vein, reaching a depth below the outcrop of 40′, and the Comet vein by open cuts and a shaft 12′ deep.

The Lost Treasure vein, 400′ east of the Comet vein, is a fissure filled with quartz and porphyry and carrying gold, arsenopyrite and pyrite, with some free gold near the surface in oxidized ore. Both walls are porphyry. The vein is from 1′ to 8′ in width, strikes a little north of west, dips 45° S., and has a proven length of 1000′ on the surface. Bunches of arsenopyrite, but no pay shoots, developed. The Comet is a quartz fissure vein carrying free gold and pyrite. The walls are porphyry. It is 2′ wide, strikes east, dips 45° S. and has a proven length on the surface of 1500′.

The mine is within two miles of the Middle Yuba Hydroelectric Company's line, but a blacksmith shop with tools is the only equipment.

The Brush Creek mine lies one mile to the west, the Kate Hardy one and one-half miles to the south.

Luella Claim. Owner, Jas. D. Alexander, Downieville.

Location: Poker Flat Mining District, Sec. 22, T. 21 N., R. 10 E., 3 miles south of Poker Flat, thence 32 miles northerly by road to Quincy. Elevation 6000′.

Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Mammoth Springs Mine. Owners, J. W. McGuire, Alleghany, and F. C. Davis, 2506 Folsom street, San Francisco.

Location: Forest Mining District, Sec. 26, T. 19 N., R. 10 E., 2 miles east of Forest City, thence 39 miles southwest to Nevada City (N. C. N. G. R. R.). Elevation 5500′.

The Mammoth Springs quartz property consists of three claims, the Contact, Contact No. 1 and Contact No. 2, a total of 60 acres, covering a length along the lode of 4500′.

The deposit consists of the Talc contact vein and a quartz vein 100′ to the west. On the Talc vein there is an upper tunnel driven 500′ on the ledge, and reaching a depth of 150′. From the face of this tunnel there is a 250′ incline shaft. A tunnel, 150′ below, will have to be driven 200′ further to reach the shoot. The Quartz vein is developed by a 30′ shaft and a 100′ tunnel on the vein reaching a depth of 50′ below the outcrop.

The Talc vein carries free gold in talc schist and 1½% of arsenical pyrites. The foot-wall is serpentine, and the hanging wall slate. It varies from 8′ to 12′ in width, strikes N. 10° to 30° W., dips 65° E., and has a proven length on the surface of 3500′. One

pay shoot developed 30′ in length. The Quartz vein contains free gold, strikes N. 10° to 30° W., and dips 65° W.

Equipment consists of 5 stamps and 1 Huntington mill, capacity 25 tons per 24 hours, a blacksmith shop, boarding and bunkhouse.

Mammoth Claim. Owners, Richard Sparling Estate, Table Rock, and Mrs. Strand.

Location: Poker Flat Mining District, Sec. 2, T. 21 N., R. 10 E., 4 miles east of Table Rock, thence 30 miles north to Quincy by road. Elevation 5500′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Assessment work only being done.

Maple Grove Claim. Owner, E. L. Crafts, Forest.

Location: Forest Mining District, Sec. 26, T. 19 N., R. 10 E., 2 miles east of Forest City, thence 39 miles, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Marguerite Claim. Owners, Westall Brothers, Sierra City.

Location: Sierra City Mining District, Sec. 3, T. 20 N., R. 12 E., 6 miles north of Sierra City. Elevation 3900′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Mariposa and Ophir Group. Owners, Mrs. H. Apple, Palo Alto, owns Ophir; A. S. Grant owns Mariposa and 1000′ of Eclipse.

Location: Forest Mining District, Sec. 34, T. 19 N., and Secs. 2 and 3, T. 18 N., R. 10 E., 1 mile south of Alleghany, thence 31 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 4400′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of three claims, all patented: the Ophir (17.87 acres), the Mariposa (15.34 acres), and the Eclipse (20.65 acres).

The last work was done about 15 years ago. The total production is said to be $118,000.

The property is developed by three tunnels. The upper tunnel, 300′ long, reaches a depth of 70′ below the outcrop; the middle tunnel, 70′ lower than the first, is 250′ long, and the lower tunnel, 70′ below the second, is 600′ long. They are all driven on the vein. A crosscut tunnel started 180′ west of the lower tunnel has been driven a distance of 200′. The vein is worked from the 180′ level in a winze to the upper workings. There is a 200′ prospect tunnel and winze on the Eclipse vein from North Fork Kanaka Creek, and from the west side of the creek a 300′ tunnel on the Ophir vein showed it to be from 18″ to 4′ wide, 300′ below the surface. Some rich ore was produced. The vein is spotty, and productive in specimen ore.

The Mariposa and Ophir vein is a fissure vein, from 18″ to 3′ in width, striking N. 30° W., and dipping 45° NE. The foot-wall is serpentine and the hanging wall schist.

Property bonded to J. R. Hilmsley and Clay Covenay in August, 1915. Arrangements have been made to install electric power. There is a 5-stamp mill on the property.

Mexican Group. Owners, T. J. Jerome and Ed York, Downieville.

Location: Downieville Mining District, Secs. 25 and 26, T. 20 N., R. 10 E., 1 mile east of Downieville, thence 44 miles by road southwest to Nevada City (N. C. N. G. R. R.). Elevation 4000'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The Mexican group comprises five locations, the Colorado, Golden Star, South Fork, Mexican No. 1 and No. 2, a total of 100 acres, with 12 acres of patented land on the river. The claims are situated on the high ridge east of Downieville, and are cut through by the Yuba River. There is some timber on the property.

Mexicans located the property in early days, and it was later relocated by Judge Davidson, who did assessment work for 30 years. It was again relocated in 1906 by York Brothers, who have since been doing assessment and development work.

The Mexican and a parallel vein, 40' west, have been worked by two tunnels. The lower tunnel, 30' above the road, is in 350' on the vein, and the upper tunnel, 125' vertically above it, is in the same distance. Both tunnels are in a pay shoot, shown by open cuts to be 900' long on the surface. Another vein, the South Fork, has been developed by surface cuts only. The Hartley vein has been developed by a lower crosscut tunnel 300' long, with 50' driven on the vein; 80' above this a crosscut tunnel was driven 70' and 150' drifted on the vein, all in ore. In 1914 stoping was being done above the upper tunnel to the surface, 45' above. One hundred fifty tons of ore stoped from July to November 15, milled $3.30.

The deposit is in quartz fissure veins in slate, the vein filling being quartz and slate, carrying free gold, arsenopyrite and pyrite. The Mexican vein varies from 2' to 15' in width, the parallel vein averages 4' to 5' in width. They strike north, dip 70° to 80° E., and have a proven length on the surface of 3000'. The South Fork vein is a contact vein carrying pyrite, but no arsenopyrite. The foot-wall is quartzite, the hanging wall slate. This vein is 20' wide, strikes north, and dips east. The Hartley vein runs across the formation, striking northeast, and dipping 60° NW. It is 5' wide on the foot and hanging wall with a 5' horse between.

A mill completed in June, 1914, is equipped with a Hendy mill having five 900-lb. stamps using 50-mesh screens, and a Johnson concentrator. There is room in the building for 10 stamps.

Electric power is obtained from the York Electric Plant, which supplies Downieville. Three thousand inches of water from the Middle Fork of North Fork Yuba River are available.

The Gold Bluff mine adjoins.

Mineral Mountain Claim. Owner, W. O. Frost, Downieville.

Location: Downieville Mining District, Sec. 2, T. 19 N., R. 10 E., 1 mile south of Downieville, thence 44 miles southwest, by road, to Nevada City (N. C. N. G. R. R.). Elevation 3800'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Minnesota Development Group. (Gold and Silver Mining Company.) Owner, same; J. O. Jones, Forest City, superintendent.

Location: Forest Mining District, 1½ miles southeast of Alleghany, thence 41 miles by road southwest to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax. Cal. State Min. Bur. Rpt. XIII, p. 379.

Minnie D. Mine. Owner, Albert Holm, Alleghany.

Location: Forest Mining District, Sec. 34, T. 19 N., R. 10 E., situated just below the town of Alleghany, 31 miles by road northeast of Nevada City (N. C. N. G. R. R.). Elevation 4400′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax. Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 173.

The Minnie D. quartz property has a total area of 30 acres. The two claims, the Lucky Holm (20 acres) and the Minnie D. Fraction (10 acres), have a length along the lode of 2300′. It is situated on the steep west side of the gulch formed by the North Fork of Kanaka Creek, with the outcrop on the top of the hill. Located in 1905 by the present owner.

It is developed by two tunnels, 60′ apart vertically. The upper tunnel follows the vein for 150′; the lower tunnel, 320′ long, struck the vein 25′ in. The face is 100′ below the surface. The following notes are largely from H. G. Ferguson's report in Bulletin 580, U. S. Geol. Survey:

The vein strike varies from N. 65° W. to N. 80° W. and the dip averages 46° NE. It cuts sharply across the schistosity of the amphibolite and is, in several places, joined by stringers from the foot-wall side. The thickness varies from a maximum of 15″ to practically nothing, the usual width being about 2″. The quartz is distinctly banded and in places approaches comb structure. It contains nests of little pyrite crystals, accompanied by specks of sphalerite and galena. Free gold is found where the stringers from the foot-wall intersect the vein. The gold is in the quartz near the sulphides and is very commonly smeared out along slips in the vein. A rare occurrence of gold was seen in the presence of minute specks on the faces of pyrite crystals.

The Tightner, Morning Glory and Martin Rorig mines adjoin.

Monarch Mines. Owners, J. H. and F. M. Lee, Sierra City. Bonded to R. G. Gillespie, Pittsburg.

Location: Sierra City Mining District, 3 miles northwest of Sierra City; Blairsden 30 miles north of mine by road via Sierra City. Elevation 6500′.

The Monarch Mines property consists of 520 acres of locations covering a length along the lode of 12,000′. They are the Alconda, Mountain Lily, Monarch, Homestake, Miner's Dream, Independence No. 1, Snowflake (water right), besides 20 other claims. It is located along the west rim of the ridge from Sierra Buttes, and there is some good timber on the property.

Lee Brothers located the claims in 1909. They were worked in 1910 by Thompson and bonded in 1912 to Gillespie, who began work in August, 1913. A total of 35 men were working two shifts, 12 in the mine and 4 in the mill, at that time.

The vein is developed by a 100′ shaft in the hanging wall, a 225′ crosscut, which is being driven into the foot-wall, and 500′ driven on the vein. An old 170′ shaft is connected by a 60′ incline.

The vein is made up of quartz stringers in decomposed amphibolite at the contact of serpentine, amphibolite and slate. There is 100′ of decomposed rocks with stringers, 6′ of which has been worked. The foot-wall is serpentine, the hanging wall is slate and 'porphyry,' probably oxidized amphibolite. It strikes N. 38° W., dips 60° to 65° NE., and has a proven length on the surface throughout the claim. A pay shoot 100′ long has been developed. The ore is oxidized and free milling.

The shoot of rich ore, encountered early in 1916 on the lower level, has been traced for 150′ along the foot-wall, and is apparently developing into one of the best veins yet discovered in the property. The management is considering driving a long working tunnel to open the ore bodies several hundred feet below the present workings. This tunnel would also displace the shaft as the main working avenue.

Mine equipment consists of a 150-k.w. Pelton hydroelectric generator unit, 12,200′ of pole line, 2-drum Hendy electric hoist, 220-volt, 50-h.p. motor, sawmill of 5000 feet a day capacity, large bunkhouse, hoisthouse, and blacksmith shop. There is a 20-stamp mill equipped with 10 new Taylor Grass Valley stamps and 10 old stamps in a new corrugated iron building. A new pump and an air compressor are being installed and a large dam is being constructed in Black's Cañon to hold the tailings. Twenty stamps were dropping in 1916. Dan McMonigal is manager.

In February, 1916, the vein on the 200′ level had been opened for over 300′ by the west drift. It averages 7′ in width and is of milling grade. The shaft is to be deepened to 400′, giving 700′ of backs, and a main working adit will be driven later.

Power is obtained from the South Fork of North Fork Yuba through an 8300′ ditch, carrying 600 inches of water with a 150′ head.

The Sierra Buttes properties adjoin on the southeast.

Monroe Consolidated Group. Owner, Monroe Consolidated Quartz Mining Company.

Location: Forest Mining District, Sec. 35, T. 19 N., R. 10 E., near Alleghany, thence 31 miles southwesterly to Nevada City (N. C. N. G. R. R.) by road.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

The Monroe Consolidated quartz mine has a total area of 29.29 acres, all patented.

Morning Glory Mine. Owner, Martin Rohrig, Alleghany.

Location: Forest Mining District, Sec. 34, T. 19 N., R. 10 E., adjoins town of Alleghany; 31 miles, by road, northeast of Nevada City (N. C. N. G. R. R.). Elevation 4500'.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

(The five-stamp mill was run three shifts for one month and one shift for about six weeks longer, in 1917, but the results are not known. The property was idle in the autumn of 1918. This is a pocket mine.—C. A. Logan.)

Mountain Mine. Owner, F. B. Wehe, Monadnock Building, San Francisco.

Location: Sierra City Mining District, 3 miles north of Sierra City, 27 miles south of Blairsden (W. P. Ry.). Elevation 6500'.
Bibliography: Lindgren W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The vein is a quartz fissure, from 10' to 20' in width, striking north-northwest, and dipping 60° E. Last worked about 1905.

Mountaineer Claim. Owner, S. Shinn, New York City.

Location: Sierra City Mining District, Sec. 5, T. 20 N., R. 12 E., 6 miles by road and trail, north of Sierra City; 24 miles south of Blairsden (W. P. Ry.). Elevation 6100'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Mountaineer Claim. Owner, Harry Morris.

Location: Sierra City Mining District, Sec. 24, T. 21 N., R. 12 E., 7½ miles north of Sierra City.

Patented.

Mount Fillmore Consolidated Group. Owners, J. C. Wolters and Frank Bonnie of Gibsonville.

Location: Poker Flat Mining District, Sec. 34, T. 22 N., R. 10 E., 3 miles southeast of Gibsonville, thence 26 miles north by road to Quincy.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 269; XIII, p. 380. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Mount Fillmore property consists of four claims, the Sunnyside, Rattlesnake No. 1 and No. 2 and Blue Jay. There is an area of 80 acres covering a length along the lode of 3000'. It was formerly owned by Wingate, but was relocated by the present owners.

The mine is developed by a 350' tunnel driven on the vein, the face being 125' below the outcrop. Three crosscuts, 50' apart, are from 15' to 25' in length across the vein.

The latter is quartz, carrying free gold, pyrite and galena. The foot-wall is slate, the hanging wall slate and 'porphyry.' It varies from 15' to 25' in width, strikes northwest, dips 46° W., and has a proven length on the surface of 3000'. The ore taken out ranged from $5 to $20 per ton.

There is a cabin and also a blacksmith shop on the property.

Water is available from Cañon Creek under a head of from 50' to 60', the water right being owned.

Mugwump Mines Company. (See under Drift Mines.)

New York Mine. Owner, Schuld.

Location: Poker Flat Mining District, Sec. 3, T. 21 N., R. 10 E., ½ mile north of Poker Flat, thence 34 miles north by road to Quincy.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The New York mine consists of one claim 20 acres in area, with a length along the lode of 1500′. It is situated on the north side of Cañon Creek. This property was abandoned after working out an ore shoot 30 years ago. Durell relocated it, but later forfeited, and it was then acquired by Schuld.

A quartz fissure vein carrying free gold and pyrite is developed by an E.–W. tunnel of unknown length. The foot-wall is serpentine, the hanging wall slate. The vein has a width of about 3′, strikes north, and dips 65° E. The Freeborough mine adjoins.

Northern Bell Group. Owner, L. Rosenfeld, San Francisco.

Location: Sierra City Mining District, Sec. 31, T. 20 N., R. 12 E., 2 miles east of Sierra City, thence 30 miles northerly to Blairsden (W. P. Ry.). Elevation 4300′.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653. U. S. Geol. Survey Folio 37, Downieville.

The Straussuer, Straussuer Extension, Bulletin Extension and the Hunkidora claims comprise this property.

North Fork Mine. Owner, North Fork Mining Company, 1301 Merchants Exchange Building, San Francisco.

Location: Forest Mining District, Sec. 21, T. 19 N., R. 10 E., ½ mile north of Forest City, thence 41 miles, by road, southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 4900′.
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Early in 1916 preparations were under way to sink the shaft 200′. This will give a total depth of 385′ and is expected to pass through

Photo No. 17. Surface plant at North Fork mine.

the broken formation which has caused much trouble in the present workings, and enter the contact between serpentine and porphyry. Some rich arsenical pyrite was extracted at 185′. There are three pumps in operation in the shaft and they are expected to easily handle the water, which has seriously hampered the work lately. The ledge lies between diorite and schist.

Oakland Mine. Owner, F. A. Gowing.

Location: Sierra City Mining District, Sec. 13, T. 21 N., R. 11 E., 11 miles north of Sierra City, by road; 8 miles southwest of Blairsden (W. P. Ry.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property was sold by F. B. Voyle to F. A. Gowing of Oakland in December, 1914.

Oriental Group. Owners, Oriental Gold Mining Company, New York; Schley & Moore, New York.

Location: Forest Mining District, Sec. 33, T. 19 N., and Sec. 4, T. 18 N., R. 10 E., 1 mile west of Alleghany, thence 31 miles southwest to Nevada City (N. C. N. G. R. R.) by road. Elevation 4600′.
Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 580, pp. 176-177. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Oriental group consists of the following claims, all patented: Carrolson, Ethel, Pittsburg, Alta, Alta Annex, Admiral, Blue Jay, Oriental and Oriental Millsite, making a total of 153.4 acres. The mine is situated on the north side of Kanaka Creek.

The mine had been idle for some years previous to 1915. One shoot between the surface and the 400′ level produced $3,000,000, of which amount $734,000 came from a single area 14′ by 22′.

The following description is drawn nearly verbatim from H. G. Ferguson's report in Bulletin 580 I, U. S. Geol. Survey:

The vein is reached by a 4150′ tunnel from the cañon side at an elevation of 4050′, which, for the most part, passes through amphibolite schist, but from the 3600′ point to the face is in much altered microcline granite. Two veins developed on this level. The southern vein cuts the granite, but is here small and poorly defined. The northern vein is at the northern contact of the granite and schist and has been developed only on this level. For about 400′ it follows the contact very closely, but at the west end it passes first into granite and then into schist. The southern vein is developed on several levels.

The strike varies, but averages about N. 70° W. The dip is from 30° to 35° N. in the lower levels, but steepens to 50° in the upper levels. In places the quartz pinches out for short distances, but on the whole it is fairly persistent, with a maximum width observed of 10′. All stoping was done along the foot-wall, generally the lower 2′ of the vein being mined. Small quartz stringers are very common

in the schist near the vein, and pyrite occurs in the quartz in small patches half an inch across. The granite near the vein carries pyrite and much carbonate and is said to carry gold. In the rich ore, however, there is the same association of gold and coarsely crystalline arsenopyrite that occurs in the other mines of this district.

Operations were resumed in May, 1915, with 10 men employed by the Croesus Gold Mining and Milling Company, with Walter B. Pearson in charge. A 10-stamp mill with two 6-foot Frue vanners was placed in commission December 5. Bunkhouses and other buildings have been completed.

[This company is said to have mined about 5000 tons from below the tunnel, but abandoned the property in 1917.—C. A. Logan.]

Oro Group. Owners, Oro Quartz Gold Mining Company; L. Rosenfeld, Merchants Exchange Building, San Francisco.

Location: Downieville Mining District, Sec. 35, T. 20 N., and Sec. 2, T. 19 N., R. 10 E., ½ mile south of Downieville, thence 44 miles by road, to Nevada City (N. C. N. G. R. R.). Elevation 3600′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The Oro property consists of the Oro No. 1, Oro No. 2 and Code claims, a total of 47.44 acres of patented ground.

There are two gold-bearing veins on the property, one small but very high grade, the other assaying $3 to $6 per ton.

Bonded to Dr. G. P. Reynolds and associates, of Alameda, and work resumed in June, 1915. Early in 1916 a contract was let at $9 per foot for extending the tunnel 200′.

Osceola Mine. Owner, R. G. Gillespie, 605 Park Building, Pittsburg, Pennsylvania.

Location: Forest Mining District, Sec. 34, T. 19 N., R. 10 E., ½ mile northeast of Alleghany, thence by road 31 miles southwest to Nevada City. Elevation 4600′.
Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 508, pp. 173, 174. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of one patented claim, the Osceola, 20.66 acres in area. It is situated above the North Fork of Kanaka Creek. Development work was in progress in May, 1913.

H. G. Ferguson* says the following regarding this property:

"The upper tunnel, at an elevation of 4370′, follows the vein N. 60° W., for about 40′, and then for the same distance N. 47° W. The dip is here 55° NE. The vein consists of white quartz and is 6′ wide at the portal and 2′ at the face. The lower tunnel at an elevation of 4200′, has a length of 1650′. The strike of the vein in the outer part of this tunnel is N. 45° W., in the central part between N. 60° and 70° W., and near the face N. 25° W. Near the portal the dip is 50° NE. In the central part it steepens to 70° or more, and near the face of the tunnel it flattens to 35°. The vein has a maximum width of

*U. S. Geol. Surv. Bull. No. 580-I.

10′, but between points 650′ and 1150′ from the portal the quartz pinches out and the tunnel follows a crushed zone in the schist. From the 1150′ point to the face the quartz is continuous. Near the portal there is a split in the vein and a part goes off to the north with a dip of 60° W. In the richer patches the quartz contains narrow dark bands of crushed arsenopyrite, and near these free gold is found. The ore, so far as could be seen, is similar to that of the other mines in this district. * * * A large amount of ore has been taken out from this mine, but the production is unknown."

Owen and Jones Group. Owners, Owen and Jones, Forest City.

Location: Forest Mining District, Sec. 22, T. 19 N., R. 10 E., 2 miles west of Alleghany, thence 31 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

The Gold King mine adjoins on the south.

Oxford-Gold Bluff Groups.

OXFORD GROUP: Owners, E. L. Carr and H. H. Meyers, Downieville. Bonded with Gold Bluff, to Grant Snyder and Cliff Mining Company.

Location: Downieville Mining District, Secs. 22, 23, 26 and 27, T. 20 N., R. 10 E., 1 mile north of Downieville, thence 44 miles by road southwest to Nevada City (N. C. N. G. R. R.). Elevation 3400′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 269; XIII, p. 381. U. S. Geol. Survey Folio 37, Downieville.

The Oxford group consists of the Good Hope, Good Hope Extension No. 1, No. 1 South, No. 2 North and No. 3 North, claims, all patented. The total area is 100 acres, with a length along the lode of 6000′.

The main tunnel starts from the east side of the claim, at an elevation of 3400′. This tunnel crosscuts the slate, and reaches the vein at 650′, from which point 800′ is drifted on the vein to the north and 100′ to the south. Another tunnel, on Extension No. 1, is a 150′ crosscut and 50′ drifted on the vein. On Extension No. 2 a 250′ crosscut cuts the vein 80′ from the mouth, and drifts north on the vein for 30′.

The deposit is in a quartz fissure vein 50′ away from the contact of slates and serpentine. The ore is oxidized, the quartz carrying free gold, but arsenopyrite will probably be found at depth. The walls are a mixture of slate and soapstone, but the hanging wall on No. 2 Extension is porphyry. The vein strikes N. 15° W. to N. and to N. 15° E., dips 53° E., and has a proven length on the surface of 6000′.

Operated with the Gold Bluff, which is also under bond to Grant Snyder. A tramway is being built to transport Oxford ore to the mill on the Gold Bluff.

A 150-light generator is installed to furnish electric light to mill, boarding house and bunkhouse.

GOLD BLUFF: Owner, Lewis Rosenfeld, Merchants Exchange Building, San Francisco.

Location: Downieville Mining District, Secs. 13, 14, 15, 22 and 23, T. 20 N., R. 10 E., 1½ miles north of Downieville, thence 44 miles southwest to Nevada City (N. C. N. G. R. R.). Elevation 3200'.

Bibliography: Cal. State Min. Bur. Rpts. XII, p. 266; XIII, p. 376. U. S. Geol. Survey Folio 37, Downieville.

This property consists of the following patented claims: Gold Bluff, Gold Bluff No. 1 Extension and Gold Bluff No. 2 Extension (53.42 acres), Gold Bluff No. No. 5 and Fraction (41.62 acres), Gold Bluff No. 4 and No. 5 Millsites and Christmas Millsite (14.90) and Gold Bluff Placer, and the unpatented Oregon, New Year, Christmas, Monterey, Sailor, Ravine, Gold Bluff No. 3, Gold Bluff No. 4 Extension, Gold Bluff No. 6 Extension, Brevity, Sleeper, Buller, Sweetwater, Rosenfeld, Gold Bluff Millsite, Gold Bluff No. 3, No. 2, No. 6 Millsite and Monterey Millsite, locations.

The property was discovered in 1851, and though changing hands in the meantime, it was run with few intermissions until 1902.

The deposit comprises three veins: the Gold Bluff and two parallel veins. They are quartz fissure veins along the contact of slate and porphyry dikes, containing free gold and pyrite. The Gold Bluff vein averages 3' in width, strikes north, and has a proven length on the surface of one mile. The foot-wall is slate, the hanging wall porphyry.

Development consists of two main tunnels, No. 3 and No. 4. No. 3 tunnel intersects the main vein at 1050', from which point 600' is drifted north on the vein. No. 4 tunnel, 210' below, intersects the vein at 1400', from which point 600' is drifted to the north on the vein.

Mine equipment consists of assay office, blacksmith shop, boarding house and buildings. A compressor is to be installed. Reduction equipment consists of a 20-stamp mill, 1000-lb. stamps, and 1 Johnson concentrator, mill building, with a tramway erected to connect with the mine.

All the water necessary for power is obtained from a ditch, two miles in length, under 230' head and from the Middle Fork of the North Fork Yuba River under 300' head.

At present bonded to Grant Snyder, 414 Judge Building, Salt Lake, representing the Cliff Mining Company, of the same address.

Pacific Alta Group. Owner, D. Conlan, St. Louis, Sierra County.

Location: Poker Flat Mining District, Sec. 12, T. 21 N., R. 9 E., ½ mile east of St. Louis, thence 32 miles by road, northerly to Quincy. Elevation 5000'.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Pappoose, Alice and Plummer Group. Owners, Mrs. John G. Morse, Forum Building, Sacramento; Capt. Harry Howland; S. W. Shaeffer, 3238 Encinal avenue, Alameda, owns Plummer.

Location: Downieville Mining District, Sec. 8, T. 19 N., R. 11 E., 4 miles southwest of Downieville by trail and road, thence 44 miles southwest to Nevada City by road. Elevation 3500'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Pat Young Claim.

Location: Sierra City Mining District; Sierra City is 56 miles northeast by road from Nevada City (N. C. N. G. R. R.), 20 miles south by road from Blairsden (W. P. Ry).
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

This is a southerly continuation of the Sierra Buttes property.

Phoenix Mine. Owners, heirs of C. J. Winstead, in litigation with heirs of J. W. Kane.

Location: Sierra City Mining District, Secs. 21 and 22, T. 20 N., R. 12 E., 1 mile north of Sierra City, 20 miles south of Blairsden. Elevation 6300' to 6500'.
Bibliography: Cal. State Min. Bur. Rpts. X, p. 653; XI, p. 402; XIII, p. 381. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The Phoenix group contains 124.7 acres of patented claims, namely, the Phoenix, Phoenix Millsite, Phoenix Extension No. 1 and No. 2, West Extension No. 1, No. 2, No. 3 and No. 4, Phoenix East Extension, No. 1 Millsite, and, besides these, five unpatented millsites, making about 150 acres in all. The lode is covered for a length of 9600'. It is situated on the southeast and southwest slopes of Sierra Buttes.

The property was discovered by Mexicans in 1862. Later it was owned by James Winstead, who took out $112,000, $44,000 of which was from the West Extension. Next owned by Beard and Winstead, and bought by A. C. Busch in 1889 from Beard for $27,000. Busch took out $48,000 until 1891, since which time it has been in litigation.

The mine is developed by a 700' adit tunnel to the vein, with drifts on the vein 450' west and 350' east. There is a 112' winze from drift 20' east of the adit, and a raise of 150' on the main shoot. Two old shafts are both caved. One-half of the ground above the adit tunnel level has been stoped, averaging $5.50 per ton, with limits of $8 and $4.

The vein is a quartz fissure carrying free gold, pyrite, galena and chalcopyrite. There is quartz gouge on both walls, the foot-wall being blue diorite and the hanging wall porphyry. The width of the vein is about 3½', and it strikes east, and dips 63° to 74° N. Three shoots developed as follows: 125' by 3' wide, 50' by 3' and 84' by 3'; 1% to 2% concentrates go $150 per ton.

Equipment consists of a 20-stamp Hendy mill, 20 years old, but in good condition, and electrical machinery, moved to the Young America mine, but still owned by the Phoenix.

Electric power is used, a flume two and one-half miles long supplying 2500 inches of water from North Fork Yuba and 500 inches from Big Spring, the water right being owned.

Adjoining mines are the Sierra Buttes, Butte Saddle, Mountain View and J. H. Henderson claims.

Pilgrim Mine. Owners, Dos Pesos, 20 Broadway, New York.

Location: American Hill Mining District, Sec. 23, T. 19 N., R. 11 E., near American Hill, Nevada City (N. C. N. G. R. R.) is 45 miles southwest by road. Elevation 4680′.

Bibliography: Lindgren, W., U. S. Geol. Survey, Prof. Paper 73, pp. 142, 143. U. S. Geol. Survey Folio 66, Colfax.

This property consists of the Pilgrim Annex, a patented claim of 20.55 acres; also two patented placer claims, the Essex and Petticoat, covering 296.24 acres. A good deal of work has been done on this property, but none in recent years. Two or three pay shoots developed.

Plumbago Mine. (Croesus.) Owner, Croesus Gold Mining and Milling Company, 747 Fifth avenue, New York; Grant B. Schley, president.

Location: Forest Mining District, Sec. 2, T. 18 N., R. 10 E., 2½ miles southeast of Alleghany, thence 31 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 5000′.

Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 178. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112,113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Plumbago property consists of eight quartz claims and one millsite, all patented, namely, the Hope (17.21 acres), Crofts (10.84 acres), Clute (17.21 acres), Gold Beater (12.72 acres), Standard (13.22 acres), Standard Extension (19.25 acres), Enterprise (17.54 acres), Marion (20.36 acres) and Plumbago Millsite (3.64 acres), a total of 132 acres. It is situated on the south side of the divide between Kanaka Creek and the Middle Fork Yuba River.

Work has been carried on at intervals since before 1860, and the production is said to have amounted to several millions. A total of 55 men were employed in 1915.

The mine is developed by a 200′ crosscut tunnel, then 3800′ of drifting on the vein. This is called No. 4 or lower tunnel. At 2300′ from the portal there is a 330′ winze with level No. 5, 113′ below, then 135′ to No. 6, then 80′ to No. 7. On No. 6 level 500′ has been drifted NW.–SE., on No. 6 drifts run 130′ east and 460′ west, and between No. 6 and No. 7 a drift runs 210′ west. At the northwest end of No. 4 tunnel a break or split was encountered, the same as in the upper levels.

The vein lies in a belt of amphibolite, between two bands of serpentine less altered than usual. This belt is about 300′ wide at the widest part, but narrows to the northwest, where it passes under the gravels which cap the ridge and wedges out again to the southwest.

The vein strikes N. 45° W., and dips 30° to 45° NE., sometimes 60°. The quartz forms in lenses, varying from 1′ to 12′ in width, with rich spots which seem to follow poorly marked shoots which have a southeast pitch. The localization is considered to be due to an intersection of two veins. The quartz carries free gold in bunches. Outside of the high grade the ore carries irregular amounts of sulphides, principally pyrite, but including also galena, sphalerite and chalcopyrite. From 1% to 2% of concentrates run $80 to $100 per ton.

Equipment consists of 2 Westinghouse generators, 180-h.p., 220 volt, and 240-h.p., 220 volt; two compressors, 550 cubic foot and 700 cubic foot capacity, Norwalk and Ingersoll, respectively, and a Ward drill sharpener, houses, etc. The mill is equipped with a 20-stamp 850-lb. Joshua Hendy battery and 4 Johnson concentrators. Mill and concentrating plant were destroyed by fire March 17, 1915, but a new 15-stamp battery and concentrators, arranged to facilitate the addition of extra units, went into operation on July 5, 1915.

Water is obtained from Middle Fork Yuba River under 94′ head through 6000′ of 34″ redwood pipe. Transportation costs are $15 per ton from Nevada City.

[The mine was closed in the summer of 1918 and the manager's absence made it impossible to get any new data. The winze is said to have reached a depth of 800′ below No. 4 tunnel, which is said to be the limit attainable with the present hoist. Information regarding reopening of the property is conflicting.—C. A. Logan.]

Prospect Group. Owner, Prospect Mining Company.

Location: Downieville Mining District, Sec. 2, T. 19 N., R. 10 E., ½ mile south of Downieville, thence 44 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 3600′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property embraces the Triple Pocket, York, Jump and Cleopatra claims, a total of 96.22 acres of patented land.

Rainbow Mine. Owner, J. H. Hunt, San Francisco. Leased to E. S. Brindle and Company.

Location: Forest Mining District, Secs. 2 and 3, T. 19 N., R. 10 E., 1 mile south of Alleghany, thence 31 miles by road southwest to Nevada City (N. C. N. G. R. R.). Elevation 4000′.
Bibliography: Cal. State Min. Bur. Rpts. XII, p. 270; XIII, p. 381. Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 177. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Rainbow property consists of three claims, all patented, the Farnham (12.6 acres), Groves (17.21 acres) and Hanley (20.64 acres), covering a length along the lode of 4500′. It is situated on the steep banks of Kanaka Creek.

The vein was discovered in 1885 in the course of gravel mining and is said to have produced $1,500,000. There had been a 10-stamp mill which was burned down in May, 1913, on the property. Leased for six months to E. S. Brindle and Company, starting September 1, 1914.

The vein is developed by two tunnels. The lower one is a 1500′ crosscut to the vein, then on it for 700′. The upper tunnel, 500′ above lower tunnel, is 3000′ in length. An upraise from the lower connects with the upper tunnel.

Two veins have been developed to some extent. The smaller one has an average strike of about N. 15° W., and dips 65° W.; the other vein has a general strike of about N. 70° W., and dips 30° to 65° north. The latter has furnished the gold yielded by the mine. The quartz is milky white, generally between 1′ and 2′ wide, but in some places reaches 5′ or 6′. Intersecting veins enter from both foot and hanging wall, but a band of gouge everywhere separates the intersecting vein from the main vein, indicating later movement parallel to the strike. The ore occurs in small rich shoots, very rich masses of free gold and arsenopyrite having been taken out around the edges of the large mass of quartz found near the intersection of two veins.

There is an Ingersoll-Rand 12″ x 14″ single stage compressor on the property. Both electricity and water are used for power. Water is obtained from Kanaka Creek under 160′ head.

Consolidated with the Twenty-One, in April, 1915. B. W. Mitchell, manager.

Rā O (or Rao) Prospect. Owner, R. T. Garnier, 1735 Mission street, South Pasadena.

Location: Forest Mining District, Sec. 34, T. 19 N., R. 10 E., mine at Alleghany; Nevada City (N. C. N. G. R. R.) 31 miles southwest by road.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This prospect contains 14 acres. The vein strikes N. 60° W., the country rock being schist and serpentine. One crosscut tunnel runs 55′ to a stringer vein and 50′ is driven on this. A new crosscut tunnel, which will be 150′ long, was being run to strike the big vein.

The Osceola adjoins on the south.

Red Jacket Claim. Owner, Thos. Rose, Pike City.

Location: Pike City Mining District, 28 miles by road north of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Bonded, together with the Good Hope and Good Hope Extension claims, to H. J. Elbert of Grass Valley in April, 1915. The claims lie on Oregon Creek and have been prospected sufficiently to indicate the presence of rich ore. The new operator has arranged for vigorous development and has started preliminary work.

Red Ledge Mine. (Red Chief.) Owner, Bank Mining and Promotion Company, Prudential Building, Buffalo, New York; W. H. Barnhart, at same address, president.

Location: Forest Mining District, Sec. 12, T. 18 N., R. 9 E.; Forest 6 miles northeast; Nevada City 33 miles southwest by road.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property consists of four locations, held by the present company for 14 years. The surface is steep.

About 75 tons of machinery and 50,000 feet of lumber had been delivered (December, 1914) preparatory to construction of a mill the next spring. A crosscut has passed through 122′ of $4.50 to $7 ore. J. B. Moulton in charge. The new 10-stamp mill was placed in commission in September, 1915. Byron James, superintendent (since deceased).

Republic Group. Owner, A. B. Jenkins, Tuolumne City.

Location: Downieville Mining District. Downieville is 44 miles by road northeasterly from Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The property consists of two claims on which assessment work was being done in 1914.

Rising Sun Mine. Owners, F. Morton, San Francisco, and Alfred B. Morton, Baltimore, Maryland.

Location: Forest Mining District, Sec. 35, T. 19 N., R. 10 E., 1 mile east of Alleghany, thence 31 miles by road to Nevada City (N. C. N. G. R. R.). Elevation 4430′.
Bibliography: Cal. State Min. Bur. Rpts. XI, p. 418; XII, p. 382. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

This property has not been worked for 15 or 20 years. Old workings are inaccessible.

Robinson Claim.

Location: Sierra City Mining District. Sierra City is 56 miles northeast by road from Nevada City (N. C. N. G. R. R.), and 20 miles by road south of Blairsden (W. P. Ry.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

Adjoins the Antlered Crest.

Roman Claim. Owner Richard Phelan, Phelan Building, San Francisco.

Location: Sierra City Mining District, Sec. 3, T. 19 N., R. 12 E., 2 miles southeast of Sierra City, thence 56 miles southwesterly by road to Nevada City (N. C. N. G. R. R.). Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Sacred Mount Mine. Owners, Richard Phelan, Phelan Building, San Francisco, and Dennis Phelan, Sierra City.

Location: Sierra City Mining District, Sec. 28, T. 20 N., R. 12 E., 1 mile from Sierra City and 20 miles south of Blairsden (W. P. Ry.). Elevation 5000′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property was located in 1900 by Sam Langdon, who sold it to Richard Phelan. It is situated above Sierra City, on the south slope of Sierra Buttes.

The vein has been developed by a 100′ tunnel drifted on the ledge. Ore was stoped to the surface 65′, and worked through the Butte Saddle Mill. The vein is a quartz fissure coursing northeast through country rock of quartz porphyry and slate.

A. Church and associates, lessees, were sinking a winze during March, 1916, to get under ore assaying $8 per ton on the surface. Bonded, in April, 1916, together with the Buttes Saddle property, to San Francisco operators.

A cyanide plant, completed in 1915, was in operation on tailings which assay over $9 per ton.

Salinas and Mercer Claims. Owner, Ed. Freeman, Sierra Valley.

Location: Sierra City Mining District, Sec. 35, T. 20 N., R. 11 E., 5 miles west of Sierra City, 51 miles by road northeast of Nevada City (N. C. N. G. R. R.). Elevation 5700'.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

Assessment work only being done.

San Lois Mine. Owner, Mitchner Mining Company, and H. Mitchner, San Francisco.

Location: Sierra City Mining District, Sec. 6, T. 19 N., R. 12 E., 2½ miles southwest of Sierra City, thence 20 miles north by road to Blairsden (W. P. Ry.). Elevation 6000' to 7000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The San Lois property contains four or five claims. There is good timber on the property, but no ore has ever been milled.

Development work consists of a lower tunnel 1000' long, which did not encounter the vein, and an upper tunnel, 1000' above the lower one, which cut the vein 250' in. Drifts were run each way, 150' and 100'.

The maximum width of the vein is 2'. It strikes east, and has a dip of 60° S. between a foot-wall of slate, and a hanging wall of porphyry. The country is pretty well broken up.

Equipment consists of a boarding house and blacksmith shop. A contemplated 5-stamp mill, to be run by steam, was never erected.

Adjoining mines are the Roman and the Keystone.

Sebastopol Mine. (Last Resort Placer Claim.) Owners, Chris Hansen and Brothers, Sierra City.

Location: Sierra City Mining District, Secs. 21 and 26, T. 21 N., R. 12 E. Blairsden is 17 miles north by good road. Elevation 7000'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

This property consists of the following locations: the Sebastopol, Extension and Star, a total of 60 acres, covering 3000' along the Sebastopol vein and 1500' along the Star. The property is situated in Mountain Meadows and contains good timber.

It was worked in early days as a placer mine, and proved rich. The present owners discovered quartz in 1912.

The Sebastopol vein is developed by a 300' crosscut, which is driven 250' on the vein. The greatest depth reached below the outcrop is 90', and one raise 60' long is driven to the surface.

The deposit consists of quartz and altered country rock, carrying free gold and less than 1% of sulphides. There is no well-defined vein. The foot-wall is augite-porphyrite, altered near the vein, and the hanging wall is said to be the same. The lode varies from 12′ to 20′ between walls and gold is stated to be found throughout. Its strike is east, the dip 70° N., and it can be traced on the surface for 600′. One pay shoot 250′ in length developed.

Equipment consists of cars and a blacksmith shop. A 5-stamp Risdon mill is now being erected, the mill building being large enough for 10 stamps. Five men were employed in 1914.

Water is obtainable from the Westphal Dam under 90′ head.

Adjoining mines are the Round Lake quartz mine and the Westphal placer claim. The latter has not been worked for the last five or six years.

Secret Cañon Mine. Owner, George Henk.

Location: Downieville Mining District, Sec. 1, T. 19 N., R. 10 E., 3 miles southeast of Downieville, thence 44 miles by road, southwest to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Assays on manganese ore from the shaft being sunk on the ledge by George Henk showed values of from $38 to $80 per ton. Negotiations were nearing culmination, in August, 1915, for the acquisition of important quartz and placer properties by George Henk and associates, representing California and eastern investors. The holdings concerned extend from Secret Cañon to Forest and embrace the Ruby and other mines.

Shaughnessy Claim. Owner, Wm. Shaughnessy, Downieville.

Location: Downieville Mining District, Sec. 32, T. 20 N., R. 11 E., in upper end of Shady Flat and Mobile Flat. Downieville is 44 miles northeasterly by road from Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Sherman Mine. Owners, Bradbury Estate, Mrs. E. J. Jenkins, Seattle.

Location: Forest Mining District, Sec. 34, T. 19 N., and Secs. 3 and 4, T. 18 N., R. 10 E., 1½ miles southwest of Alleghany, thence 31 miles by road to Nevada City.
Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 175. Lindgren, W., U. S. Geol. Survey Prof. Paper, 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Sherman property consists of one patented claim, the General Sherman, 25 acres in area, and covering 2200′ along the lode. H. G. Ferguson has substantially the following to say regarding this property:

"There is a tunnel 1000′ long on the vein (100′ below its outcrop). The main vein is well defined for the first 700′. At 650′ from the portal the tunnel encountered a nearly horizontal quartz stringer, which has been followed for 450′. Beyond this it pinches out, and only small discontinuous stringers of quartz are found to a point within about 50′ of the face, where a vein about 1′ wide comes in.

The vein is sinuous, the strike varying between north and N. 30° W., and the dip averaging about 60° W. The vein material is white quartz, slightly iron-stained. In places it contains small inclusions of schist, and rarely small patches of pyrite associated with a little minutely crystalline arsenopyrite. Parallel to the walls are streaks of gouge, containing pyrite."

The average width of the vein is 3′, the maximum from 10′ to 12′. Electricity is used for power. The Nevada group of mines adjoins.

Sierra Alaska Mining Company. (Alaska Mine.) Owners, Sierra Alaska Mining Company, Pike City; W. S. Schuyler, Pike City, president, and Oliver Crook, Pike City, secretary.

Location: Pike City Mining District, Secs. 5 and 7, T. 18 N., R. 9 E., ½ mile north of Pike City; 25 miles, by wagon and automobile road, north of Nevada City (N. C. N. G. R. R.). Elevation 3500′.
Bibliography: Cal. State Min. Bur. Rpts. VI, part II, p. 58; XII, p. 261; XIII, p. 371. U. S. Geol. Survey Folio 66, Colfax.

The Sierra Alaska property embraces the following claims: The Bates (11 acres), Spencer (11 acres), Phillips (9 acres), Grizzly (17.18 acres), all patented, and the Hog Eye (20.65 acres), New Alaska Extension (20 acres), Parasite (20 acres) and Lonesome Cub (20 acres), unpatented, as well as two patented homesteads, making a total of 480 acres. The Alaska lode is covered for a length of 4600′, and the Grizzly for 2600′. There is some timber on the property.

The lodes were discovered in 1863 in washing Texas Ravine. The property has been sold to two different companies, and exploited in London and Glasgow. It was sold to an English company, then bought by present owners at a bankrupt sale in 1904. The total production to date has been about $1,000,000 from 100,000 tons of ore. Forty men were working in 1914.

The mine is developed by a vertical 3-compartment shaft, 900′ deep. At level No. 1, 120′ below the collar, there is a drain tunnel 1300′ long; on level No. 2, 300′ deep, is a drift 800′ west on the Cassely vein spur. On level No. 3, 450′ deep, a drift runs 1500′ east on the Alaska vein, also a crosscut 62′ west of the shaft runs to the Cassely. Drifted on the Cassely for 400′, then crosscut 200′ to the Grizzly and drifted 320′ on the vein. At 550′ (No. 4 level), crosscut 165′ to the Cassely, drifted on Cassely 235′ west, crosscut 76′ to the north, to the Alaska vein and drifted on the latter 130′ west and 1900′ east. At 680′ (No. 5 level), crosscut 64′ to the Alaska vein and straight into the northwest wall 266′, then drifted west 200′ and east 1500′. A main winze being sunk 1325′, was down 235′ and drifting east and west from the 115′ level was in progress in 1914. The areas stoped are very irregular.

Grizzly workings: No. 1 tunnel, 80′ below surface, was run 200′ on the vein. The No. 2, starting in the drain tunnel of the Alaska, runs 770′ on the vein. At 760′ in, a raise now 100′ up, is being driven to the surface for ventilation.

The Alaska vein is characterized by lenses in serpentine. These lenses are quartz, and calcite with quartz, carrying free leaf and crystal gold. There is some ribbon rock. The vein averages 84′ between walls, while the quartz lenses have a maximum width of 16′.

As a rule the best values are in the enlarged part of vein, in true lenses. The vein strikes N. 53° E., and dips 80° N. from the surface to the 680′ level, where it swings and at the 900′ level it dips 45° S. The Grizzly vein shows in line. Its walls are diabase, and the strike is N. 78° E., the dip varying from 36° to 45° N.

It is necessary to pump 712,000 gallons per day from level No. 3, using two Worthington 4-stage centrifugal pumps, 1000 gallons each, against a 380′ head. On No. 5 a Jamesville 150-h.p. turbine pumps 330,000 gallons to No. 3. On No. 4 a Byron Jackson 2-stage 50-h.p. turbine pumps against a 100′ head. A maximum of 1,500,000 gallons per day is handled. There is also a 35-h.p. 3-stage 4″ Albinger pumping 300 gallons per minute against a 200′ head.

Equipment consists of an 850 cubic foot 98-lb. compressor, made with Regler valves, requiring 185 horsepower loaded, a machine shop, lathe, drill press, blacksmith shop complete, Ward drill sharpener, and a 2-drum, 75-h. p. General Electric hoist capable of 1500′. Reduction equipment consists of a 40-stamp Joshua Hendy mill containing 20 850-lb. stamps and 20 1050-lb. stamps, using 35-mesh screens with high discharge, giving 92% amalgamated in the mortar. The mill was erected in August, 1912, and also contains 6 Wilfley and 2 Deister tables. Water from the mine is used in the mill.

Power is obtained from the Pacific Gas and Electric Company at 440 volts. The total operating cost per ton is from $3.90 to $4; wages were $2.75, $3 and $3.25. Transportation from Nevada City costs $9 per ton. Reported idle in 1917.

Sierra Buttes Mine. Owners, E. A. and J. O. Hayes, San Jose.

Location: Sierra City Mining District, Sec. 29, T. 20 N., R. 12 E., 1 mile northwest of Sierra City, thence 20 miles north to Blairsden, by road. Elevation 4300′ to 6000′.

Bibliography: Cal. State Min. Bur. Rpts. VI, part II, p. 56; VIII, p. 573; X, p. 643; XI, p. 402; XII, p. 272; XIII, p. 382. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The Sierra Buttes property consists of fifteen claims, six of which are not patented, and includes the Independence quartz, Bigelow quartz and millsite, Buttes Union quartz and Ariel quartz; also the Oaks, Excelsior, Buttes and Packer placer claims. There is a total of 660 acres, 360 of which is timber acreage. The property is situated on the steep side of Sierra Buttes and covers a length of a mile and a half along both veins.

Work was first begun on the mine in 1850. It was owned and mined by an English company between 1870 and 1904 or 1905, when it was purchased by Hayes, since which time it has been continuously worked. The production by the English company was in the neighborhood of $17,000,000.

Mining was being done in 1914 from the sixth level. On the ninth level, 1200′ northwest of the shaft, ore which averages $9 is said to have been encountered. A crosscut driven 400′ into the hanging wall encountered a ledge which is probably one of the branches of the Ariel vein. The No. 9 tunnel runs in from the level of the road at Sierra City, 7200′, to the Independence shaft, then 1350′ to the end of the drift. Of the 7200′, 2000′ is crosscut, the balance on the ledge. The No. 6 level is 400′ farther into the hill than the end of No. 9. The main stope is the Mammoth, which follows down the Independence shaft. Stoped, at places, above the eighth level.

Photo No. 18. View of Sierra Buttes outcrop.

There are several veins in the property. The Ariel, also called Independence, is the main one. The South Cliff is a branch vein from the Whiskey, which approaches the Ariel, but does not intersect it. The Ariel branches into a number of different veins on the ninth level, on which practically no prospecting has been done. The veins are quartz fissures, carrying free gold, pyrite and a small amount of galena and chalcopyrite. The Ariel is from 6′ to 20′ in width, the strike varying from N. 51° W. to S. 80° W. The dip is 54° N. The foot-wall is greenstone and serpentine; the hanging wall quartz-porphyry. Four pay shoots developed, the Mammoth being 300′ long and from 15′ to 20′ wide.

Mine equipment consists of a 2-stage compressor driven by water power under 500′ head, a blacksmith shop, 10 Ingersoll machine drills, and boarding house. There are two mills, the lower one containing

40 900-lb. stamps erected in 1905 and run by water caught at No. 8 level, 500′ above. The ore is handled by tramway. The upper mill is a 20-stamp Fulton, 850-lb. stamps, with Challenge feeders. This mill is at No. 5 level. Both mills were in running order in 1915. The compressor-house, part of stamp mill and other equipment was swept away by a snowslide on January 9, 1916.

A ditch from Salmon and Sardine lakes delivers 300 inches of water at No. 6 level under a 500′ head, a 1600′ head above the river.

Photo No. 19. Open cut along outcrop of Sierra Buttes lode.

A crosscut driven into the hanging wall from No. 6 tunnel (July, 1915) intersected a new vein from 5′ to 6′ wide, with ore of good milling grade showing. The vein is in new territory, with about 1500′ of backs available.

The Bigelow claim was bonded to the Croesus Mining Company of New York in July, 1915.

Sierra Poorman Mine. Owner, Sierra Poorman Mining Company, Downieville.

Location: Downieville Mining District, Sec. 4, T. 20 N., R. 11 E., 10 miles northeast of Downieville, thence 44 miles southwesterly to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The following claims comprise the Sierra Poorman property: Little Boulder, Big Boulder, Poorman, Black Angel, Iron Cube, Blue Jay and Highland.

Sierra Standard Mining Company. Owner, Sierra Standard Mining Company, Downieville; Jason S. Frye, Downieville, president; R. E. Blevins, Colusa, secretary.

Location: Downieville Mining District, Sec. 22, T. 20 N., R. 10 E., 3 miles north of Downieville, which is 44 miles northeast by road from Nevada City (N. C. N. G. R. R.). Elevation 4250'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The Sierra Standard Mining Company's property embraces two full and three fractional mining claims, the Standard, Baker, Baker South Extension, Standard Extension and Standard West Extension, having a combined area of 80 acres and covering a length along the lode of 2010'. In general contour the surface is steep, and it contains some timber.

The property was located by Tom Steel and Baker, who extracted $28,000. It was purchased by the present owners from Crittenden in 1910. The total production to 1915 is said to be $75,000. Assessment work only is being done at present.

Development consists of a 77' crosscut adit to the Big vein, then along the vein 250' to its intersection with a cross-vein. It was followed 100' beyond the intersection and then crosscut 60' to the cross-vein. Drifted on cross-vein for 150' and then crosscut back into the hanging wall for 100' to the Big vein. There are six tunnels, from a few feet to 120' in length on the Big vein. A block 40' by 120' by from 5' to 8' was stoped on the cross-vein, producing $55,000.

The Big vein is quartz with gouge and talc in places near the contact of serpentine and porphyry. The ore carries free gold and is oxidized near the surface. The walls are porphyry, the distance between walls being 14', and the average width of vein 4'. It strikes N. 40° W., dips 50° to 60° E., and has a proven length on the surface of 1500'. The production of this vein has been about $20,000. The cross-vein carries free gold and arsenical pyrites. It crosses the formation layers of black porphyry, strikes east, dips 45°, and is from 3' to 4' in width.

The mine is equipped with a 42 cubic foot 4½" x 4½" upright Duplex air compressor. A 350' ditch delivers a minimum of 12 inches and a maximum of 500 inches of water under a 125' head from Sailor Ravine, averaging 200 inches for six months of the year.

The Oxford mine adjoins.

Sixteen to One Mine. Owner, Original '16 to 1' Mine, Incorporated; S. B. Connor, 2009 Central avenue, Alameda, president; Walter C. Beatie, 607 Monadnock Building, San Francisco, secretary.

Location: Forest Mining District, Secs. 3 and 4, T. 18 N., R. 10 E., ½ mile southwest of Alleghany, thence 31 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 4400'.
Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 175. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The '16 to 1' property consists of two claims, both fractions, the '16 to 1' and the Eagle, covering a length along the lode of 2200'. It is situated on the steep slope between Alleghany and Kanaka Creek.

The property was located in 1908 by Lawson and Bradbury. Its production is estimated by H. G. Ferguson to have been between $150,000 and $300,000.

The main tunnel is a 125' crosscut to vein, then 900' on the vein. From this level a winze is driven 325' on the dip of the vein on an

Photo No. 20. Sixteen to One mine in left center. Tightner mine on right.

ore shoot, with levels every 50' to 100'. The upper tunnel, 125' above, is connected with the lower tunnel by three raises. One other winze 30' deep is located 20' beyond where the crosscut struck the vein. H. G. Ferguson[1] describes the deposit as follows:

"The country rock is amphibolite; in places near the vein silicified, and along the walls it is everywhere much crushed. The strike of the vein is northwest. The dip is to the northeast—in the raise above the adit about 30°, at the adit level 50°, and in the winze from 60° to 70°. For about 200' along the tunnel there is a well-defined quartz vein. Beyond is a band of gouge, in places 2' wide, which carries small lenses of quartz mixed with mariposite and dolomite. The pay ore occurred in a single shoot, about 80' in width along the drift and 100' up the dip, which had a pitch of 30° to 40° northwest. Within this shoot the high grade ore occurred in small zones transverse to the pitch of the shoot."

Equipment consists of two compressors, a Grant 10" x 12" Duplex and a Clayton 10" x 10", an electric hoist with ½-ton skip, blacksmith shop, machine shop, storehouse, bunkhouse and boarding house. Reduction equipment consists of a crusher and Burdin pan-amalgamator (150-lb.). Electricity is used for power.

Twenty men employed in March, 1916.

The Tightner mine adjoins.

[1]U. S. Geol. Survey Bulletin 580, page 175.

A light 10-stamp mill, formerly in use at a mine near Washington, was hauled to the Sixteen to One late in 1918, and was reported to be ready for operation January 15, 1919. A new hoist has also been installed.

The vein being mined has recently been the subject of a lawsuit between this company and the Twenty-One Mining Company. The latter company was said to be mining the downward extension of the Sixteen to One's vein. In the suit the Twenty-One Company contended that the vein was an extension of one outcropping within their own surface boundaries. On the showing made in the underground workings, judgment was awarded the Sixteen to One.

Finally, the Twenty-One Company brought suit to force the Sixteen to One to confine mining operations on the Sixteen to One vein, under the surface of the Twenty-One property, strictly to the area of the vein as defined by the walls. This latter case had not been decided in February, 1919.

Slug Cañon Tunnel Company. Owner, Slug Cañon Tunnel Company; I. Copeland, 530 California street, San Francisco, manager.

Location: Downieville Mining District, Sec. 3, T. 19 N., R. 10 E., 1¼ miles south of Downieville, thence 44 miles southwesterly to Nevada City (N. C. N. G. R. R.). Elevation 3500'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpt. XIII, p. 382.

South Fork Gold Mining Company. Owners, South Rio Antigua Mining Company, Los Angeles, California; A. E. Pomeroy, president, 701 Grant Building, Los Angeles; E. S. Field, secretary, Los Angeles; Jas. H. Hurin, treasurer, 337 Douglas Building, Los Angeles.

Location: Forest Mining District, Sec. 28, T. 19 N., R. 10 E., situated within the town of Forest City, 39 miles by road northeast of Nevada City (N. C. N. G. R. R.). Elevation 5500'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The ledges, 12 or 13 in number, are included in 10 claims, the Amethyst, Amethyst Extension, Phoebe, Mable, Marguerite, Verdi, Lady Bug, Honey Bee, Bullion and another, aggregating 200 acres, most of which is also covered by placer locations.

There is no development work on the veins, but assessment work is now being done.

The so-called Tightner ledge is 60′ between walls and contains quartz in bunches. The foot-wall is slate, the hanging wall porphyry. It strikes N. 12° W., and dips 45° E. In July, 1915, drifting was being done on a ledge thought to be an extension of the Tightner vein system.

Sovereign Mine. (Mascot.) Owners, Pacific Coast Real Estate and Investment Company, Monterey. Dr. Roberts, president, Monterey; H. A. Morse, Sierra City; H. E. Mertz, secretary, Monterey. Leased to George Bigelow and Horace A. Morse.

Location: Sierra City Mining District, Sec. 24, T. 20 N., R. 11 E., 4 miles northwest of Sierra City, thence 20 miles by road north to Blairsden (W. P. Ry.). Elevation 5500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The Sovereign mine consists of ten claims, a total of 200 acres, covering a length along the lode of 4500′.

The Nevada vein is tapped by a 700′ crosscut which gives 350′ of backs. From this point drifts have been run 150′ north and 100′ south on the vein, and a raise of 60′ put up. A 115′ shaft has been sunk on the Elanore vein, and a tunnel 175′ long has been driven on the Yuba vein. A 400′ crosscut had not reached the Yuba vein in 1914. Practically no stoping has been done, the mine just having been opened up. Six men were to be employed. The tailings, which average $5, are leased to George E. Bigelow, Sierra City, who is putting up a 25-ton cyanide plant.

The Nevada vein is a fissure vein cutting across the strike of the slates, the ore running 3% pyrite and galena. Free gold averages $1.50. It has a maximum thickness of 11′, but averages 3′, strikes north, dips 60° W., and has a proven length on the surface of 4500′. The Yuba vein carries free gold, with very little sulphides. It has a width of 12′, strikes N. 20° W. and dips 55°. The Elanore vein carries free gold and has a width of 3′, strikes N. 10° E. and dips 60° W.

Equipment consists of two 50-ton Beer's roller mills, 30-50 mesh, and a 25-ton cyanide plant, agitated with air, 3 Overstrom concentrators, air compressor, drills, etc. A new compressor is being installed. Water is carried in a 14″ pipe under a 250′ head from Ladies Cañon, giving a minimum of 85 horsepower at low water.

The Lee mine is two miles northeast of this property, and the Sierra Buttes adjoins.

St. Charles Hill. (See under Drift Mines.)

Steamboat. (See under Drift Mines.)

Swastika Mining Company. (Chipps.) Owner, Swastika Mining Company, 304 Kohl Building, San Francisco.

Location: Sierra City Mining District, Secs. 26 and 27, T. 20 N., R. 12 E., 2 miles west of Sierra City. Elevation 4675′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. X, p. 652; XI, p. 402; XIII, p. 374.

The old Chipps mine consists of one quartz and placer claim, patented, 158.5 acres in area. Many pockets and rich bunches of ore

were taken from it in early days. Development work is being done by a shaft sunk on a shoot which was encountered in 1912. In August, 1915, the 10-stamp mill was placed in commission, and it is stated that there is enough ore exposed to keep it running indefinitely.

Telegraph Mining Company. Owner, Telegraph Mining Syndicate; Dr. H. W. Pearson, 116 South Michigan boulevard, Chicago, president. H. V. Hughes, Downieville.

Location: Downieville Mining District, Sec. 4, T. 20 N., R. 10 E., 8 miles north of Downieville, by wagon road; thence 44 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 5500′ to 6000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpt. XI, p. 410.

This property consists of seventeen and one-half claims, both quartz and gravel, with a total area of 340 acres. It is situated on a steep lava-covered ridge, and contains some timber. It was located in 1889, and called the Telephone mine. The owner, Mitchell, took out $500,000 from the gravel, it having averaged $50 to the car. A company was formed in Chicago and purchased the property 12 years ago. They advanced the purchase price $30,000, and also $15,000 additional, and a power house (40 horsepower) using water from the mine and melting snow, giving a minimum of 10-15 horsepower and a maximum of 100 horsepower was built. It was worked for four or five years when a quartz ledge was discovered, which was drifted on 50′ and stoped 30′ to the lava capping above. A 5-stamp mill was carried away by a snowslide, rebuilt, and again carried away in 1907, after which the mine was closed down. It was reopened in 1908 to prospect for gravel.

The gravel claims of the Telegraph Company were bonded to Hunt and Bell in June, 1915. There is no well-defined channel, but apparently a series of benches.

The property has been developed by a 1500′ tunnel, and two shafts, one 65′ deep not on the vein, and one 35′ deep on the vein. The main tunnel branches, one branch extending 500′ north to an incline in the old workings, the other running 800′ east, where work will be recommenced. The main tunnel has been retimbered, and the compressor and hoisting machinery have been overhauled and put in shape to begin sinking on the vein at once.

Equipment consists of a 5-stamp Hendy mill with 750-lb. stamps, concentrator and boarding houses, and a 180-gallon per minute centrifugal pump.

Adjoining mines are the Hilo and Monte Cristo.

Serious damage to buildings and machinery by fire and snowslides compelled suspension of active quartz development.

Tightner Mine. Owner, Tightner Mines Company; Robt. Bedford, manager, care North Star Mines Company, Grass Valley.

Location: Forest Mining District, Secs. 27 and 34, T. 19 N., R. 10 E. The mine is underneath the town of Alleghany. Nevada City (N. C. N. G. R. R.) is 31 miles southwest by road. Daily stage except Sunday. Elevation 4000′ to 5000′.

Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 580, pp. 171-173. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Tightner property consists of the following locations: the Contact, Contact Extension, one-third of Eclipse claim (to creek), Eclipse Extension and Red Star placer, which cover a length of one mile along the lode. The property is situated on a lava-covered ridge with some timber, and the vein does not outcrop. The following data are

Photo No. 21. Town of Alleghany and Tightner mine below.

drawn largely from Bulletin 580 I, U. S. Geol. Survey, by H. G. Ferguson:

The Tightner vein was rediscovered by H. L. Johnson in 1907. During the placer operations of early days the vein had been cut in a bedrock tunnel, but no attention was then paid to it. Mr. Johnson, interested by stories of old-timers regarding rich quartz gold, reopened the old tunnel and is reported to have taken out nearly $500,000 in gold. The present company began operations in 1911 and has developed the vein on the lower level. The production under the present management had been about $600,000 up to June, 1913.

The upper tunnel (elevation 4495.8′) was driven in from the ravine, 30′ below the hotel, and at a distance of 650′ encountered the vein. A number of tons of very rich ore were taken out, and several other rich bunches were discovered in drifting and sinking. A fault, slip

100′ vertical and 300′ horizontal, was encountered in sinking, and the vein was lost. A lower tunnel was started from the North Fork of Kanaka Creek, one-half mile below the town on the Eclipse claim, at an elevation of 4082.5′. It was driven in a northwest direction through the hanging wall of the vein for a distance of 1265′, where a crossing was encountered with talc gouge and quartz stringers. A drift was started N. 30° W. on this formation, and at a distance of 350′ north of crosscut intersected the main vein striking north.

The Tightner vein is a fissure vein in schist, altered near the vein and slips to talcose or chloritic schist. Hydrothermal alteration is common, but irregular. Masses of dolomite and mariposite are irregularly distributed along the walls, and in places there is silicification as well. The vein crosses the steeply dipping laminæ of the schist, but the schist is so sheared and altered near the walls that the difference in dip between the vein and the schist can only rarely be observed. The fissure vein, which is faulted by a vertical slip 100′ and horizontal 300′, has a well-defined black clay gouge on the fault wall, showing striations raking 73° to the north from horizontal. The principal values are in rich 'specimen' gold, which occurs in 'rich bunches' in poorly defined ore shoots. Arsenopyrite carrying large amounts of free gold makes up the rich ore. The foot-wall is amphibolite schist, altered schist, talcose, etc. The hanging wall is soft and heavy talc, chloritic schist and serpentine. The maximum width of the vein is 20′, the average from 3′ to 5′. Its strike varies in different parts through an angle of 45°, around north. The dip varies from 30° to 55° E. The rich ore taken from the lower workings has come from two areas, one just south of the winze connecting the upper and lower workings and the other about 700′ north of the winze. At each place the vein is wider than the average, its width being about 7′ at one place and 10′ at the other; moreover, they both lie at the north ends of marked enlargements of the vein and at nearly equal distances, about 100′, north of intersecting veins. In March, 1916, the long crosscut from the lower adit intersected the Osceola vein, disclosing medium grade ore. Crosscutting was being continued to reach the Red Star ledge, which yielded bonanza in the upper workings.

Milling is done with mine water. The 10-stamp mill is running steadily. About 100 men were employed in the summer of 1915.

The mine and mill were being operated with a small force of men in September, 1918. The lower levels of the mine have been temporarily abandoned, but some stoping was being done above the main working tunnel.

The Tightner vein has been prospected for 1200′ on the strike and for 800′ on the horizontal projection of the dip, the winze having reached an inclined depth of 340′ below the upper (main) level. The main tunnel has been driven north 6500′ under the Red Star claim without developing much rich ore. There is an unprospected vein varying in width from 6″ to 30′ on the Contact Extension claim.

Where the ore was low grade, pillars were left and no timber was used; in good ore, stulls and headboards were put in. An electric hoist at the top of the winze brought the ore from the lower levels and it was hauled thence to the mill by mules. Mining costs about $4 a ton. Only about 15 men were employed in September, 1918, and it was said to be nearly impossible to get miners.

It was found that the galena in the concentrate carried about $100 a ton, while the pyrite was worth only about $40 a ton. On account of the lack of any plant nearby for treating the sulphides, and the high cost of hauling to the railroad ($20 a ton being the rate to Nevada City) a differential concentration was being made in 1915. The galena was saved on two Deister tables and the pyrite was run to waste. This plan was abandoned soon, and lately all the sulphides have been saved and stored. Two new batteries of five heavy stamps each on concrete foundations were running in 1915, giving a total of 20 stamps with a capacity of about 2700 tons a month. Cost of treatment was said to be about $1 a ton. Besides $470,000 produced during the Johnson regime, the present company reports a yield of $1,526,000 to the end of 1917.

Tightner Mine Dump. Owner, Tightner Mines Company. Leased to R. L. Hathaway and W. H. Martin, of Nevada City. The lessees erected a battery of five 850-lb. stamps in 1916. The rock milled was the dump thrown out during H. L. Johnson's regime. The mill was in operation from September 12, 1916, to September 1, 1917. It was run by electric power and plain amalgamation only was used. Probably somewhat over 5000 tons were milled and it is said locally that a handsome profit was realized.

Tomboy Eureka Mine. (Tomboy.) Owner, O. P. Bixby, Forest.

Location: Forest Mining District, Sec. 29, T. 19 N., R. 10 E., 2 miles west of Forest, 37 miles northeast by road from Nevada City (N. C. N. G. R. R.). Elevation 1300′.

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Tomboy Eureka property consists of two unpatented claims, the Tomboy and the Tomboy Extension, having an area of 40 acres, which covers a length along the lode of 3000′, and the Eureka, a N.–S. claim along the serpentine contact. The property was located 35 years ago, and relocated 20 years later by A. M. Bixby. The output to date has been between $4000 and $5000.

The Tomboy vein is developed by a tunnel 12′ crosscut and 200′ driven on the vein. Another tunnel 50′ below is a 240′ crosscut, then 140′ on the vein; 310′ in from the mouth of the lower tunnel, there is a raise on an ore shoot. The Eureka vein is opened up by a 200′ crosscut, and 100′ on the vein.

The Tomboy vein is quartz and porphyry, carrying free gold, a little arsenopyrite and pyrite, with porphyry walls. It varies from 6″ to 7′ in width, strikes east, and dips 60° S. The Eureka vein varies from 3″ to 3′ in width, strikes north, and has a flat dip to the east. The ore is in lenses of quartz which carry principally arsenopyrite.

Equipment consists of a cabin, blacksmith shop, tools, etc. Electricity is transmitted a distance of 1500′ and used for power.

The Kate Hardy mine adjoins.

True Fissure Group. Owners, True Fissure Consolidated Quartz Mining Company, Geo. Reynolds and Bishop, San Francisco.

Location: Sierra City Mining District, Secs. 19 and 30, T. 21 N., R. 12 E., 7 miles north of Sierra City, thence 56 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 7400′.
Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The True Fissure property is comprised of the following patented claims: Summit, Deer, Gold Lake, True Fissure and Cavern, a total of 90.17 acres.

Twenty-One Mine. (21.) Owners, Twenty-One Mining Company, J. H. Hunt, San Francisco. Bonded to North America Exploration Company, 1023 Mills Building, San Francisco; J. H. G. Wolf, 1023 Mills Building, president; Dorsey Ash, secretary.

Location: Alleghany Mining District, Sec. 34, T. 19 N., and Sec. 3, T. 18 N., R. 10 E., ½ mile south of Alleghany, thence 31 miles by road southwest to Nevada City (N. C. N. G. R. R.). Elevation 3500′.
Bibliography: Ferguson, H. G., U. S. Geol. Survey Bull. 580, p. 174. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, 142. U. S. Geol. Survey Folio 66, Colfax.

The Twenty-One property contains four claims, the Twenty-One, Belmont, Valentine and Tightner Extension, a total of 60 acres covering 2400′ along the lode. It is situated on the steep rise from Kanaka Creek to Alleghany. The production from early day pocket mining to date has been about $100,000. The North American Exploration Company surrendered their bond in February, 1915, and the property was taken over by G. W. Mitchell and associates of Sacramento.

There are two veins, the '16 to 1' and the Tightner. The former is a quartz and talcose schist fissure vein, carrying free gold and arsenopyrite, with walls of schist. It strikes N. 40° W. and dips northeast from 45° to vertical. The Tightner vein pinches and swells greatly, quartz being absent for considerable distances. Although at a lower

level than neighboring mines, there appears (according to H. G. Ferguson) to be more oxidation, and secondary pyrite is said to be prominent. The walls are schist, and the strike varies from N. 10° to 50° W., the dip being from 30° to 50°.

Development work consists of an old shaft 165′ deep, now full of water. A tunnel was driven 500′ on the '16 to 1' vein from Kanaka Creek, then crosscut 155′ northeast to the Tightner vein, which was drifted on for 1400′, giving 900′ of backs. At a point 350′ from the face of the drift on the Tightner vein a 90′ raise was driven. An intermediate drift was started at the top and some stoping has been done from this raise. Three shoots have been developed as follows: 120′ north of the crosscut a shoot 120′ long, 2′ wide, averaging $7; 580′ north a second shoot 240′ long by 3½′ wide, averaging $10; and 1020′ north a third shoot, 300′ long by 4′ wide, averaging $11.

There is a blacksmith shop on the property and a mill with 10 stamps. Lane mill and Frue vanners are being installed. Electric power is obtained from the Middle Yuba Power Company.

Ten men were working in 1914.

The Tightner mine adjoins this prospect on the northwest.

Late in 1918 the company was involved in a lawsuit with the Sixteen to One, in which judgment in the sum of $100,000 was awarded the latter, because of alleged invasion of the Sixteen to One vein.

Uncle Sam Mine. Owners, John G. Binning, Alleghany; Owen T. Owens, Homer T. Gould, Forest. Bonded to North Fork Mining Company, 1301 Merchants National Bank Building, San Francisco; Alexander Russell, 1301 Merchants National Bank Building, president; L. Tasheira, 405 Crocker Building, secretary. Gravel rights are rebonded to Wisconsin and North Fork Gravel Mines Company.

Location: Forest Mining District, Secs. 15, 16, 21 and 22, T. 19 N., R. 10 E., 2½ miles north of Alleghany, thence 31 miles southwest by road to Nevada City (N. C. N. G. R. R.). Elevation 4600′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, and 142. U. S. Geol. Survey Folio 66, Colfax.

The Uncle Sam property consists of the Uncle Sam and the Uncle Sam Extension placer claims, and the Simpson (1500′ by 420′), Verrue (1500′ by 420′), Yates (1500′ by 220′), and Keller (1500′ by 220′), claims covering 3000′ of the ledge discovered in working the gravels.

The ground was worked in early days for gravel, and $100,000 was taken out. Stone began work on the ledge in 1910, and it has been developed by a 1037′ inclined shaft (14°) through lava into the channel. A 700′ crosscut runs to the west rim, from which point a 55° inclined shaft, 75′ to the first level and 100′ to the second, encountered an ore shoot 120′ long and 6′ in width. A drift along

the wall 100′, and crosscut of 90′, picked up a ledge dipping 60° NE. On No. 2 level a 60′ crosscut has been run into the hanging wall.

A winze sunk in April, 1915, intersected an ore body 5′ wide, showing gold and arsenical sulphides. A marked change in the vein occurred after passing water level, and the ore is the most peculiar ever found in the district. Extending to a point about 30′ below water level the vein contained considerable iron sulphurets, some gold and traces of silver. Further down the sulphurets are displaced by arsenical minerals with a higher gold content and a rapid increase in silver values. In 1914 the ore was said to carry practically equal values in gold and silver, marking the first time in the history of the district that silver in important percentages has appeared.

The ore occurs in quartz lenses carrying free gold, arsenopyrite, pyrite and marcasite. The foot-wall is chloritic schist and black coal,(?) the hanging wall is a hard diorite. The vein varies from 2′ to 18′ in width, strikes N. 20° W., and dips 80° SE. It is estimated that 2000 tons of $7 ore is exposed, and the erection of a 5-stamp mill is contemplated.

Equipment consists of a blacksmith shop, 10-h.p. electric hoist, 12″x 12″ compressor and machine drills. Electricity is used for power.

There were eight men employed in 1914.

Union Consolidated Group. Owner, Tim Judge, Mount Pleasant.

Location: Sierra City Mining District; Sierra City is 56 miles by road, northeast of Nevada City (N. C. N. G. R. R.) and 20 miles by road south of Blairsden (W. P. Ry.).

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

Wheeler Claim. Owners, John and Emma Hughes, Downieville.

Location: Downieville Mining District, Sec. 26, T. 20 N., R. 10 E., ½ mile north of Downieville, thence 44 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 3300′.

Bibliography: U. S. Geol. Survey Folio 37, Downieville.

William Tell Claim. Owner, Julius Johnson, Downieville.

Location: Sierra City Mining District, Sec. 34, T. 20 N., R. 12 E., 1 mile east of Sierra City, thence 56 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.). Elevation 5000′.

Bibliography: Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. X, p. 653; XII, p. 275; XIII, p. 384.

Assessment work only being done.

Willowby Mine. Owners, Robert Jump, Fruitvale; Ernest Farrel, Downieville.

Location: Sierra City Mining District, Sec. 24, T. 21 N., R. 11 E., about 10 miles north of Sierra City, and about 10 miles south of Blairsden (W. P. Ry.).

Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville.

The Willowby property consists of five claims, with a total area of 100 acres.

It is an old mine, discovered by Willowby. In 1906 it was worked by Roddy, who purchased it for $20,000 from Pete Lorenzi, of Johnsville. Roddy sold it to the present owners in 1909.

The development works consists of two tunnels, one 566′ long, part crosscut, and a lower one 700′ long, part crosscut. Some stoping has been done on the front ledge. The back ledge is not cut by either tunnel, but ore was being taken in 1915 from a shaft, then 20′ deep, which was being sunk on the back ledge.

There are two parallel veins from 75′ to 100′ apart, both quartz fissure veins containing free gold, pyrite and galena. The strike is north, and the dip 60° W., between a foot-wall of slate and hanging wall of porphyry. Ore averaging $40 per ton was being taken out in June, 1915.

Equipment consists of an old 10-stamp Union Iron Works mill, 900-lb. stamps, and two concentrators, remodeled, and run by steam. There is also a boarding house, blacksmith shop and office. Four men are employed at present.

Adjoining mines are the Oakland and Empire.

York Mine. Owner, Mrs. M. L. Tinney, Downieville.

Location: Downieville Mining District, Sec. 35, T. 20 N., R. 10 E., 44 miles northeast of Nevada City (N. C. N. G. R. R.) by road. Elevation 3000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The York mine is located on the Alleghany-Downieville belt of serpentine, adjoining the townsite of Downieville on the south. It has yielded over $75,000 in bonanza ore that required no milling, from a shaft less than 100′ deep, and was to be reopened in the summer of 1915 under bond and option by a Sacramento company. Early in 1916 preparations were under way for the unwatering of the old 100′ shaft preparatory to further sinking. All materials were on hand, and the work of repairing the power line was in progress. Geo. B. Morse is in charge.

The Tinney Mines, Incorporated, of 825 Tenth street, Sacramento, was incorporated May 1, 1916, to take over the option.

Young America Mine. Owner, S. M. Green, Denver, Colorado.

Location: Sierra City Mining District, Secs. 8 and 9, T. 20 N., R. 12 E., 4 miles north of Sierra City, 16 miles south by road from Blairsden (W. P. Ry.). Elevation 6500′.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. Turner, H. W., U. S. Geol. Survey Seventeenth Annual Report, part I, p. 653, 1896. U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. X, p. 643; XII, p. 275; XIII, p. 384.

The Young America mine, formerly a large producer, was bought in 1893 by S. M. Green, of Denver, for $13,500. Since that time it has lain idle. The ore ran about $3.25 per ton. All the old workings are inaccessible and the old mill was burned. Bonlay and Zachert, in July, 1915, purchased the tailings dump, which is said to contain

from 50,000 to 60,000 tons assaying from $1.50 to $2.50 per ton. They will be treated by a special process, reported to be oil flotation.

Yuba Consolidated Group. Owner, Sierra-Yuba Gold Quartz Mining Company, 1744 Oxford street, Berkeley, California.

Location: Forest Mining District, Secs. 10 and 11, T. 18 N., R. 10 E., 2 miles south of Alleghany, thence 31 miles southwesterly, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

The Yuba Consolidated comprises the following patented claims: the Yuba (Ireland) (19.26 acres), Yuba Extension (18.36 acres), and the Arabian (20.64 acres).

GOLD—PLACER MINES. (Surficial.)

Alturas Mine. Owner, Maschella, San Francisco.

Location: Port Wine Mining District; 1 mile west of Port Wine, thence 30 miles northerly, by road, to Quincy. Elevation 4000'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Cal. State Min. Bur. Rpts. XI, p. 332; XII, p. 221: XIII, p. 371.

This property has been worked for the past thirty years. Ten to fifteen men employed in 1914. Gravel is elevated from the creek and sluiced.

American Mining and Development Company. Owners, American Mining and Development Company.

Location: Indian Hill Mining District, Secs. 14 and 15, T. 19 N., R. 9 E., 2 miles northeast of Indian Hill, thence 40 miles by road southerly to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

These holdings comprise 175 acres of patented land.

Antlered Crest Mine. Owner, Geo. Sanborn, La Porte.

Location: Sierra City Mining District. Sierra City is 56 miles, by road, northeast of Nevada City (N. C. N. G. R. R.) and 20 miles, by road, south of Blairsden (W. P. Ry).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117, 118. U. S. Geol. Survey Folio 37, Downieville.

A hard bedrock tunnel was being run in 1914 and was in 430'.

Big Flat Claim. Owner, W. W. Casserly, Goodyear's Bar.

Location: Downieville Mining District, Sec. 29, T. 20 N., R. 10 E., 2 miles north of Goodyear's Bar, thence 40 miles, by road, southerly to Nevada City (N. C. N. G. R. R.). Elevation 2900'.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Bon Ton Consolidated Group. Owner, John Down, La Porte.

Location: Poker Flat Mining District, near Poker Flat on east side of Port Wine ridge. Poker Flat is 33 miles, by road, south of Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Bradley Consolidated Group. Owner, same.

Location: Sierra City Mining District, Sec. 28, T. 20 N., R. 12 E., 56 miles, by road, northeast of Nevada City (N. C. N. G. R. R.), 20 miles by road, south of Blairsden (W. P. Ry.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117, 118. U. S. Geol. Survey Folio 37, Downieville.

This property includes the Gard and Orr, patented claims. No work has been done for a number of years.

Burnham Consolidated Placer Mine. Owner, W. T. Burnham.

Location: Poker Flat Mining District, Secs. 5 and 8, T. 21 N., R. 11 E., 4 miles east of Poker Flat, thence 33 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Burnham Patent contains 60 acres.

Cold Spring Group. Owner, W. L. Wilson, Downieville.

Location: Downieville Mining District, in Sec. 12, T. 19 N., R. 10 E., 44 miles by road northwest of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The property consists of the Cold Spring and First Chance claims.

Deer Group. Owners, E. A. and J. O. Hayes.

Location: Sierra City Mining District, Sec. 31, T. 21 N., R. 12 E., 7 miles by road and trail, northwest of Sierra City; 14 miles, by road and trail, south of Blairsden (W. P. Ry.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 112, 113, U. S. Geol. Survey Folio 37, Downieville.

The Deer Patent contains 160 acres.

Diana Mining Company. Owner, same, Merchants Exchange Building, San Francisco.

Location: On Gibson Creek between Gibsonville and Whiskey Diggings. Gibsonville is 26 miles, by road, south of Quincy.
Bibliography: U. S. Geol. Survey Folio 37, Downieville. Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107.

Dragon Fly Mine. Owners, N. H. Squire, C. J. Simmons, Downieville.

Location: Downieville Mining District, Sec. 33, T. 21 N., R. 11 E., 8 miles, by trail, northeast of Downieville, 18 miles to Blairsden (W. P. Ry.) by trail and wagon road. Elevation 5000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property consists of three claims, the Dragon Fly, Dragon Fly Extension and the Pinchbug, containing 60 acres and covering a length along the channel of 1300′. It is situated on the Middle Fork of the North Fork Yuba River, and is a back channel of the present stream covered by a slide. The deposit is about 23′ in depth and consists of black wash and some quartz on a slate bedrock. Pay gravel averages about 16′ in width and 3′ in depth, plus 1′ of bedrock. There is a 500′ drain tunnel and 300′ of drifts, all in gravel.

The property was located in 1905 by the present owners, and two men have worked it with a total output of about $3000 to June, 1914.

There is some timber on the property, and water is obtainable under a 120′ head, minimum 20″, maximum 100″. Hoisting is done by water power, and there is electric equipment for lights and blowers.

Adjoining mines are the Wideawake and the Sierra Poorman.

Golden Era Mine. (Edwards; see under Lode Mines.) Owner, Richard Moore.

Location: Port Wine Mining District, Sec. 18, T. 21 N., R. 10 E., 2 miles southeast of St. Louis, thence 33 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

The Golden Era consists of 103.3 acres of patented ground.

Golden Scepter Group. Owner, G. A. Maxwell, Continental Building, San Francisco.

Location: Poker Flat Mining District, near Table Rock, Sec. 22, T. 21 N., R. 10 E., 30 miles south by road, from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The holdings consist of the Golden Scepter and Golden Anchor placer claims, and the True Friendship and Golden Sheath quartz claims.

Halsey Group. Owner, W. D. O'Brien, 718 Monadnock Building, San Francisco. Bonded to Wm. H. Loftus, Los Angeles.

Location: Sierra City Mining District. Sierra City is 56 miles, by road, northeast of Nevada City (N. C. N. G. R. R.), 20 miles, by road, south of Blairsden (W. P. Ry.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 117-118. U. S. Geol. Survey Folio 37, Downieville.

Holdings include the Claybank or Plumas Development Company's property and also the United Consolidated and Excelsior claims.

Hayes Claim. (Pine Grove.) Owner, Ah Gook, Table Rock.

Location: Gibsonville Mining District, Sec. 31, T. 22 N., R. 10 E., 1 mile northwest of Table Rock, and 30 miles by road south of Quincy. Elevation 5600'.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Hobby Mine. Owner, M. W. Hobby, Camptonville.

Location: Indian Hill Mining District, Sec. 17, T. 19 N., R. 9 E., in lower end of Indian Valley. Indian Hill is about 40 miles, by road, north of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

This property is a one-man mine.

I. X. L. and South I. X. L. Group. Owner, Thomas Hayes, Table Rock.

Location: Gibsonville Mining District, Sec. 33, T. 22 N., R. 10 E., near Fillmore, about 2 miles northeast of Table Rock and 32 miles south, by road, from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Keystone Gold Mining Company. (See under Lode Mines.)

Michigan Claim. Owner, L. L. Clough, Quincy.

Location: Gibsonville Mining District. Gibsonville is 26 miles south, by road, from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

Middle Yuba Mine. Owners, Poorman and Hastings, 1724 Santa Clara avenue, Alameda.

Location: Pike City Mining District, Secs. 15, 16, 20, 21 and 22, T. 18 N., R. 9 E., 2 miles southeast of Pike City, thence 28 miles southerly, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 138. U. S. Geol. Survey Folio 66, Colfax.

The Middle Yuba property consists of 90.35 acres of patented placer ground along the Middle Fork of the Yuba River.

Mount Rainier Claim. Owner, R. J. McCullough, Alleghany.

Location: Forest Mining District, at Topohachkin Flat; Secs. 8 and 9, T. 18 N., R. 10 E. Forest is 39 miles by road northeast of Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

Omega Gold Mining Company. Owners, same, Forest City.

Location: Forest Mining District, Sec. 29, T. 19 N., R. 10 E., 2 miles west of Forest City, thence 39 miles southwesterly by road to Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

This property consists of two claims, the Omega and the Manzanita, the latter having formerly been known as the Lucky Dog.

Pennsylvania Claim. Owner, John Doherty. Bonded to Hong Flat Company.

Location: Poker Flat Mining District, Sec. 32, T. 22 N., R. 10 E., 1 mile north of Table Rock, 29 miles south by road from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

This property consists of one patented claim, the Pennsylvania, with an area of 11.26 acres.

Pilot Peak Mining Company. Owner, Frank Delahunty.

Location: Gibsonville Mining District, near Whiskey Diggings, 25 miles south by road from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

This property is adjoined on the west by the Swift Shore mine.

Poor Boy Claim. Owner, W. W. Casserly, Goodyear Bar.

Location: Downieville Mining District, Sec. 32, T. 20 N., R. 10 E., 3 miles west of Downieville, 42 miles by road northeast of Nevada City (N. C. N. G. R. R.). Elevation 2900′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

Slate Creek Claim. Owner, C. A. Reed, Bangor, Butte County, California.

Location: Gibsonville Mining District, Sec. 36, T. 22 N., R. 9 E., Sec. 31, T. 22 N., R. 10 E., and Secs. 1 and 11, T. 21 N., R. 9 E., on Slate Creek at mouth of Gibsonville Creek; 26 miles south by road from Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 106-107. U. S. Geol. Survey Folio 37, Downieville.

This claim extends up the bed of the creek a distance of 1200′.

Slate Creek Debris Dam Company. Owner, J. H. Thomas, Oakland.

Location: Poverty Hill Mining District, Sec. 31, T. 21 N., R. 9 E., 2 miles northwest of Mount Pleasant, thence 41 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

This property consists of tailing claims on Slate Creek, extending from the Yuba County line to 1600′ above it.

Soldier Boy Claim. Owner, M. M. Marshall, 655 Congress street, Portland, Maine.

Location: Poker Flat Mining District, Sec. 15, T. 21 N., R. 10 E., 2 miles south of Poker Flat, thence 33 miles northerly by road to Quincy. Elevation 6200′.
Bibliography: Lindgren W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

Sunnyside Claim. Owner, Franklin Consolidated Placer Gold Mining Company; B. L. Jones, agent, Quincy.

Location: Poker Flat Mining District, Secs. 5 and 8, T. 21 N., R. 11 E., 4 miles east of Poker Flat, thence 33 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 105. U. S. Geol. Survey Folio 37, Downieville.

The Sunnyside placer claim covers 160 acres and is patented.

Swastika Mining Company. (See under Lode Mines.)

Tailings Claim. Owners, John Rosenfelds and Sons, 1024 Merchants Exchange Building, San Francisco.

Location: Port Wine Mining District, Secs. 25 and 36, T. 21 N., R. 9 E., 2 miles southeast of Port Wine, thence 37 miles northerly, by road, to Quincy.
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, pp. 108-110. U. S. Geol. Survey Folio 37, Downieville.

This claim is located in Cañon Creek, between Craigs and Morristown crossing.

Tough and Hardy Claim. Owner, W. B. Meek, Camptonville.

Location: Pike City Mining District, Sec. 6, T. 18 N., R. 9 E., 1½ miles east of Camptonville, thence 53 miles southwesterly by road to Marysville (S. P. R. R.); 1½ miles northwest of Pike City, thence 28 miles southerly, by road, to Nevada City (N. C. N. G. R. R.).
Bibliography: Lindgren, W., U. S. Geol. Survey Prof. Paper 73, p. 138. U. S. Geol. Survey Folio 66, Colfax. Cal. State Min. Bur. Rpts. XII, p. 273; XIII, p. 384.

Viola Group. Owner, Forest City Mining Company, Downieville.

Location: Forest City Mining District, Sec. 19, T. 19 N., R. 11 E., located 3000′ east of Cornish Ranch; Forest City is 39 miles northeast, by road, from Nevada City (N. C. N. G. R. R.).
Bibliography: U. S. Geol. Survey Folio 66, Colfax.

This property consists of two claims, the Viola and Viola Extension.

IRON.

Sierra Iron Mine. Owners, Sierra Iron Company, 310 Sansome street, San Francisco.

Location: Sierra City Mining District, Secs. 11 and 14, T. 21 N., R. 11 E., about 10 miles, by road and trail, northwesterly of Sierra City, thence 56 miles by road, southwesterly, to Nevada City (N. C. N. G. R. R.). Elevation 7000′.
Bibliography: U. S. Geol. Survey Folio 37, Downieville.

The Sierra Iron mine has a total area of 292.48 acres of patented land. There is a large deposit of iron ore on this property.

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