

# Deep Creek---District of Varied Mineral Resources

OLD SMELTER AT CLIFTON.

STORE AND BOARDING HOUSE AT CANE SPRINGS.



IRON CROPPING AT GOLD HILL.

CANE SPRINGS MILL.

## GOLD HILL AND CANE SPRINGS

DEEP CREEK is the section of country that borders on the west side of what has been called, for many years, the Great American Desert.

The greater part of the country commonly designated as Deep Creek is in the State of Utah, but some of the mining districts lying close to the Utah-Nevada line are sometimes included, from the similarity of the formations and other considerations. The scope of this article will be the Deep Creek range of mountains and the various mining districts therein, all of which are within the State of Utah.

The Deep Creek range of mountains is some 50 miles in length, with a northerly and southerly trend. It is one of the most beautiful and imposing ranges in the west, if you approach it from the east, since it rises abruptly from the dead level of the desert to an altitude of some 12,000 feet. The greater part of the range is heavily timbered with pines common in this climate, and of a quality suitable for lumber or for mining timbers. There is also plenty of cedar, pinon and mountain mahogany that is of superior quality for fire wood.

The range, as a whole, is well watered by numerous mountain streams, many of them alive with the luscious mountain trout. Game is plentiful, such as deer, antelope in the foot hills, mountain grouse and sage hens. Water fowl are also very plentiful in the nearby lakes and valley streams. The climate is mild and salubrious, the nearness of the alkaline desert having a marked effect, seemingly, upon the climatic conditions.

### FAVOR OUTDOOR LIFE.

All the natural conditions are, therefore, favorable to outdoor life, and consequently for prospecting and mining throughout the year.

The first discovery of mineral in the country was evidently made by the Indians, and by the United States soldiers who were stationed there in the days of the pony express which passed directly through the Deep Creek country. The Indians were hostile in those days, and many blood-curdling stories are told of murders and narrow escapes of the passengers on the overland stage and the pioneers who first attempted to settle in the country.

That the Indians knew at an early date of the presence of lead in the country, is plainly evident by the finding of samples of fine galena ore at all of the old camping grounds where they were accustomed to congregate to make their arrow heads. These camps were usually near a spring or stream, and it seems quite natural that when they first began to acquire fire arms, the old camping grounds should still remain the favorite places for making their bullets. That they did so is also clearly shown by the crude implements of iron that have been found in these camps, which were evidently used for the purpose of melting the lead. The older Indians also seem to have had some knowledge of copper ores, but it is not likely that they attempted to make any use of the copper.

### WERE RANCHMEN.

The earlier white settlers in the country were stock and ranchmen, attracted by the fertile lands of the valleys and foothills, and by the fine grass and other stock range on the range. Many of the old ranchmen and stockmen have become very wealthy, and untold wealth will be made in the years to come from the fertile, but unoccupied lands of Deep Creek in its mineral wealth; and there is no place in the wide world that has so great a variety of minerals, in such quantities as the Deep Creek country. The entire range for 50 miles is highly mineralized with gold, silver, copper, lead, zinc and iron. In the Clifton district, a greater variety of minerals, including nickel, molybdenum, molybdenum, and the rare and highly valuable tungsten.

It is proper here to say, that while the mineral wealth of the country was little effort made to develop any but the very rich silver and silver-lead ores. Small smelters were built at different points until the price of silver became so low that they were forced to close. Smelters were built at Bullionville, Clifton, Cane Springs, Gold Hill, and at other points farther away from the central portion of the section under discussion. As the mineral wealth of the country became better known, and better to the gold ore of the country. The first gold mill was built upon the property of the Cane Springs company, the Midas and the Queen of Sheba mills following later.

### CANE SPRINGS PROPERTY.

The property formerly belonging to the Cane Springs company, covering a considerable territory in the Clifton district and was among the earliest of the early locations made upon the mineral grounds of that district.

It is at one time the patented property now held by the Woodman Mining company and the Western Utah Mining company. The holdings of these two companies are at different points through the most heavily mineralized section of the district. The late Col. J. F. Woodman, a man of large experience and certainly showed good judgment in selecting his properties as he did, as development has amply demonstrated. He had made a great deal of money, but had disposed of practically all his mining property with the exception of his holdings in the Clifton district and had almost completed that would have involved the expenditure of an immense amount of money in the erection of modern plants that would have been of incalculable benefit to the whole district. But death intervened, and his property passed into new hands just at a time when he could confidently look forward to the great success of his life.

### WOODMAN COMPANY.

This company owns the old Cane Springs location and has been a large producer of gold. The company also owns the Bonnemort claim and the Franky claim and the Alverda group. The Cane Springs Alverda group have been most extensively developed, and it is from these two groups that the greatest part of the ore so far extracted has been taken. The ore has been a high grade gold ore, averaging something like \$40 per ton. The ore has been found mostly in line near a porphyry-type vein, which is free milling, but the ore from the Cane Springs carries a small percentage of copper, generally in the form of carbonates. The Bonnemort claim is gold and copper. The gold is found in the line and the copper in what is supposed to be an intrusive granite, called by some experts a porphyry. The Franky claim is what would be called a copper property, although the ore carries considerable gold. This claim has always been considered one of the best in the district.

The vein on the Franky claim is fully 250 feet in width and extends to a length of the claim—1,500 feet. It also outcrops on the adjoining property for a considerable distance. The latter property is part of the Western Utah Copper company's holdings. The Franky vein has been developed by a number of shafts and one tunnel to a depth of about 100 feet. The ore so far developed will average about 3 per cent copper and \$250 in gold. The Franky vein is the largest in the Clifton district.

ton district, with one exception. The other vein is upon the property of the Lucy L. Mining and Milling company, which joins the Franky claim on the east.

### HAS PRODUCED MUCH.

The Woodman Mining company's property has actually produced about \$250,000 in gold from the Cane Springs and Alverda groups of claims. There is an immense amount of ore of a good grade in sight on the property which will be treated as soon as the new mill, that is to be built soon, is in operation. The property is now under operation, supposedly to the Guggenheims, for approximately \$300,000. A large mill is to be installed at once for working the gold ores, and the copper and lead veins on the property are to be extensively developed.

The Western Utah Copper company has three patented groups, the Gold Hill, Calaveras and the Copperopolis, all in the most mineralized part of the Clifton district. F. Augustus Heinze is one of the largest stockholders in this property. Duncan, McVick, W. S. McCormick and other prominent Salt Lake men are also heavily interested. The property has been developed to considerable depth and it is safe to say that fully 500,000 tons of ore have been taken from the mine or are blocked out ready for shipment, or for the smelter, as the case may be. The ore is of a good grade, and the company has bought the Redding Springs ranch, where there is plenty of water for a smelter site, and it is safe to assume that the mill would not be long until the smelter will be built. In the Gold Hill group the company has ore bodies developed that actually show about 100 feet in width. With such immense ore bodies exposed, and with such an immense amount of ore in sight, it is not likely that a man of the caliber of Heinze will allow the property to remain in its present unproductive state. Millions of dollars are expended in this one group, and the other groups will in all probability be fully developed, although not yet so fully developed. The ore of all the groups is copper, gold, silver and lead.

### LUCY L. COMPANY.

The Lucy L. Mining and Milling company is one of the properties which the Wilson brothers control. These men are among the most progressive and energetic in developing the Deep Creek country. They are also very heavily interested in the different districts, probably the largest individual property owners in that section. Clyde H. Wilson is in charge of the development work at the mines, while Frank L. Wilson has charge of the financial end. They have given considerable attention to the rare ores of the district and their reward has been the discovery of the largest body of bismuth-gold ore in the United States; the discovery of tin, nickel and molybdenum, and the rare and valuable tungsten ore. The Lucy L. is the best developed of the properties controlled by the Wilson brothers, something over a mile of work having been done upon this property. There are seven patented claims and one unpatented, covering an area of about 120 acres, in the very heart of the great mineral zone commonly called the Copper Belt from the characteristic outcrops of copper and to distinguish it from the parallel zones lying east of the Copper Belt and known as the lead belt.

The tungsten ore is of a fine quality. The ore is a Scheelite, and analysis shows it to carry 86 per cent tungsten acid. This ore is found at the grassroots, and while the development has been slight, enough of the ore has been found to warrant the belief that a very valuable discovery has been made. The ore is worth between \$400 and \$600 per ton. With such ore as that to work upon, there should certainly be some lively development to demonstrate the real merits of the rich deposit. Tungsten is the only metal that is increasing rapidly in value. It is said to have increased about 70 per cent within the past two years.

### WILSON CONSOLIDATED.

The Wilson Consolidated Mining company has been incorporated about a year, but the ground has been owned by the Wilsons for a long time and a great deal of work had been done before the incorporation. The company owns 14 claims, eight in the Clifton district and six in the Willow Springs district. The group in the Willow Springs district is on the great belt of dolomite limestone that has been the recognized mineral belt in that part of the range. The surface ores have been opened in a number of places, but a tunnel is now being driven that will open the veins at greater depth. The ores so far developed are lead, silver and copper. The property has water on the ground and considerable timber.

about 2,000 feet apart, both having a northerly and southerly strike. Running easterly and westerly between the two veins is the largest chrysolite or porphyry outcrop in the Clifton district. The outcrop of this dike is about 270 feet in width and 1,500 feet in length, entirely upon the Lucy L. ground. The dike has intruded into the lime and the mineralization of the surrounding formation is undoubtedly the result. No doubt there has been considerable fracturing in some of the adjacent country rock, which is a granite under the lime capping, and in these fissures in the granite is where the bismuth and tungsten ores have been deposited.

The mineral deposits surrounding the porphyry dike are the Franky copper vein at the west end, the Lucy L. copper vein at the east end, and the 30 foot lead vein of the Lucy L. on the north side all in line, and the bismuth and tungsten ores on the south side, in the granite. Borings and phosphate is conspicuously present in the line north of the dike and several veins of jasperoid parallel and dip toward the dike and toward the big lead outcrop that lies just north of the dike.

### BISMUTH.

Bismuth is rarely found in quantity or it would not be selling at \$175 per pound, but in the case of the Lucy L. it seems to have reversed all precedents, for the smallest part of the vein so far exposed is 12 feet wide and it has been developed to the depth of over 300 feet. The ore ranges from pure native bismuth to a low grade, but it is doubtful whether there is a particle of the vein that would not pay well if the proper facilities were at hand to work it economically. Particularly in view of the fact that the ore all carries gold values, some of it very rich. A large tonnage of ore is exposed in the mine and several carloads are on the dumps and sacked ready for shipment as soon as more favorable transportation charges can be had, or a plant erected to work it upon the ground.

### LEAD VEIN.

The lead vein makes in the line near the north side of the rhyolite dike previously mentioned. The outcrop is fully 30 feet wide and the mineralization seems to extend the full length of the dike. The line formation in which this lead vein makes, is the same as that in which the Western Utah Copper company has found its immense body of lead ore—said to be 75 feet in width. All other conditions are practically the same, and it is fair to assume that when the Lucy L. vein is more extensively developed, it will show an ore body of large proportions. The ore so far developed is a carbonate, with fair values in silver. In developing the copper vein on the property, a tunnel has been driven from the east side of the hill, from which it is now possible to reach the lead vein at a depth of several hundred feet at small expense.

### TUNGSTEN, TIN, NICKEL.

Tin and nickel are both present in the copper ores of the Lucy L., but not in sufficient quantity to be available under the present conditions. A little less than 2 per cent of the two metals is present. Deep Creek is the only section in Utah where tin is known to have been found.

The tungsten ore is of a fine quality. The ore is a Scheelite, and analysis shows it to carry 86 per cent tungsten acid. This ore is found at the grassroots, and while the development has been slight, enough of the ore has been found to warrant the belief that a very valuable discovery has been made. The ore is worth between \$400 and \$600 per ton. With such ore as that to work upon, there should certainly be some lively development to demonstrate the real merits of the rich deposit. Tungsten is the only metal that is increasing rapidly in value. It is said to have increased about 70 per cent within the past two years.

### WILSON CONSOLIDATED.

The Wilson Consolidated Mining company has been incorporated about a year, but the ground has been owned by the Wilsons for a long time and a great deal of work had been done before the incorporation. The company owns 14 claims, eight in the Clifton district and six in the Willow Springs district. The group in the Willow Springs district is on the great belt of dolomite limestone that has been the recognized mineral belt in that part of the range. The surface ores have been opened in a number of places, but a tunnel is now being driven that will open the veins at greater depth. The ores so far developed are lead, silver and copper. The property has water on the ground and considerable timber.

pany has been incorporated about a year, but the ground has been owned by the Wilsons for a long time and a great deal of work had been done before the incorporation. The company owns 14 claims, eight in the Clifton district and six in the Willow Springs district. The group in the Willow Springs district is on the great belt of dolomite limestone that has been the recognized mineral belt in that part of the range. The surface ores have been opened in a number of places, but a tunnel is now being driven that will open the veins at greater depth. The ores so far developed are lead, silver and copper. The property has water on the ground and considerable timber.

is equally applicable to the adjacent properties. One of the groups held in this territory is the Copperopolis, consisting of three claims and owned by the Western Utah Copper company. The Seminole Copper company has a group that joins the south end of the Copper Belt ground and the east side of the Copperopolis group. The Copper Belt group and the Seminole group are controlled by the Wilson brothers and with the Lucy L. ground and the holdings of the Wilson Consolidated company, all in the same belt, gives them control of a large acreage.

The Seminole group of six patented claims covers territory that is practically the same in all respects as the Copper Belt ground.

An outcrop through the Seminole and Copper Belt is a porphyry, supposedly monzonite, and has a 250 foot outcrop, and extends for several thousand feet through the Seminole and Clifton Copper Belt properties. It is almost impossible to break a piece of this porphyry without finding more or less copper, and in numerous places rich ore comes to the surface in shoots that are probably indicative of the great ore body that must be under this wonderful outcrop.

MINNE HA HA COMPANY.

This company has a group of several patented claims near the Seminole ground just described. The vein has been extensively developed and a large amount of very high grade copper ore has been found. This property will be a steady shipper as soon as the railroad reaches camp.

### GARDNER AND RODENHOUSE.

J. P. Gardner and Paul Rodenhouse are heavily interested in the Clifton and other districts of the Deep Creek range. They are interested in several incorporated companies, but it will be impossible to give space to more than one of their groups, which is an immense deposit of copper. The ground lies north of the town of Clifton and about east of the Clifton Copper Belt ground. The outcrop is something near a mile in length and nine hundred feet in width. Numerous shafts have been sunk at various points on the property and invariably the ore has been found in the top of the dike and inclining in to the hill, which is limestone and other sedimentary rocks. Under the porphyry is a four foot vein of 45 per cent zinc ore carrying as high as 324 per ton in gold. Under the line is a two foot vein of high grade silver-lead ore. The low grade section of the vein is 2 feet in width and is a good concentrating grade. The property is most favorably situated as to timber, and there is a large stream of water running over the ground that will eventually be used for concentrating the low grade ores. A large amount of work has been done upon the property and several shafts have been sunk to the depth of several hundred feet. Some of the richest silver ore ever found in the Deep Creek country is from this ground. This property will eventually be among the heaviest shipper of ore from that country. There are many other properties that could be favorably mentioned, but there are too many meritorious properties in the Deep Creek Range to be described in a single article.

### CLIFTON COPPER BELT.

The Clifton Copper Belt Mining company property is about one mile south of the Lucy L. ground in the same mineral zone. The formation is mostly granite with some lime, but the veins are all in the granite. Several porphyry dikes are prominent on the property. The granite outcrop at this point is about three quarters of a mile wide, flanked on the east and west by limestone. The vein system consists of several large veins running northerly and southerly and another system of cross veins running easterly and westerly that extend from the lime-granite contact on the east to the contact on the west side of the mineral belt. Most of the veins have a quartz gangue, and the metals contained are lead, silver, copper, gold, tin, nickel and molybdenum. The copper veins are the ones that have received the most attention and some of the finest ore ever discovered in the district is upon the dumps of the Copper Belt property and the other groups of claims in that immediate locality. The Copper Belt property is for one that has been most extensively developed, the greatest depth obtained being about 150 feet. Several other shafts have been sunk upon different veins and wherever there has been any development ore of a very fine quality has been opened up.

### MOLYBDENUM.

The Copper Belt has in its own territory all the minerals previously spoken of as existing in that part of the belt and is the only property in Deep Creek that is known to have molybdenum. There is a large amount of ore on the dumps and exposed in the mine. What is said of the general conditions on the Copper Belt property

is equally applicable to the adjacent properties. One of the groups held in this territory is the Copperopolis, consisting of three claims and owned by the Western Utah Copper company. The Seminole Copper company has a group that joins the south end of the Copper Belt ground and the east side of the Copperopolis group. The Copper Belt group and the Seminole group are controlled by the Wilson brothers and with the Lucy L. ground and the holdings of the Wilson Consolidated company, all in the same belt, gives them control of a large acreage.

The Seminole group of six patented claims covers territory that is practically the same in all respects as the Copper Belt ground.

An outcrop through the Seminole and Copper Belt is a porphyry, supposedly monzonite, and has a 250 foot outcrop, and extends for several thousand feet through the Seminole and Clifton Copper Belt properties. It is almost impossible to break a piece of this porphyry without finding more or less copper, and in numerous places rich ore comes to the surface in shoots that are probably indicative of the great ore body that must be under this wonderful outcrop.

MINNE HA HA COMPANY.

This company has a group of several patented claims near the Seminole ground just described. The vein has been extensively developed and a large amount of very high grade copper ore has been found. This property will be a steady shipper as soon as the railroad reaches camp.

### GARDNER AND RODENHOUSE.

J. P. Gardner and Paul Rodenhouse are heavily interested in the Clifton and other districts of the Deep Creek range. They are interested in several incorporated companies, but it will be impossible to give space to more than one of their groups, which is an immense deposit of copper. The ground lies north of the town of Clifton and about east of the Clifton Copper Belt ground. The outcrop is something near a mile in length and nine hundred feet in width. Numerous shafts have been sunk at various points on the property and invariably the ore has been found in the top of the dike and inclining in to the hill, which is limestone and other sedimentary rocks. Under the porphyry is a four foot vein of 45 per cent zinc ore carrying as high as 324 per ton in gold. Under the line is a two foot vein of high grade silver-lead ore. The low grade section of the vein is 2 feet in width and is a good concentrating grade. The property is most favorably situated as to timber, and there is a large stream of water running over the ground that will eventually be used for concentrating the low grade ores. A large amount of work has been done upon the property and several shafts have been sunk to the depth of several hundred feet. Some of the richest silver ore ever found in the Deep Creek country is from this ground. This property will eventually be among the heaviest shipper of ore from that country. There are many other properties that could be favorably mentioned, but there are too many meritorious properties in the Deep Creek Range to be described in a single article.

### CLIFTON COPPER BELT.

The Clifton Copper Belt Mining company property is about one mile south of the Lucy L. ground in the same mineral zone. The formation is mostly granite with some lime, but the veins are all in the granite. Several porphyry dikes are prominent on the property. The granite outcrop at this point is about three quarters of a mile wide, flanked on the east and west by limestone. The vein system consists of several large veins running northerly and southerly and another system of cross veins running easterly and westerly that extend from the lime-granite contact on the east to the contact on the west side of the mineral belt. Most of the veins have a quartz gangue, and the metals contained are lead, silver, copper, gold, tin, nickel and molybdenum. The copper veins are the ones that have received the most attention and some of the finest ore ever discovered in the district is upon the dumps of the Copper Belt property and the other groups of claims in that immediate locality. The Copper Belt property is for one that has been most extensively developed, the greatest depth obtained being about 150 feet. Several other shafts have been sunk upon different veins and wherever there has been any development ore of a very fine quality has been opened up.

### MOLYBDENUM.

The Copper Belt has in its own territory all the minerals previously spoken of as existing in that part of the belt and is the only property in Deep Creek that is known to have molybdenum. There is a large amount of ore on the dumps and exposed in the mine. What is said of the general conditions on the Copper Belt property

Consolidated company, the Apex group that has shipped considerable high grade silver-lead ore; the Lion group and one group of the Willow Springs Consolidated, with others of lesser note, but all having a fine showing of good ores.

### MYERS PROPERTY.

At the mouth of Trout creek in the Myers property that bids fair to become one of the largest, if not the largest, lead-zinc property discovered in Utah. The vein is 45 feet in width and traceable for 3,000 feet. The ore makes on opposite sides of a porphyry dike, the low grade section of the vein lying on top of the dike and inclining in to the hill, which is limestone and other sedimentary rocks. Under the porphyry is a four foot vein of 45 per cent zinc ore carrying as high as 324 per ton in gold. Under the line is a two foot vein of high grade silver-lead ore. The low grade section of the vein is 2 feet in width and is a good concentrating grade. The property is most favorably situated as to timber, and there is a large stream of water running over the ground that will eventually be used for concentrating the low grade ores. A large amount of work has been done upon the property and several shafts have been sunk to the depth of several hundred feet. Some of the richest silver ore ever found in the Deep Creek country is from this ground. This property will eventually be among the heaviest shipper of ore from that country. There are many other properties that could be favorably mentioned, but there are too many meritorious properties in the Deep Creek Range to be described in a single article.

### TRANSPORTATION.

The one interfering element that has kept the Deep Creek country from becoming one of the most productive sections of the west is better transportation. The long wagon haul that has been necessary to reach a market has been so expensive that nothing but the very high grade ores could be shipped; consequently, the property owners have contented themselves with developing their properties with the knowledge that the railroad would reach them in due time. And it seems that in the near future there will be more roads than the most sanguine had hoped for. The Western Pacific, it is understood, is to build a branch from Wendover, which is about 45 miles from the center of the Clifton district.

The Utah & Nevada company is to build from Garfield, 18 miles west of Salt Lake City. This company is said to have raised \$5,000,000 and has given the positive assurance that operations will begin within a very short time. The Interstate Commerce Commission is supposed to be the Cole-Ryan and the American Smelting and Refining company. It is proposed to run the road from Garfield, in Utah, to Elko, Nevada, thus connecting the great properties and great smelting plants of the big interests concerned. At the same time the road will open to production the rich mineral country between the two States, and the result will be shipped immense quantities of ore that the smelters want, and need, and can get in no other section of the west so conveniently.

### SALT LAKE ROUTE.

The Salt Lake Route road is also reported to be about ready to start from near Tropic, to build directly to the Deep Creek country. This road would have been built two years ago if it had not been for the financial depression that set in about that time. The road passes through a fine mineral country for practically its entire length and would open to the Knight smelter, at Tropic, a field that would be inexhaustible. There are many other roads that the smelter might require. The outlook for the Deep Creek country is very bright, and since it is one of unusual richness and magnitude, it is hardly equalled in the west.

## DIABETES

From late figures the hope of recovery under the new emollient treatment seems to be about as follows:

In people of sixty and over results are quite uniform, probably nine-tenths recovering. While at fifty and over a large majority of all cases yield to the treatment, below fifty and approaching forty the disease gets more stubborn, and between thirty and forty the percentage is not high—probably not much over half yielding.

Under thirty the percentage is less and in children recoveries have been very few and most of those were obtained with the aid of skilled physicians forcing nutrition, with alkaline treatment to prevent formation of acetones.

The new emollient treatment is known as Fulton's Diabetic Compound. It can be had in Salt Lake City at Schramm-Johnson Drugs.

We desire every patient to write us who is not getting the usual improvement by the third week. Always state age. Literature mailed free. Jno. J. Fulton Co., 212 First St., San Francisco, Cal. Invite correspondence with physicians who have obstinate cases.

## Warm Springs Iron Works

SALT LAKE CITY, UTAH.

Manufacturers of Mining and Milling Machinery, Filter Presses, etc. The sole makers of the famous "W-S" brand of steel mixture for stamp shoes, crusher jaws, roll shells, etc.

All sizes of cast iron fittings for gas and water kept in stock. Sewer man-hole frames and covers, grate bars—all sizes. Repair work solicited.

Order from us your Irrigation Head Gates.

The best equipped Machine Shop in the Inter-mountain country.

RUSH ORDERS PROMPTLY EXECUTED.

Quotations cheerfully furnished.

Office & Works—1055 North Second West Street.

A. R. LUNDIN, Mgr.

Bell Phone 1007.

Ind. Phone 3129.