One Million Tons Of Ore Produced BY Bingham This Year.

IMMENSE DAILY OUTPUT.

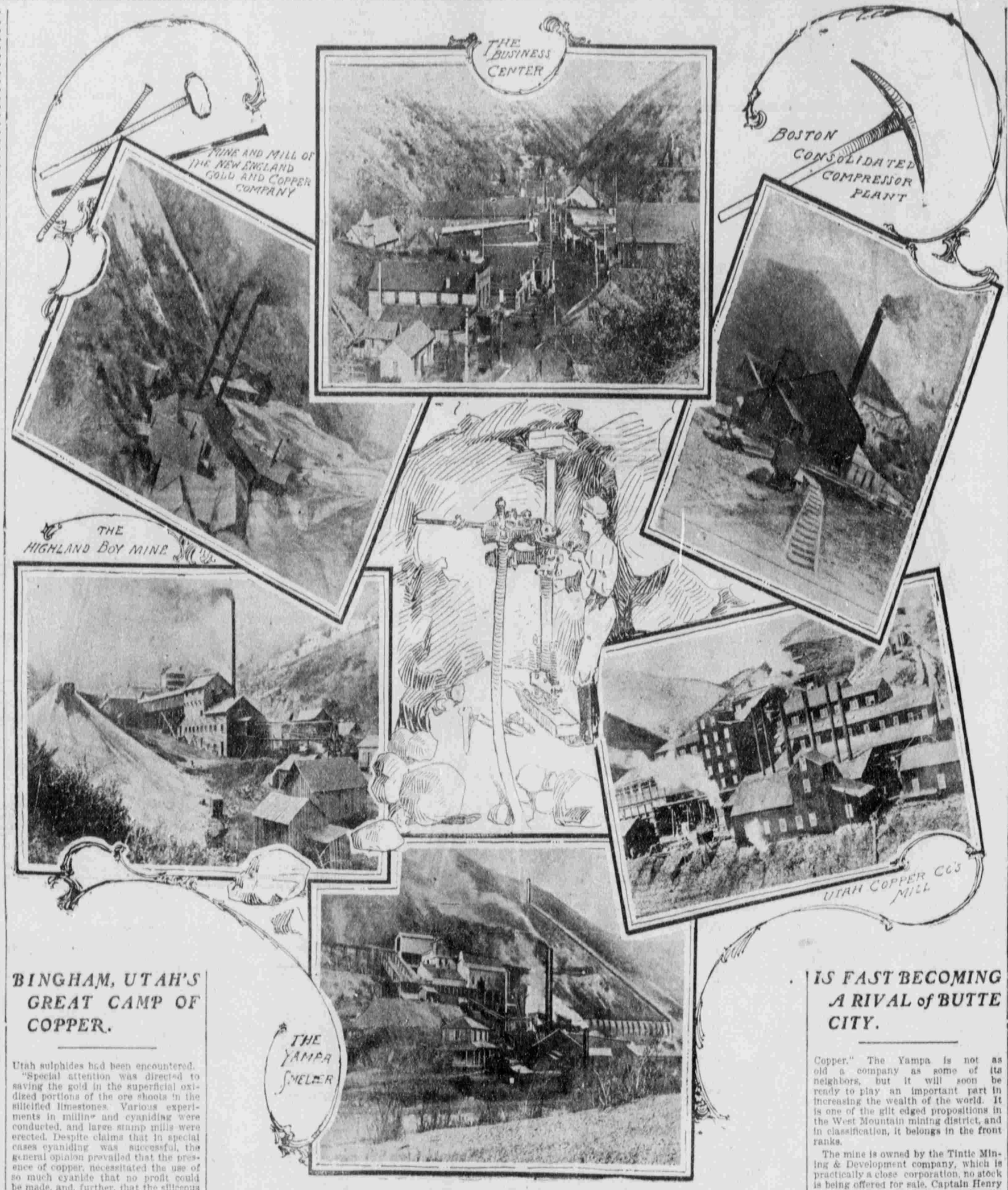
	Tons.
UTAH CONSOLIDATED	750
UTAH COPPER	700
BINGHAM CONSOLIDATED	400
UNITED STATES	400
BOSTON CONSOLIDATED	250
YAMPA	200
OHIO COPPER	125
BINGHAM — NEW HAVEN	60
UTAH-APEX	50
OTHER PRODUCERS	150
Total	3,035

Bingham, as the foregoing indicates, is contributing approximately 3,000 tons of ore daily to the mills and smelters.

It is predicted that by the end of next year the output of the camp will have more than doubled. Some big things are in contemplation and, if the program is carried out, the year 1905 will witness some wonderful changes in the "Camp of Copper."

The Utah Copper company, which has met with astonishing success in the reduction of the low grade copper bearing porphyries of the district proposes, now that the demonstration has been so entirely satisfactory, to provide larger facilities for reduction and will probably construct an addition to its present $200,000 plant with equipment sufficient to handle an output of 3,000 tons per day. The Ohio Copper company is also going to improve its milling facilities and will build a plant capable of hauling 500 tons, or an increase of 375 tons a day. The Yampa is preparing to double its output, while the Boston Consolidated could double or treble its extraction without the slightest difficulty. The Bingham-New Haven will probably send out 300 or 400 tons of ore daily before the end of next year, while the New England Gold and Copper company and others are ready to advance along the same lines.

If Bingham continues to prosper as present indications would have it the camp will be producing copper at the rate of 100,000,000 pounds annually.



SCENES IN BINGHAM CANYON

Specially Photographed for the Christmas "News."

BINGHAM, UTAH'S GREAT CAMP OF COPPER.

IS FAST BECOMING A RIVAL of BUTTE CITY.

A WONDERFUL transformation has taken place in Bingham this year, and the prediction is freely made that the change will be far more complete during the next twelve months.

Great things are in store for the camp, and the time is not far distant, when boastful Butte will be required to relinquish the honor of first place among the copper camps of the west.

ONE MILLION TONS.

Bingham mines will have yielded, when this year closes, at least 1,000,000 tons of ore, or about 3,000 tons per day. This enormous tonnage has been handled by the mills of the camp or sent direct to the smelters at Bingham Junction and Murray. The only exception to this is found in the Yampa mine, which has a smelter of its own in lower Bingham, where the copper is reduced to matte and then sold in that shape to the local buyers, who bid the highest price for it.

CAMP IN ITS INFANCY.

Although Bingham canyon furnished some of the earliest scenes in Utah mining and some of the properties now in operation have been active for a quarter of a century, it is generally conceded by mining men familiar with conditions that the camp is still in its infancy; that the ledges have only begun to tell their story of wealth.

In the beginning gold was the only metal sought, and in the '60's placer mining was carried on successfully in lower Bingham without a thought that some day the camp would become one of the foremost copper districts of the country, and that some of the nation's greatest financiers would find it a Mecca for investment. Many of the old placer diggings are still in evidence, but no work of this character is now being conducted; the search for placer gold ceased a number of years ago, but were it possible to control the tremendous volume of water coming down the canyon, the industry might flourish again, as the washings never reached bed rock of the creek.

When placer mining began to wane, lode discoveries were made. In some portions of the camp gold veins were more prominent, while in other portions silver and lead were the most conspicuous. For a long time the camp's metal output consisted of silver and lead.

SOME EARLY HISTORY.

The beginning of mining in Bingham is tersely told in the report of Prof. J. M. Boutwell, of the United States geological survey, who was sent to Utah by that department to study the geology of the West Mountain district, to which Bingham belongs. In his report Prof. Boutwell says:

"Early in the fall of 1863 ore was discovered by George B. Ogilvie, near the head of Bingham canyon. On Sept. 17, 1863, each of the 25 membres of the Jordan Silver Mining company formally located there "for mining purposes," one claim of 200 feet each and one additional claim of 200 feet for the original discoverer. This is the earliest recorded mining claim in Utah. Active prospecting led to the discovery and location of promising croppings, but lack of facilities for transportation rendered mining operations at this time impracticable. The first shipment of ores from Utah was a carload of copper ore from Bingham canyon, hauled to Uintah on the Union Pacific railway, and forwarded by the Walker brothers to Baltimore in June, 1868.

"In 1870 came the connection of the Union and Central Pacific railroads by the Utah Central with Salt Lake City, the inauguration of the branch line to Bingham, the results of experiments in the reduction of local ores, and the successful exploitation of the Emma mine and adjoining properties in the Wasatch mountains; in Bingham, many bodies of lead ore, mainly carbonate, were exploited. The first efficient development of the mines of the district was conducted by Messrs. Bristol and Daggett in the Winnamuck and Spanish, and the largest bodies of argentiferous lead ore were developed in the Jordan and Galena mines. In 1874 the bulk of lead-carbonate ore was exhausted, and in the Winnamuck, Neptune, Spanish and Utah sulphides had been encountered.

"Special attention was directed to saving the gold in the superficial oxidized portions of the ore shoots in the silicified limestones. Various experiments in milling and cyaniding were conducted, and large stamp mills were erected. Despite claims that in special cases cyaniding was successful, the general opinion prevailed that the presence of copper, necessitated the use of so much cyanide that no profit could be made, and, further, that the siliceous ores of Bingham had never been worked successfully. In the early eighties there were developed in the outer western slopes of the range, bodies of carbonate ors which continued to afford an interesting output for about a decade. In 1891, and 1892 the leading productive mines were the Old Jordan & Galena, Highland, Telegraph, York, Petro, and Yosemite mines. In 1893 the decline in silver brought this period of activity to a close.

"A few years later the discovery of pay shoots of sulphide-copper ore at a time of strong demand for copper and a rise in the market value of lead inaugurated a new era in the camp. Reduction of copper sulphides having been successfully conducted, and the value of the Bingham copper ores having been demonstrated in 1899, on a shipment of 5,000 tons from the Highland Boy, exploitation of copper was vigorously begun and has continued until the date of writing. This has resulted in the disclosure of strong and valuable shoots of low grade coper-sulphide ore.

"These bodies are now worked on both a large and a small scale. The largest ones are controlled by the Utah Consolidated, the United States, Bingham Consolidated, and the Boston Consolidated companies, which transport their output either by aerial tramway or broad-gauge railway to the Bingham terminal of the Rio Grande Western road, and thence by rail to smelters built and operated by each company at Bingham Junction."

THE COPPER ERA BEGUN.

It was left for Samuel Newhouse and Thomas Weir, who, for a number of years were associated together in the business of mining in this state, to ascertain that Bingham contained copper ore. They, at one time, owned the Highland Boy mine, and through them it was disposed of to a syndicate of American and English capitalists, who organized the Utah Consolidated Mining company. The Highland Boy mine was thought to be a gold proposition when acquired by Messrs. Newhouse and Weir. The property was equipped with a cyanide mill; but the plant was operated but a short time when it was discovered that the iron croppings in which the gold values rested, were only the superficial covering for what has since proved to be one of the greatest copper mines in the world.

This discovery marked the beginning of a new era for Bingham—the copper era.

PREVIOUS IDEAS SMASHED.

It meant that all previous ideas concerning the geology of the district were completely smashed and that new methods of treatment must be worked out. There were no copper furnaces in the valley, so it devolved upon Mr. Newhouse and his associate to provide means for the extraction of the metal from the ores. While these plans were being worked out, the development of the Highland Boy mine progressed and by the time the smelter—the first copper plant erected in the state—was completed, the mine was in shape for extraction upon an extensive scale. The tramway now in operation was built by Messrs. Newhouse and Weir. Before the smelter went into commission the property was sold. But it marked the beginning of an era of prosperity for Bingham, as well as the state at large.

CAPITAL BECAME INTERESTED.

Capital became attracted to Utah mining districts as it never had before.

OTHERS FOLLOWED.

Soon after the launching of the Utah Consolidated came the organization of the Bingham Copper & Gold Mining company, which was worked out by Col. Henry G. Heffron and associates. They later disposed of their interests to a strong company, and the Bingham Consolidated became sponsor. A smelter was built at Bingham Junction. Later the United States Mining company was formed, taking over the Old Jordan, Telegraph and Galena mines, noted in the early days of the camp for their rich lead-silver ores, but which, like the Highland Boy, turned out to be copper propositions of great merit. The United States company also erected a smelter.

COMPETITION CREATED.

The advent of the independent plants, in a measure, benefitted the small producer by creating competition in the ore markets, and enabled the owners of copper properties to operate them profitably, whereas, before that time, they were unable to do so, for the reason there was no market at home for ore carrying copper values.

Since the launching of the foregoing copper companies, many others have came into existence; notably, the Utah Copper, Ohio, Utah-Apex, Boston Consolidated, Bingham-New Haven, Butler-Liberal, New England Gold & Copper companies, all of which are regular contributors ao the markets.

Other companies have been formed and are working out their destiny by conducting developments upon a systhematic basis.

GEOGRAPHICAL CONDITIONS.

Geographically speaking, Bingham is about as well located as it possibly could be. Within 25 miles of Salt Lake City mine managers find it convenient to make their trips to and from camp frequently in automobiles. The Denver & Rio Grande railroad, however, operates two passenger trains daily between the capital city and the camp, so the means of transportation are up-to-date. Bingham is situated on the eastern slope of the Oquirrh range of mountains. The camp is one of tunnels, so to speak, a greater portion of the mines being operated through them; thus, the cost of mining is reduced to a minimum.

UTAH CONSOLIDATED.

If one should ask which is the largest producer of copper in Bingham, the answer would be—the Utah Consolidated, of which R. H. Channing is general manager.

The company's smelter at Bingham Junction is being supplied with 750 tons of ore daily, from which approximately 1,500,000 pounds of copper are being made monthly. The enlargement of the smelter during the year has enabled the company to increase its output just one half; before the additional equipment was installed it being about 500 tons a day. The new equipment went into commission about July 1 last. This year's production of copper bullion will aggegate about 15,000,000 pounds.

The Utah Consolidated company became an American institution a little over a year ago when the headquarters of the company were removed from London to New York. At that time it absorbed the old English company, and among the assets was the original Highland Boy mine.

Originally, as has been stated elsewhere, the mine was operated for its gold values, but at a depth of 150 feet it was found that copper predominated. The smelter was blown in in 1899 and has since been improved and added to until it is recognized as being one of the most modern copper plants in the country.

Typical of Bingham, the Highland Boy mine is operated through tunnels and all told it is estimated there are anyway 15 miles of underground workings.

The character, the Highland Boy ores are in the nature of chalco pyrites, iron pyrites, with some bornite.

While it is not the policy of the management to give out detailed information relative to the results being achieved through the campaign of developed carried on, it is no secret that some very important disclosures have been made during the present year and that the mine is destined to continue to be one of Bingham's greatest producers for many years to come. It is estimated there are at least 1,000,000 tons of ore blocked out in the mine at the present time.

BOSTON CONSOLIDATED.

The Boston Consolidated is another creation of Samuel Newnouse, its present managing director. After leaving the active management of the Highland Boy, the now noted copper magnate believed he could develop another mine in the camp that would become an equal of the one which he had relinquished. Accordingly, he set about to acquire the territory which afterwards formed the basis for the organization of the Boston Consolidated Mining company. Altogether a group consisting of about 350 acres was obtained. The ground covered an extension of the great Highland Boy vein and in due time development work was inaugurated upon an extensive scale. Characteristic of Mr. Newhouse, he surrounded himself with a corps of efficient assistants and advisors and carried the campaign along on the soundest business basis. More than two years was devoted to exploration without any serious attempt at production. The policy was to develop the property extensively before figuring on getting returns.

There are close to 10,000 feet of underground workings in the Boston Consolidated mine, and it has been estimated that there are anywhere between 2,000,000 and 3,000,000 tons of ore available, carrying values ranging from 3 to 6 per cent copper, $3.50 in gold and silver. Nearly 4,000 feet of the workings have been run in solid ore. The principal workings consist of four tunnels, Armstrong Nos. 1 and 2, Peabody and Work.

The mine is operated principally through Armstrong No. 1 tunnel, which is connected up with the Peabody, 110 feet above, and the Work, 160 feet still further above. Important ore bodies have been opened in each of these tunnels and some of them measure up to immense proportions. The ore extracted from the upper tunnels is dropped down to Armstrong No. 1, through a system of chutes and thence conveyed by mine cars, electrically equipped, to the ore bins near the entrance to the tunnel, where the product is loaded onto the "battleships" operated over the Copper Belt railroad and thence sent on the journey to the valley smelters.

A year ago now the Boston Con. company was giving serious consideration to the matter of providing reduction works. Before the present year had advanced very far, however, Managing Director Newhouse succeeded in making a favorable contract with the existing plants to supply 250 tons of ore per day. This done, the further consideration of the construction of reduction works was abandoned. A site was purchased near Bingham Junction, however, together with ample water rights, and while nothing has been definitely determined along those lines, the probability is that a large concentrator will adorn the premises in a little time. The Boston Con. Company owns a large slice of the copper bearing porphyries which are being reduced to concentrates, so successfully by the Utah Copper company. This ore will be moved in due time and when that time comes, a mill will be required. As long as the company is able to make favorable contracts with the existing smelting companies there is no likelihood of a smelter being built.

Undoubtedly the output will be greatly increased during the present year. The mine is developed to the extent that several times the present tonnage could be furnished without causing any worry to the mine superintendent.

THE YAMPA MINE.

The Yampa mine is one of the big bonanzas in the "Old Reliable," but more recently christened "Camp of Copper." The Yampa is not as old a company as some of its neighbors, but it will soon be ready to play an important part in increasing the wealth of the world. It is one of the gilt edged propositions in the West Mountain mining district, and in classification, it belongs in the front ranks.

The mine is owned by the Tintic Mining & Development company, which is practically a close corporation, no stock is being offered for sale. Captain Henry Stern of New York is prominently identified with it, and George H. Robinson, the well known mining engineer and operator, is also exatensively interested, and they, with a few others, own the bulk of the stock.

The mine is opened by two tunnels. The upper, or Yampa tunnel, is 650 feet below the crest of the mountain, and in this adit a vast tonnage has been blocked out.

In the Craig, or lower tunnel, a great showing of ore is in evidence. This tunnel cut the ore body 2,200 feet from its mouth and at a depth of about 1,800 feet on its strike.

The average width of the vein is from 15 to 30 feet, and the character of the ore is a copper iron sulphide. In the richer parts of the vein the ore comes in the form of covellite, chalcopyrite and chalcocite. The vein is distinctive and practically continuous, with values generally uniform. The ore averages from 3 to 3½ per cent copper in addition to the gold values which run from $2 to $3 to the ton.

The Yampa group covers an area of about 100 acres aside from the ground embraced in the smelter site in lower Bingham.

The campaign of development conducted during the presesnt year has been productive of very satisfactory results, so much so that the management gave orders sometime ago to expend a large sum in the enlargement of the smelter in lower Bingham. Mine Supt. William J. Craig, who, by the way, is one of the most competent miners that ever entered the state, and under whose guidance the Yampa has been transformed from the crudest kind of a prospect into what it is today is finishing up an important work; that of putting in a new incline, double compartment, which is to run between the lower tunnel and the surface, and in which two skips will be operated. It will take several months yet to complete the undertaking, but when it is, the property will be opened up in such a way that extration of ore will be carried on at a minimum cost. Economy, as well as convenience, has been the watchword in the campaign of exploration.

The new incline will be about 1,700 feet in length; under ordinary circumstances, it would take a long time to run it, but as it will intersect with the intermediate levels, work is being conducted simultaneously from three points. Hence, rapid progress is being made.

THE YAMPA SMELTER.

The Yampa Smelting company is the owner of the reduction plant located in lower Bingham canyon, about a mile above the big concentrating mill of the Utah Copper company. It was built expressly for ores produced from the Yampa mine and is the only smelter operated within the camp. Excepting in this instance all the Bingham ores are brought down to either Bingham Junction or Murray for treatment. It was originally planned that the Yampa smelter should consist only of one roasting furnace and one blast furnace; but soon after the plant was blown in during the early part of the year, it was found that the ore was not adapted to exclusive blast furnace practise, there being so large a portion of fines in the ore. It was also found that the roaster could not be operated with the economy necessary to give the blast furnace the best grade of ore. The finding of the conditions mentioned led to the decision of the directors of the company to alter the plan of treatment. The plant was completely overhauled and new equipmen is now in the process of installation, a portion of which will be in commission within the next few days and the balance soon after the first of next year. The changes are being made at great expense to the company, but when they are finished the Yampa mine will begin its money making era.

The new equipment consists of a second blast furnace of large capacity, a reverberatory furnace of large capacity, as well as a roasting furnace of large capacity.

Many other changes and improvements are being made, among which is the doing away of the steam engines located in the various parts of the plant and substituting electric motors, which will be distributed about the premises at points where they are most needed. The company owns its own electric lighting and power plant and is putting in generators of three times the capacity of those originally installed. In its new form it is expected that the smelter will handle 600 tons of ore daily.

In the work of reconstruction the management has been fortunate in securing the services of H.C. Hellinger as consulting metallurgist. Mr. Hellinger stands high in his profession and is considered to be one of the best copper metallurgists in the country.

The general management of the Yampa properties are in the hands of Walter S. Kelley, a mining engineer and metallurgist of wide experience in Butte and other noted copper camps of the country.

THE UTAH APEX MINE.

One of the future great mines of the camp is the Utah-Apex, of which Walter C. Orem of this city is general manager. It is a near neighbor to some of the largest producers in the district, and the territory owned by the company embraces all told about 300 acres. It immediately adjoins the Utah Consolidated and Yampa.

The Utah-Apex company was organized about three years ago under the laws of the state of Maine, and the principal office of the corporation is in Boston. A great amount of development has been done since the organization and it has been of such a nature which leaves no doubt as to what the future will bring forth. Immense bodies of ore have been developed, and blocked out, and while extraction is going on in a mild way no attempt will be made to do so upon a large scale until the mine is connected up by means of a deep working tunnel, now in the course of construction. The property is being developed by a series of tunnels, representing the different levels on the ore bodies and as soon as possible these will be connected with the deeper one. The new tunnel was started for this purpose, as well as that of cutting all the lime contacts in the property at a depth ranging from 500 to 1,500 feet on the dip of the respective veins. The ore bodies range from 15 inches to 6 feet in width, and, although not as wide as some in the camp, they show remarkable regularity and continuity in both length and depth; the principal ore body measuring 1,000 feet in length along its strike.

At the present time the company is shipping from the ore body blocked out in what is known as the Minnie vein, from 35 to 50 tons per day. This ore averages better in its copper, gold and silver contents than that of any other mine in the camp, and particularly so, in gold and silver; shipments running from $10 to $15 in gold not being uncommon. In this ore body engineers of the company give an estimate of 350,000 tons in sight.

Embraced within the groups are five strong, well defined lime beds, all of which have a creditable history for a good class of ores in the early days. At five different points on the property the present company has opened up distinct ore bodies, so that the tonnage in sight can be greatly increased in a very short time.

The entire group has a past production record of about $500,000, and although the company is a new one, from its location, the amount of ore in sight now, and the strong people by whom it is owned and financed, there is every reason to expect that the Utah-Apex will soon rank among the best in Bingham.

A vigorous development policy has been outlined for the coming year. A large compressor with 6 or 8 machine drills will be installed, and the management confidently expects to at least double the tonnage in sight within the next year.

Crossing the company's property are several copper bearing porhyry dikes, which, sometime, in the future, will be worked over at a profit. The mineralization of these porphyries corresponds to the ores of the Utah Copper company.

UNITED STATES MINES.

In the way of acreage the United States Mining company probably takes the lead. At least there are very few companies operating in the camp which can equal it in this respect. It owns close to 1,500 acres of patented and unpatented ground, and this includes some of the mines which figured conspicuously in the early history of Utah. Among them is the Old Jordan, Galena, Telegraph and Niagara, or Spanish mines. The Jordan locations were among the first recorded in the state, which, with the Telegraph mines, were operated in those days by L. E. Holden, father of A. F. Holden, the promoter and present managing director of the United States company. In 1878, the senior Holden sold his interests to a French company, which kept things moving but a short time. For a number of years afterwards the properties were idle; in fact, until they became a part of the United States company's domains. The U. S. company does not confine its operations entirely to Bingham. Several years ago it acquired the Centennial-Eureka mine in Tintic, which was done in order to get a combination of ores that would work well together. This was followed by the organization of the United States Smelting company and the construction of the big copper smelter at Bingham Junction, which is turning out about 12,000,000 pounds of copper annually.

The Bingham mines at the United States company have over 20 miles of underground workings and sufficient ore developed above the tunnel levels to supply the smelter for a half dozen years to come. The ore produced is the typical Bingham sulphides and is transported from the mine to the railroad station in lower Bingham over an aerial tramway 18,000 feet long; 13,000 feet being main line and 5,000 feet additional on the lines from the mine to the loading station. The buckets used have a capacity of nine cubic feet and when level full carry 1,780 pounds of United States ore.

Walter Fitch, for more than twenty years actively identified with the mines of the Lake Superior Copper country, recently accepted the general management of the United States company's properties. He is ably assisted by Clarence E. Allen, the general superintendent.

During the year the company secured a controlling interest in the Mammoth