DESERET EVENING NEWS: SATURDAY DECEMBER 19, 1903.

Bingham Fast Becoming The Rival Of Butte.

vertised mining camp in Utah. was the first copper region in the state to attract capital, and those who exercised good pusiness judgment in making avestments there have never had anything to regret. As a consequence, Bingham has maintained the confidence of the investor; it has enjoyed a steady, substantial and permanent growth, and, during the past year, has unquestionably made more progress than any other mining district within the commonwealth.

10

A RIVAL OF BUTTE.

It is fast becoming a rival of Butte, and at the present rate of advancement, it will be only a few years more until the tonnages mined daily will equal, perhaps surpass, that of the boastful Butte. With the mines of the great Montana camp all in operation, the daily cutput is said to be anywhere from 11,000 to 13,000 tons of ore. Bingham's present output amounts to ap-proximately 2,500, but 60 days hence will see this doubled and the day is not far distant when it will be doubled again and again.

UNPRECEDENTED PROSPERITY.

The story of 1903 in so far the West Mountain district is concerned, of which Bingham is a part, is one of unprecedented prosperity. A number of mam-moth enterprises have been launched there, notable among which was the formation of the Utah and Ohio Copper companies and which, since their formal introduction into the camp, have begun making gigantle improvements and expending money by the hundreds of thousands of dollars. The Utah company has a great concentrating mill under construction at the present time. While the initial capacity of this plant will only be 500 tons per day, the man-agement contemplates enlarging it to probably no less than 3,000 tons in the near future. The Ohio company will follow suit in the spring with the building of a similar plant of no less pre-tentious proportions than 1,000 tons daily capacity.

YAMPA'S NEW SMELTER.

The Yampa Smelting company is an-other new creation of the year, and it has already expended close to \$250,000 since its organization, and has one of the mean moder and the second the most modern and compact smelting plants in the west to show for it. It is almost ready to blow-in and this important event will be chronicled within the next few weeks.

COPPER BELT EXTENSION.

Another notable achievement has been the extension of the Copper Belt railway to nearly all the principal mines of the camp, which includes the Yampa. Boston Consolidated and other great bonanzas.

In building these lines some difficult engineering feats, necessarily, had to be overcome, but undaunted, the com-pany set to work and has successfully accomplished the very thing, which, not long ago was looked upon as being an impossibility. The grades are steep in some places, equaling 7½ per cent, and the cost has been enormous to say the least. But the projectors of the Comme Balt entering and the statement of the

INGHAM is the best adver- | tude of the camp ranges from 5,000 to vertised mining camp in Utah. 8,000 feet.

GEOLOGICAL STRUCTURE.

Henry M. Adkinson, manager of the New England property, has placed the following simple construction on the geology of Bingham: "The geological structure of Bing-ham is no wide some rather simple

ham is, in a wide sense, rather simple, but in minute detail it is very com-plicated. The main formation is an implicated. The main formation is an im-mense body of quartile with intercal-ated strata of limestone, and this en-tire mass has been shot through with porphyry dikes. The beds of quartile have a general dip to the northward at varying angles. At the head of Bing-ham canyon and Carr Fork there is an imponent intercent of darge immense igneous intrusion of dense, black and exceedingly hard porphyry, The quartzite beds dip sharply away from this intrusive mass, hich is per-

haps a dyke or laccolite. "The ore bodies are found under sev-eral conditions, as replacements in the limestone; as contact deposits between limestone and quartzite or porphyry; as veins in the porphyry; or as impreg-nations in the porphyry over wide areas. This last mentioned form of occurrence is probably the least common, but a careful examination of a property which possibly in a short time may become one of the heaviest producers in Bingham, shows that the entire boly of porphyry over an area of nearly 200 acres, and to a depth of 400 feet, is evenly impregnated with copper aver-

aging 2 per cent. "The ores of Bingham are copper and The ores of Bingham are copper and copper-fron sulphides and galena. The gold value is generally low in the lead ore, but is commonly high in chalco-pyrite. The lead usually carries high values in silver. Zinc is present with the lead, especially in the bodies lying in fissure veins in the porphyry."

WORK OF GOVERNMENT.

The United States Geological Survey has conducted an exhaustive examinatio nof the West Mountain district and the report of the engineers sent out to perform this work will probably be forthcoming during the present year.

Its issue from the government presses will be awaited with interest. Prof. J. M. Boutwell, who was in charge of the corps of engineers, re-cently issued, a bulletin, which is pre-liminary to the complete report. In which he indulged in historical, rather than geological facts. He said: "The which he induiged in historical, rather than geological facts. He said: "The Binghem district is unique in that it includes the oldest recorded mining claim in the state; it is the only district in Utab in which placer mining has been successfully prosecuted, and today leads the camps of Utah in the produc-tion of copper. Only the more impor-tant stages in the extremely inforcesting tant stages in the extremely interesting and instructive history of this unique

and instructive firstory of this unique camp may be noted. "Early in the fall of 1883 ore was dis-covered by George B. Ogilvle, near the head of Hingham canyon. On Sept. 17, 1863, each of the 25 members of the Jor-dan Silver Mining company formally lo-cated there. "for mining nurnoses" one cated there, "for mining purposes," one claim of 200 feet each and one addition-al claim of 200 feet for the original dis-coverer. 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 min-ing 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 Baltimorin June, 1868. 'In 1870 the connection of the Union Central Pacific railroads by the Utah Central with Salt Lake City, the inauguration of the branch line to Bingnam, the results of experiments in the reduction of local ores, and the suc-cessful exploitation of the Emma mine and adjoining properties in the Wa-satch mountains; in Bingham, many satch mountains; in Bingham, many bodies of lead ore, mainly carbonate, were exploited. The first efficient de-velopment of the mines of the district was conducted by Messrs. Bristol and Daggett in the Winnamuck and Span-ish, and the largest bodies of argenti-ferous lead ore were developed in the Decker and Calana mines. In 1274 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.



esting 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 few years later the discovery of ray shorts of sulphide-copper ore at a time of strong cemand for copper and a rise in the market value of lead insugurated a new era in the camp. Re-duction of copper sulphides having been duction of copper subplies having been successfully conducted, and the value of the singtam copper pres having local demonstrated in 1890, on a ship-ment of 5,000 tons from the Highland Boy, exploitation of copper was vigot-ously begun and has continued until the data of writing. This has resulted in date of writing. This has resulted in the disclosure of strong and valuable

These bodies are now worked en both a large and a small scale. The largest ones are controlled by the Utah Consolidated, the United States, Bing-Consolidated, the United States, Bing-ham Consolidated, and the Bos-ton 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 Incolon

THE UTAH CONSOLIDATED. The Utah Consolidated Mining con any originated in England and until he present year it was conducted as the an English corporation. The present company was organzed in this country a few months ago and absorbed all the holdings of the foreign corporation in the United States. It owns the original Highland Boy mine, which was the first proposition in the camp to be operated upon an extensive scale. The Highland Boy was organized by Mr Newhouse and sold by him to the Utah Consolidated, the foreign corporation, In, the early days of its history it was In, the early days of its history it was worked as a gold property, but at a depth of about 150 feet from the sur-face the ores changed to copper sul-phides and the cyanide mill erected for the treatment of the gold bearing became practically useless and has since been partly dismantled. There is not a large amount of sulficious gold

yet a large amount of silicious gold ores available in the Highland Boy mine and the management is utilizing them for converter linings at the smelter and at the same time deriving a small profit. The modern smelting plant owned by

the company was completed in 1899, soon after the present management took charge of the mine, and its daily cupacity has been an average of 50 tons per day. The ores are conveyed by arlel tramway from the mine to the discharging station in lower Bing-

whouse has been the moving spirit. He early recognized the great worth of the ground, more than 350 acres in all, embraced in the domains of this corporation and when he relinquished the active management of the Highland Boy he at once planned to open up an. other great bonanza for Bingham and in this he has gloriously succeeded. It has been a grand triumph of energy, with wrich Mr. Newhouse is abundantly

The past year has wrought some marvellous changes in the physical condi-tions of the mine. The Boston Consoltions of the mine. The Boston Consol-idated's vein forms an extension to those which have yielded their riches so generously in the Highland Boy. The main vein shows an average width of possibly 40 feet, while great chutes are encountered frequently many times that size. There are about 8,000 feet of underground workings in the Boston Consolidated, in which are blocked out anywhere from 2,000,000 to 3,000,000 tons of ore, carrying values ranging from 3 to 6 per cent copper, 35.50 in gold and to 6 per cent copper, \$3.50 in gold and silver, with a little excess in iron. In the great mass, however, is contained a vast quantity of richer ore than this. More than 3,000 feet of the workings have been run in a solid mass of ore. The principal workings consist of the Armstrong Nos. 1 and 2, Peabody and Work tunnels.

Work tunnels.

In Armstrong No. 1 tunnel there are wo important ore bodies exposed. In the Peabody tunnel, 110 feet above, is an important chute, which has been blocked out from 150 to 300 feet in dength and breadth. In the Work tundength and breadth. In the Work tun-hel, 160 feet still further above, some of the important events of the year have taken place and here a body of ore 300 feet long by 175 feet in whith has been developed. Above this still is the Phoentx tunnel, out of which much lead ore was extracted in the earlier history of the same Averations No. 2 wordd of the camp. Armstrong No. 2 tunnel is the lowest workings of the mine, being 360 feet below Armstrong No. 1 This tunnel contains large bodies of ore which are yet undeveloped. The tunnel has been run for a length of 1,800 feet and will eventually become the main workings of the mine. During the present month the Copper

Belt railway tracks were laid to Arm-strong No. 1 tunnel, where ore bins are being constructed, and for the present, the principal extraction will take place from there

That the Boston Consolidated is amply able to keep a smelter as large as any in the Salt Lake valley, constantly in operation, has been generally known for some time and the matter has re-ceived consideration by the directors, But for awhile, at least, this plan has been abandoned, for the reason that a very favorable contract has been made with valley smelters. The conditions of the present contract call for the delivery of no less than 200 tons of ore per day. As long as it continues, the com-pany would not be justified, counting the interest on the investment, etc., in going to the expense of building a plant

Undoubtedly the output could be made to equal that of the Highland Boy's output before the end of another

year. The present condition of the Bostor Con. is a source of much gratification to Manager M. M. Johnson, and it certainly must give him a great deal of pleas-ure to recall that, since becoming con-nected with the Newhouse mines he has been associated with the development of three of the greatest properties in the state, viz., the Boston Con., Highland Boy and Cactus.

Mr. Johnson is an able and experi-

which time the Copper Belt railway spur will be completed to the new 500 ton ore bins, being built at the mine, and another one to the mill. The starting of the Winnemuck mill will en-able the company to handle daily ar able the company to handle daily an output of milling ores, averaging bet-ter than $2\frac{1}{2}$ per cent copper, of from 125 to 150 tons, besides the shipment to the smellers of 100 tons of high grade ores carrying from 8 to 12 pe cent copper in addition to the gold and eliver values. The mine contans a vast amount of ore much richer than this, but for the present the company will ship only the grade mentioned. It has cost the new corporation probably 84. 000 since taking possession of the Co-lumbia to carry on its campaign of ex-ploration and to prepare for possiploration and to prepare for regular extraction, but a single month's run will make a return of every dollar expended above the bond price of \$225 .-

The location of the Ohio properties are admirable, being right in the heart of the mineral zone of Bingham and surrounded by a number of the camp's surrounded by a number of the camp's greatest producers, among them being the Boston Consolidated. Utah Copper company and Dalton & Lark, the lat-ter being a part of the domains of the Bingham Consolidated. The same greatest conditions char-

The same geological conditions, char-acteristic in these big bonanzas, also prevail in the Ohio. The great porphyry dyke, completely impregnated with copper, upon which the Utah Copper will depend for its vast tonnages to feed its giant concentrator extends over into Ohio territory, carrying a width of 450 feet, the metallic contents amounting to 2½ per cent copper and \$1 gold to the ton. This ore can be mimed and milled very cheaply, it can be quarried right off the surface, doing away with the necessity of mine timbers and other expenses, while the cost of milling, it is figured, will amount to about 40 cents per ton. The ore could not be better adapted to con-centration, the reduction being at about

the rate of 15 into 1. Five strong and well defined veins course through the property, important among them being the What Cheer and

All's Well, out of which the former owners extracted a great amount of ore and which paid them back many times what the property originally cost them after defraying all expense of operation. These two veins form the fcot and hanging walls to the dyke of porphyry mentioned. It has been demonstrated that the All's Well vein has a width of 16 feet, carrying 8 per cent copper values. Shipments of this ore are now being made to the smelters from which the company is realizing satisfactory revenue. The other veins, paralleling each other, are the Alvina. Gold Trail and Cactus. Their dip is to the north and the course easterly and westerly. Little has been done on these veins, but enough has been executed to demonstrate that they are of great value to the property.

At the present time the company pur-chases the air required in the opera-tion of the machine drills and a new hoist, capable of going down 150 feet, just installed on the Cunningham tunl level, from the United States Min-

ing company. In the mine are approximately 8,000 feet of working and some great bodies of cuprite, chalco pyrite, chalcocite and other copper ores have been developed. No estimate has been placed upon the amount of ore in sight, but it is safe to say that within a very few months a good many hundred thousand tons

crushing and screening machinery. It contains six batteries of Neill's sintering furnaces set over a brick bin having a capacity for holding 600 tons of sinitered one

Also, one blast fur-

sucely a bonanza and will rank well with Bingham's best, although it is much younger than some of them. The mine is opened by two tunnels. The upper, or Yunipa tunnel, is 650 below the top of the hill and in this an immense tonnage of ore has been blocked out ready for shipment. Ex-traction is also in progress here and blocked out ready for shipment. Ex-traction is also in progress here and pending the completion of the com-pany's own smelter, 200 tons per day are being moved to the plant of the Bingham Consolidated at Bingham Junction. Late last sammer connection was made between the Yampa and the lower, or Craig tunnel, and the ore from the upper is lowered in a skip to a certain point where it is dumped into from the upper is lowered in a skip to a certain point where it is dumped into a chute from which it is loaded into mine cars, thence conveyed out of the lower tunnel to the large ore bins, thence loaded into Copper Beit cars and hauled down the mountain side over those lines. The Craig tunnel cut the ore body 2,200 feet from its mouth and followed its strike for 400 feet. In all probabty 8,000 feet of underground workings, including tunnels, upraises, winzes and drifts have been run. For 5,000 or more feet these working have

5,000 or more feet these working have been run on ore. The average width of the vein varies from 15 to 25 feet and the character of the ore is a copper iron sulphide, and in its richer parts the ore comes in the form of covelite, choicopyrite and chal-cocite. The vein is distinctive and prac-tically continuous, with the values gen-erally uniform. The average of the ore is from 3 to 3½ per cent copper in addition to gold values of from \$2 to \$3 to the ton.

There is enough ore in sight in the mine to keep the new 500-ton smeller going steadily for a long time to come without a bit of further development. An additional air compressor is being an accultonal air compressor is being installed at the mine. The latter is also to be electrically equipped with motors and other conveniences to oper-ate upon an extensive and otherwise

elaborate scale The Yampa group contains approxi-mately 100 acres of territory, as good as any in Bingham.

NEW YAMPA SMELTER.

Although the ores of the Yampa, mine will be smelted at the new smel-ter of the Yampa Smelting company, the two are separate institutions. The former, as stated elsewhere, being owned by the Tintic Mining of the former, as stated elsewhere, being owned by the Tintic Mining and De-velopment company, the stockholders velopment company, the stockholders of which are conspicuous in the or-ganization of the smelting company; consequently, the two corpoations are very closely allied. The new plant will have an initial capacity of 250 tons per day with the contributory arrange-ments for doubling this amount. Its location is just below the town of Bingham and about half a mile up the canyon from the reduction works of canyon from the reduction works of the Utah Copper company. There are no smelting plants in operation in the West Mountain district at the present

West Mountain district at the present time, as it has been customary to ship everything to the valley smelters at Murray and Bingham Junction. Hence, the construction of the Yampa plant is rather of a new departure for the operators of Bingham. The ores will be conveyed from the ming to the suburiton works over the

mine to the reduction works over the tracks of the Bingham Copper Belt railway and delivered to the ore bins at the smelter which have a combined capacity of holding 3,000 tons. The plant proper consists of receiv-ing bins for crude ore, lime, coke,

the least. But the projectors of the Copper Belt enterprise are long head-ed; they saw a great future for Bing-ham, so they had no hesitancy in put-ting their money into the enterprise, which promises vast returns as the camp grows and the tonnages to be hauled down from the mines increase.

REMARKABLE RESULTS.

In the development of the mines re-markable results have been obtained since a year ago. This has been par-ticularly true of the larger mines, where new and important strikes have been made: the older ore bodies more energetically explored and opened up larger, richer and generally better than ever before. The Boston Consolidated is one of the sensation makers of the season, under the masterful guidance of Samuel Newhouse ,the company's managing director, and his able and trust-worthy lieutenants.

The Utah Consolidated has opened up greater ore reserves and the local man. agement has recenty placed to the cre. dit of the construction account a \$2 0,000 appropriation for the purpose of en-larging the smelter near Murray, there. by increasing the output of the mines nearly double that of the present. The Bingham Consolidated company has nothing to be discouraged about, but very much on the contrary; the United States Mining company has not been in the rear ranks of the procession of progress. The consolidation of the Ben Butler and the Chicago-Bingham mines was a happy event, for this transaction put an end to threatened litigation and the new corporation subsequently formed, the Butler-Liberal, immediately began making money, rewarding its shareholders during the present month with its initial dividend.

FORMATION OF UTAH APEX.

By the formation of the Utah-Apex Mining company not long ago, the foundation was laid for one of the u-ture big bonanzas of the camp. This company earlier in the year acquired the York, Copperfield, Petro, Minnie and more recently, the Highland Boy Consolidated groups, which cover one of the most important ore zones of the camp.

BINGHAM'S DIVIDEND PAYERS.

In the way of dividends, Birgham still holds second place, only giving way to Park Clty. But in this respect it must be remembered that the mines of West Mountain have not passed the constructive stages. While all the larger properties, and many of the smaller ones too have been making smaller ones, too, have been making money, the profits have been applied in building mills and smelters and in pay-ing for improvements that previously had been made. But another year will find the liquidation quite complete and then stockholders will begin to derive regular incomes. The Utah Consolidated and the Butler-Liberal are the only dividend payers of this year, in Bing-ham. With the December distribution, the former will have paid out \$900,000, while the latter showed the total \$2,500 nearer the million mark.

A CAMP OF TUNNELS.

The "Old Reliable" camp is charac teristic for its tunnel workings. Pre-cipitous mountains make tunnel min-ing popular; there are few properties in the camp operated through shafts, about the only exception being the mines of the Eingham Consolidated.

GEOGRAPHICAL POSITION.

The geographical position of Bingham is quite advantageous. It is conveni ently located, being about 25 miles from Salt Lake City, and on the eastern slope of the Oquirrh mountains. Ex-cepting Alta, perhaps, Bingham is the nearest mining camp to the capital city, but the distance of the two is about the same. Topographically, the West Mountain district is a series of di-vides and their interlying guiches. which have their long axis north and south. The divides are characterized as sharp "hog backs" with high pre-cipitous slopes, while the guiches between are deep and narrow. The alti-

'S, ecial attention was directed to saving the gold in the superficial oxi-dized portions of the ore shoots in the silicified limestones. Various experi-menta in milling and cyaniding were conducted, and large stamp mills were erected. Despite claims that in specia cases exaniding was successful. the general cpinion prevails that the pres-ence of copper necessitated the use of so much cyanide that no profit could be made, and, further, that the diceous ores of Bingham had never been worked successfully. In the early eightles there were developed in the outer western slopes of the range, bodies of carbonate ore which continued to afford an inter-

each company at Bingham Junction.

"During 1900 the total output from 32 companies aggregated 101,122 tons of org, of an estimated value of \$1,700,000. For the year 1901 the value of the out-Tore, put of gold, copper and silver increased, and that of lead decreased, as a result of a net increase in the value of the cutput of 1901 amounting to about \$2,cutput of 1901 amounting to about \$2,-000,000. In this total the copper ship-ments constitute the chief factor, their value as compared with the combined values of gold, silver and lead ship-ments being roughly at a ratio of 23 to 16. The output for the present year promises to show a continued increase. The value of the approximated total output of Bingham to 1899, inclusive, as calculated from the mest complete data calculated from the most complete data obtainable, is between \$26,000,000 and \$27,000,000

THE "FATHER OF COPPER."

To Samuel Newhouse properly be-longs the title of "Father of Copper Mining in Utah." This caption belongs to him by right of discovery: for he is to him by right of discovery; for he is responsible more than anyone else for the events occurring at the beginning of Bingham's copper era a half dozen years ago. He set the pace when it was determined that the Highland Boy mine could be made to pay dividends by the mining of its copper ores on an extensive code after the property had extensive scale, after the property had passed through many discouraging and trying times.

am, a distance of 12,000 feet. Typical of Bingham the mine is oper ated through tunnels. The underground ated through tunnels. The underground workings are eight miles in extent. The character of the copper ores of the mine is in the nature of chalco pyrites, iron pyrites and some bornite. During the year approximately 190,000 tons of ore have been sent down to the smelter for treatment, which has produced 13,250,000 pounds of copper builton, out of which the company, according to late advices from the east, has realized apof which the company, according to late advices from the east, has realized ap-proximately \$2,252,500. With the pro-posed smelter enlargements completed, provided the plant is fed with the same character of ores as at present, the copper builon production will be in-creased to anywhere from 20,000,000 to 20,000,000 pounds annually.

22,000,000 pounds annually. Some of the important developments of the year in the mine, occurred beof the year in the mine, occurred be-tween the fifth and sixth levels. Sam-plings made at six different points of this body showed average values of \$15 gold and 13 per cent copper. The tonnage contained in this body is es-timated to be 130,000 and of a value approximately \$1,000,000. The corpora-tion ends the year with a dividend re-cord of \$900,000.

BOSTON CONSOLIDATED. In this great proposition Samuel

and is certainly a valuab member of the Newhouse staff, Work-ing in harmony with Chief Metallurgist A. J. Bettles, they make a most formidable pair. The Boston Consolidated's property

contains a goodly portion of the larger porphyry dyke, so characteristic in the domains of the Utah Copper company,

OHIO COPPER PROPERTIES. Among the strong syndicates formed during the year to operate Bingham mines was the Ohlo Copper company, which absorbed the Columbia Copper Mining company and all its holdings in the West Mountain Mining district. The price paid was \$225,000 and possession was obtained in October last

was obtained in October last. Subsequent developments have proven that the Buckeye state men made no mistake when they bought into Bingham, for were they disposed to sell out now they could realize more than 100 per cent on their investment. But the Ohio properties are worth more money and the present owners are well aware of it. Preparations are being

will be available.

money and the present owners are well aware of it. Preparations are being made to open the mine on a large scale. Early next year a great concentrat-ing plant of a capacity of no less than 1,000 tons per day will be built. Initia-tory to this, however, the company a few weeks ago secured a two years' lease on the old Winnemuck mill in lower Bingham. This plant has been idle for a number of years, but it has been remodeled and equipped with lat-est improved machinery and will be in commission by New Year's day, by

The Ohio is unquestionably one of the big mines of Bingham and before another year closes it will be enrolled among the dividend payers. From this property the first shipment of copper of sintered ore. of sintered ore. Also, one blast tur-nace, with arrangements for the in-stallation of the second at any time it is deemed advisable to put it in. The arrangement of the power plant from the camp is said to have been

The arrangement of the power plant was made with a view to economy when it comes to the operation; it con-sists of boller capacity of 300 horse power, and 150 horse power Corliss engine, which is connected to a No. 8 Connersville blower and electric gen-erating set of 45 kilowat capacity, the latter formables light and mover for The company is capitalized for 1,000, The company is capitalized for 1,000, 000 shares of a par value of \$1 each and is organized under the laws of the state of Ohio. The officers and directors are: H. G. Caltrow, president; A. J. Bettles, vice president; Henry Caltrow, secre-tary and trensurer; Capt. O. A. Tib-betts general manager and Robert Burns, R. L. Hughes and H. L. Newell, directors, Capt. Tibbett is a mining latter furnishing light and power for the electric locomotives which are to be used in the conveyance of the ore to the blast furnace and for other directors. Capt. Tibbett is a mining man of considerable note. He is thoroughly experienced. It was he who The dust flue and stack are a feature in connection with the plant worthy of mention they consist of 350 feet of Fogh's brick flue and steel incline examined the Columbia mine for the Ohioites, and upon his report the latter concluded to purchase it.

THE YAMPA MINES.

In the Yampa mine the characteristic bedded vein of that property has been developed along its strike for a length of 1,800 feet. Supt. William J. Craig,

Fogh's brick flue and steel incline stack seven feet in diameter by 450 feet in length, surmounted on the top by 50 feet of eight foot vertical stack. The steel used in the building of this stack weighs about 1,000,000 pounds. The brick dust flue is 13 feet high and is self cleaning. The ore, on entering the plant, is first elevated to a screen with one-inch first elevated to a screen with one-incu round holes, the fine ofe going into a double hopper bin, whence it is drawn by a suspended bucket tram to the Nelli roasters, or sintering furnaces. The oversize, or coarse product from the screen, gravitates to another set of bins. It is drawn into side dump cars

the screen, gravitates to include score bins. It is drawn into side dump cars and taken direct to the blast furnace. The fine ore, after going through the roasts of sintering, is also conducted to the blast furnace on the game thai load together with its proper proportion of coke and limestone. The blast fur-nace is fitted with an automatic charg-ing device, the joint invention of the chief metallurgist of the commany. James W. Neill, and J. M. Callow, the mechanical and constructing engineer, at the bottom, which is closed, by virtically suspended doors. As soon as the hoppers are charged with the various mixtures that go to make up the charge, the doors are released and the whole burden released into the tur-nace at once. Another arrangement below these doors is an apron.by which the charge can be deposited in any part the charge can be deposited in any part

below these doors is an about process the charge can be deposited in any part of the furnace. One of the difficulties so far experi-enced in the treatment of the Eing-ham ores in the blast furnace has been that the excessive amount of fine ma-terial contained in them has had a tendency to choke and clog the fur-maces. It was for the purpose of over-coming this difficulty that the Neil patent furnaces were devised and which has proven to be a signal suc-cess in the treatment of this class of ores in the smelters at Great Falls. Butte and other places. By means of the Neili process the fines are reduced to a clinker; in that shape it is left in excellent condition to go into the blast. Another advantage derived from the system is, that if erndentes probably 60 per cent of the support in the fine ores; the result of which is a better quality of matte. Forther-ances have less roasting to do. The smelter will be amply suppured with water from a shaft sunk to a such which a the ormeny's property. which

The smelter will be amply support with water from a shaft sunk to a good depth on the company's property, which fact renders it quite independent of the flow in Bingham creek. The difference in the elevations between the tuyers and the top of the stack is 287 feet.

THE UTAH-APEX MINES

THE UTAH-APEX MINES The projectors of the Utah-Apex Min-ing company made a backy hit when they succeeded in grouping together their present holdings in Bingham. The territory owned and controlled by this corporation aggregates should be the corporation aggregates should for arres and covers completely a sec-tion of the camp's ore some, which, when developed, promises to be ore of the foremost producers of the district. The territory covers four, principa-bedded veins, or strate of lineatone bedded veins, or strate of linestone where they are intersected by a series of vertical fissures, all of which are

