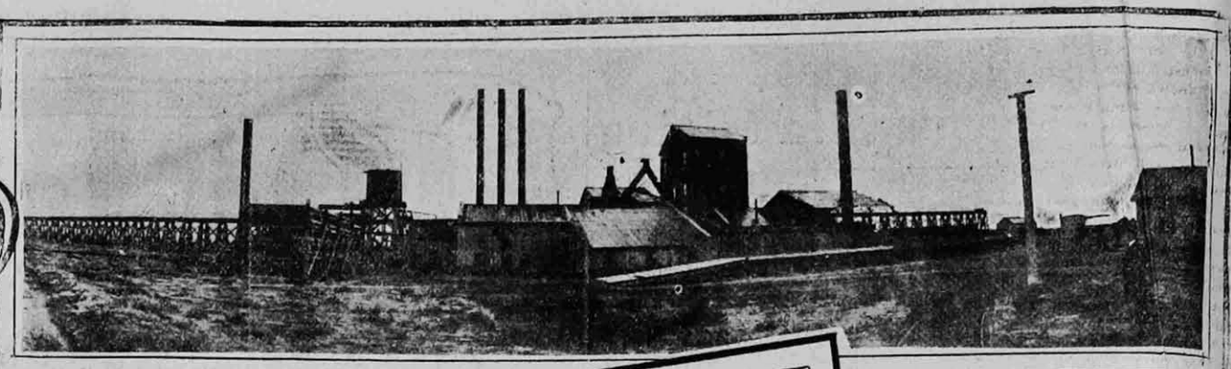
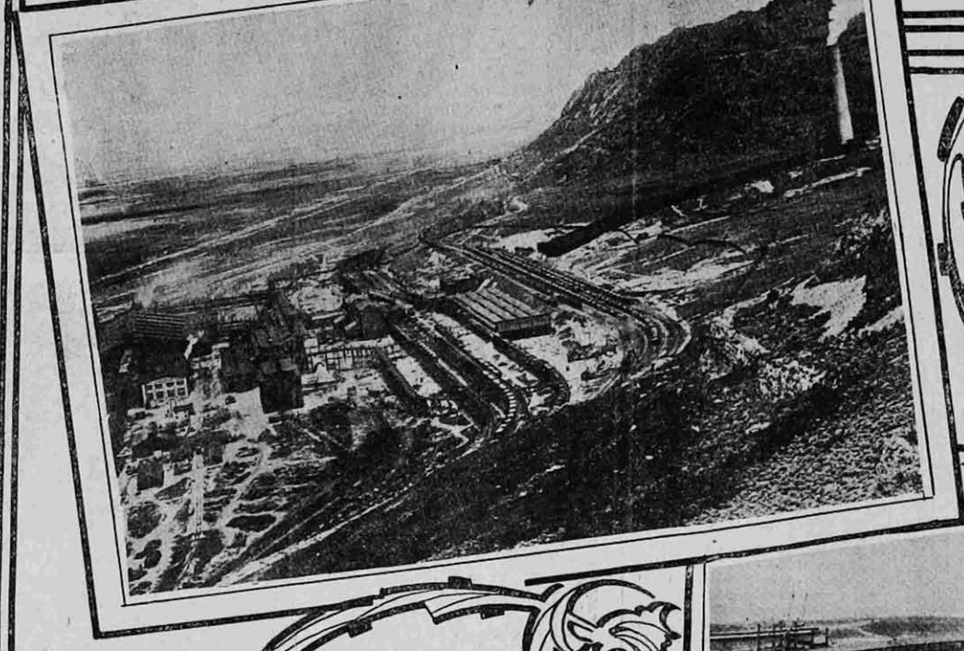
Utah's Smelting Facilities Are Growing Greater

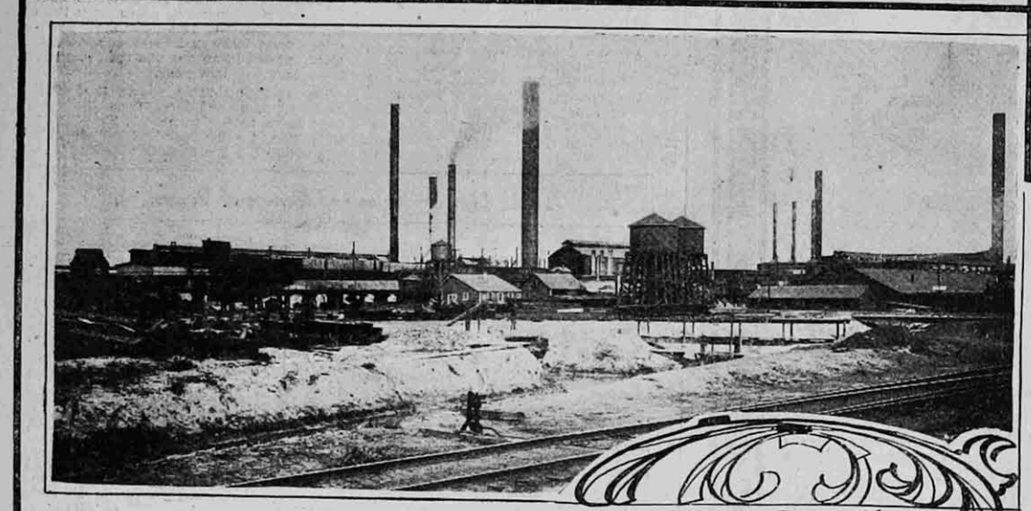
Yampa Smelter



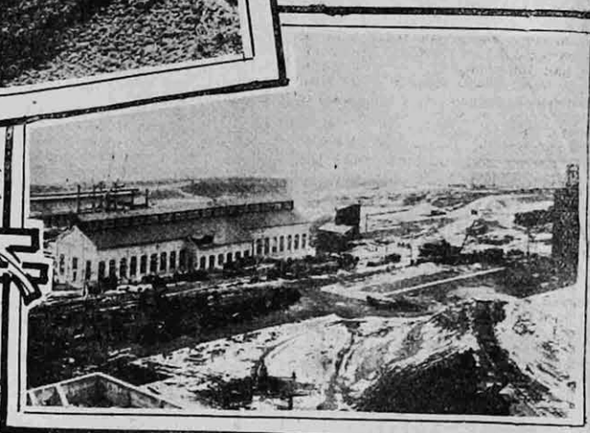
Majestic Smelter



Garfield Smelter



U. S. Smelter



International Smelter

UTAH SMELTERS AND THEIR DAILY CAPACITY.

Name.	Tons Per Day
International (Pine Canyon)	1,200
American S. &R. Co.(Murray)	2.000
American S. & R. Co. (Garfield)	2,500
Independent (Ogden)	250
Tintic (Silver City)	800
Majestic (Milford)	350
Yampa (Bingham Canyon)	1,200
United States (Midvale)	3.000
Utah & Eastern (Shem)	50
Total	11,350

NINETEEN HUNDRED AND TEN will see the greatest array of smelting concerns the state has ever known. Never before in the history of the Bee Hise state has there been such promise of smelting facilities as will be given next year. To supply the mouths of these great fiery monsters mining in Utah and Nevada will be greatly stimulated. It will mean greater competition for ores and it would require a great amount of development for the supply to come anywhere near the demand.

Any increase in the metal prices will see Utah mines humming during the coming year, furnaces rolling out their fiery masses at the smelters and railroads busy caring for the output of the mines and the smelters. The state now has the foundation for the handling of an enormous tonnage each day.

With all the furnaces in Utah running at full blast they would be able to handle better than 10,000 tons of ore each and every day. The estimated capacity of all Utah smelters is 11,350 tons and every one of them could be put into action with a few weeks' notice.

When the panic of 1907 laid its hand on mining it caused a sudden re-action and expenses were whittled down to a shaving. Then a court decree shut down all the smelters in the Salt Lake valley. From that only two survived. The United States plant at Midvale accomplished the gigantic task of suppressing its fumes and allowing no injurious matter to escape into the air and the American Smelting and Refining plant at Murray made peace with the farmers and continued at its work. The Highland Boy smelter which handled the Utah Consolidated ore, is no more and during the past year a greater part of this structure has gone to Pine cenyon to help make the new International smelter. The Bingham Consolidated plant at Midvale has become greatly deteriorated and will no doubt never be run again. It has since become the property of the Bingham Mines company.

SCURRYING FOR ORES.

The smelter situation has now adjusted itself and the field is open for a great smelter war. There will be a greater scurrying for ores during the next year than ever before and many a mine is preparing for the good era. To feed the hungry smelters thousands of men must pick and dig and drill for treasure.

At the beginning of this year six smelters were running, but at present only four are going, all the others are down. The first to drop off the list was the Independent concern at Ogden. Rates and other difficulties stopped work at this plant. On Oct. 1, "Uncle" Jesse Knight closed his plant at Silver City. At the time of closing it was announced that enough of the ores necessary for a good mix could not be secured. Tintic ores alone were not sufficient to get the best results and it was therefore necessary to secure outside ores.

The plants which are now running are the United States, the two American Smelting and Refining plants and the Yampa. As soon as the new International plant is finished it will be in the field although it is understood that it has contracts for all the ore that it can care for at first.

The promise for the coming year is that the International plant will be finished by May 1, at the latest and will greatly enlarge the smelter capacity of the state. Further than that the United States Smelting, Refining and Mining company will shortly spend $250,000 in the equipping of its plant with a new bag house, which when complete, will care for the fumes of the copper furnaces, which the court last August granted the company the privilege to run. For some time a deal has been pending for the sale of the smelter at Ogden. If this is done operations there would be resumed. It is also probable that Mr. Knight will start up his plant during the coming year.

MUCH IN IMPROVEMENTS.

Greater improvements in smelting facilities are promised for the year 1910 by the United States Smelting, Refining and Mining company than by most any other ore treating concern in Utah. During the coming year no less than $250,000 will be spent by this concern in improvements at its plant at Midvale. This will be in the form of a bag house which will be necessary to care for the fumes of its copper furnaces which were closed two years ago by a court decree.

The improvements also contemplate the building of necessary flues to be used in conjunction with the bag house. When finished the new bag house will be equipped with 2,000 bags. This will be the start of more elaborate plans for the plant. The 2,000 bags will be arranged in three sections to neutralize the fumes from the three furnaces which will be equipped for use. The plant has six copper furnaces, but only three will be used at first. A section will be added for each furnace.

The method will be the same as is now in practise at the plant, neutralizing the fumes at the lead furnaces. It has been demonstrated beyond any doubt that by the use of the secret process in use by the company that only a small part of 1 per cent of the fumes are allowed to escape into the atmosphere. So well has this work been accomplished by the company that there is scarcely ever a wave of smoke seen to escape from the big chimney.

If one could not see the activity about the plant, he would have doubts about it being in operation.

COURT APPROVAL.

During the year the United States has received the stamp of court approval on its method of treating the deleterious matter in smelter smoke. When the injunction of Judge Marshall of the United States court was issued in 1907, every smelter in the valley was closed. The United States company then petitioned for a modification of the decree so that it could use its bag house system in treating the fumes from the lead furnaces. So successful was this experiment that this year the company asked for another modification of the decree allowing it to use its copper furnaces under the same conditions.

After a hearing of some length the United States company was allowed to use its copper furnaces. This was accomplished last August. Since then the company has been working on plans for the enlargement of the bag house which has been found to be not only a means of avoiding trouble with the farmers of the valley, but a great saving to the company.

The arsenic saved from the fumes has been utilized and considerable silver, lead, and gold that would otherwise the biproduct secured from the flue dust the company has made a revenue that has already paid for the construction of the bag house.

USE SAME METHOD.

In treating the fumes from the copper funaces the same methods will be used as in the treatment of lead fumes. The only difference will be the use of additional flues to cool the gases and keep them from destroying the bags.

The United States company is the only one of its size in the world that has successfully conquered the smelter smoke question. Another year it is declared will see great advances along this line. The company continues to carry on experiments for better results. The company offers better inducements to its employes to study out new methods than any other in the country. If some new process is devised by an employe the company promotes it for him and if it is then agreeable they both share in the profits, otherwise it is turned back to the employe.

The company has protected its inventions by patents and the methods involved have been the most successful thus far brought out by any company.

The lead furnaces of the United States company have been treating in the neighborhood of 800 tons of ore a day or a charge of from 975 to 1,000 tons each day. The lead ores treated have been about equally divided between custom work and the company's own mines. The greatest amount of ore secured from the company's mines comes from the Jordan and Galena mines at Bingham canyon. Most of the custom ores come from Tintic, while the company gets a large tonnage of its own ore from its Centennial Eureka mine. The oxidized lead ores come from the company's Richmond-Eureka mines at Eureka, Nevada.

INSTALL NEW PROCESS.

Another accomplishment of the company during the year has been the installation of an electrostatic separating mill of the Huff process which at present is probably the only successful electrostatic separator treating zinc ores. The Huff machine has been running successfully at Platteville, Wis., for some time, treating custom ores at that place. Thus far this process has been highly satisfactory in treating ores from Bingham, containing considerable zinc.

In the separator mill the iron-zinc concentrates from a wet concentrating mill are dried and then separated into an iron product, carrying most of the precious metals in the ore and a high grade zinc blende product for shipment to the zinc smelters. It is highly probable that this plant will also become a great source of revenue to the United States company.

Early in the year 1910 another competitor will appear in the smelting field in the International Smelting & Refining company, which will shortly finish its smelter plant at Pine canyon, near Tooele. Work on the plant has been moving steadily ahead ever since the early part of the year and the plant is now assuming shape. Many of the principal buildings are up and the installation of machinery has begun. This is one of the big advances of the mining industry during the year.

M'DOUGALS UP.

At present 24 of the big McDougal roasters are in place and eight more are to be added to complete present plans for the plant. The roasters have been so arranged that additions may be made from time to time, as the necessity for increased facilities arises.

The machine shops are up and in operation. This building was the first to be completed at the plant. Early in the year steel from the old Highland Boy plant in the valley was torn down and taken to Tooele for this building. Housed in this building is the machine shop, blacksmith shop, carpenter shop and office.

The power house has been completed and machinery is now being installed. This will take considerable time and it will be several months before the plant is in shape to be run.

The only other completed building is the sampling mill, which has been roofed and walled in. The machinery for this part of the smelting plant is now being installed.

Steel is going up for the dust chambers, and work on the big smoke stack, to be the highest in Utah, has now reached a height of 180 feet. When complete, this great brick chimney will be 350 feet tall. All the heaviest work in the erection of this is now over and the stack advances at the rate of about five feet a day. Although the men employed on this piece of work are high in the air, every precaution is taken toward their safety. The floor in the center of the stack is entirely covered and a trap door falls over the opening where the cage comes through. Many of the men employed worked on the big stack at Anaconda.

MAIN BUILDING.

The main smelter building is now going up and the steel on it is being put in place. It will be several months before this is complete.

The company employes in the neighborhood of 550 men, the greater part of whom are skilled workmen. The work is now becoming more technical and confined to the installation of machinery and the like.

One of the achievements of the company during the past year was the building of a spur railroad from the Salt Lake Route tracks at Tooele station, through Tooele City, two miles away and out to the smelter plant. This involved the laying of about eight miles of track. Within a week after the road was finished it began paying its way from the passenger and freight traffic between Tooele City and Tooele station.

It is the intention of the International company to have the plant finished by April 1, 1910, to be ready to take up the contract it holds with the Utah Consolidated for the treatment of its ores. This calls for 1,000 tons of ore a day.

When it was first intimated that there would be trouble in the Salt Lake valley for the smelter concerns three years ago, the American Smelting & Refining company soon made a close inventory of the situation and located an excellent site at Garfield. This is unquestionably one of the finest smelter sites in Utah, situated at the end of Great Salt Lake, where gravity can greatly assist in the work and the smelter fumes are carried up into the mountains instead of along the valley where vegetation could be damaged.

DOUBLE CAPACITY.

The foresight of the builders of this institution is plainly shown by the work that has been accomplished by this plant. The plant at present is able to handle 2,500 tons of ore and it could be quickly doubled should the needs of the company demand it.

One of the main features about this Guggenheim interest is its operation by gravity. The works have been so terraced that there is an immense saving in the use of motive power at the plant.

A special feature of the plant is the McDougal roaster building, which is 322 feet long and 60 feet wide. In this are 28 18-foot furnaces. Two sampling mills have been established at the works and they cover an area of 78 by 82 feet each. The main smelter building is 360 feet by 305 feet. It is equipped with three reverberatory furnaces.

The American Smelting & Refining company is a Guggenheim concern. Their interests in mining and smelting are among the largest in the world. The interests of the Guggenheims and associates have done much to build up the mining industry of the west, and they were practically pioneers in the smelting industry in Utah.

The management of the Utah end of the Guggenheim affairs are in the hands of General Manager C. W. Whitley, whose ability to build up a business is shown by the success of the American Smelting & Refining company smelters in Utah.

SMELTER AT MURRAY.

The company has another smelter in Utah, and that is the one at Murray. At this plant nothing but lead ores are treated. It has been handling a large tonnage throughout the year. This company is more commonly known as the American Smelting & Refining company plant, while the one at Garfield is known as the Garfield Smelting & Refining company.

One of the events of the year in the smelting business was the leasing of the Majestic smelter at Milford to F. Augustus Heinze for a period of one year. Upon this Mr. Heinze organized the Miners Smelting company, but operations at the plant were never commenced. It was to hold the contract for the Silver King ores that Heinze leased the property. For a time it was believed that the old smelter would start running, but it still remains idle.

The smelter building is of a steel frame on a stone foundation. The building was built to accommodate four 250-ton blast furnaces with the necessary machinery. It is equipped with one 250-ton blast furnace for copper and a 100-ton lead stack, with Nesmith hot-blast stoves, heating the air to 800 degrees F. before entering the tuyeres. The smelter was scarcely warmed up before it was closed down, running at that time but 40 days. Since then it has never been run.

SMELTER AT SHEM.

A little known smelter in Utah is the 50-ton plant of the Utah & Eastern Copper company, at Shem. This plant was last run in 1907 by the present company and at that time it was able to make considerable money. The smelter has a 100-horse power, water jacket, blast furnace, with water power secured from the Santa Clara river about two miles away. It also has an auxiliary steam plant. The smelter is about 50 miles from Acoma, the nearest railroad point on the Rio Grande Western railroad.

One of the drawbacks at the smelter was the water question. It was necessary to haul water 12 miles up hill to supply the plant. It is declared that with a copper market around 15 cents this mine and plant can be operated at a profit. During the year 1904, the company produced 1,448,957 pounds of copper.

From a small smelting plant erected on the side of a mountain in Bingham canyon, to treat the ores from the Tintic Mining & Development company mine in the canyon, the Yampa smelter has continued to enlarge its plant until it now has a capacity of 1,200 tons a day, and is one of the best equipped plants in the Salt Lake valley. During the past year no less than $300,000 has been spent in equipping the plant and putting it in shape.

The smelter has a daily capacity of 1,000 to 1,200 tons of ore and flux, operating three blast and three reverberatory furnaces. The smelter is situated in Bingham canyon not far from the mouth and on the steep side of a hill. Although the location is not of the best it affords an excellent site to connect with the tramway from the company's mine. The tramway is about 13,000 feet long and the ore buckets are capable of handling 1,500 pounds each.

MANY ON PAYROLL.

At present the company has 300 men employed at the mine and an equal number at the plant. The mine is one of the deepest mining operations in Bingham and at present work is being pushed on the 1,500 foot level. From the mine the company is now securing 600 tons of ore a day for the plant and about 200 tons of custom ores are being handled each day.

Among the companies that are now supplying a small tonnage to the plant are the United States company, the Bingham Mines company, the Beck lease, the Victor Consolidated and the Carisa.

In equipment the Yampa plant is among the best for its size. It embraces all the customary methods of modern copper smelting practise, an addition being a converter plant which was placed in commission in the summer of 1908.

In the roaster building the company has nine 18-foot McDougall roasting furnaces. The calcine from these roasters drops to a car below and is then taken to the reverberatory. The roaster building and the reverberatory are somewhat alike in size and construction, being steel framed with corregated iron sheating. In the building are three reverberatory furnaces. No fluxes are used, the slag being controlled by the roasting process.

On account of the distance from the reverberatory to the converter building, it is not feasible to carry molten matte to it. It is therefore cast into ingots, broken by hand and remelted in the blast furnaces. This is not a great disadvantage as the matte to a large extent takes the place of slag which it is found advisable to put into all blast furnace charges.

UTILIZES WASTE HEAT.

The company has installed in the back of each furnace a water tube boiler, which utilizes the heat that would otherwise have been wasted. Each of these boilers is rated at 300 horsepower and generate steam at 110 pounds pressure, so it means a great saving in the amount of coal to run the plant.

The company has an excellently equipped power plant and a well has been sunk to the water level from which it obtains its supply of water for the plant. A flow of 150 gallons a minute is thus obtained and it is sufficient to care for the needs of the company by condensing and re-using.

To guard against any shut down at the plant, connection has been made with the Telluride Power company, and from the high tension wires sufficient power can be secured to run without the steam plant.

C. A. Pringle, is general manager of the company, having assumed his duties there early in the year. F. J. Murphy is the smelter superintendent, while T. M. Penrose is the mine superintendent.

One of the most successful independent smelters that have started up in Utah was the Tintic smelter at Silver City, opened by "Uncle" Jesse Knight. It was compelled to close down on Oct. 1, of this year, on account of the ore obtainable not being of a quality to secure a proper flux. It is probable that before another year is over this smelter will be going at full blast and under better conditions than ever before.

The first lead furnace at the plant was blown in Aug. 28, 1908 and was followed a few days later by the second lead furnace. Shortly before the furnaces were closed down, three lead furnaces and a copper furnace were in operation. A fourth lead furnace was kept in readiness to take the place of any that were closed down for the cleaning of the water jackets. A greater part of the year the plant handled close to 125 carloads of ore a week. This was mostly the ores from the Knight mines.

The general manager of the company is W. Lester Mangum and the superintendent is George G. Vivian. William Werrett, Jr., was chief chemist.

During the summer the company was handling close to 600 tons of ore a day and meeting with considerable success. Suddenly the plant was closed down to enlarge the stack to care for the furnaces put in a new dintering plant, and remodel the sampling mills. After this was finished the plant was again started up for a short time and then closed down for good.

FUTURE PLANS.

But little has been said as to the plans of the company for the future, but some of the far seeing mining men declare that some day a line of railroad will run through Deep Creek from Tintic and that with the supply of ore that could be obtained from Ploche and Deep Creek the smelter would have its pick of ores.

The closing down of the smelter threw several hundred men out of employment at Silver City, but it is believed that it will not be many months more before the furnaces are going again.

THE UTAH CONSOLIDATED.

ONE of the most active companies and at the same time has the least said about it, is the Utah Consolidated Mining company, known locally as the Highland Boy. This company has made some great advances in the past year and during the coming year has more than ordinary promise. By April 1, it will enter upon a new contract for the smelting of its ores at the International Smelter in Pine canyon, which will be more advantageous to the company than its present smelting contract.

Shortly after the first of the year the company will have completed a new tramway over the mountain to Pine canyon and to the ore bins of the International smelter. This tram way will be able to handle all the ore that the contract with the smelter calls for—1,000 tons a day.

For seven months or more the company has been working upon a new large ore body in a part of the property heretofore unexplored. This ore-body is similar to what the company has found before and means a considerable increase of its ore reserves. It carries the usual values found in the property and adds considerable to the value of the company's mine.

The ore bodies of the mine are largely metasomatic replacements in lime stone and conceded to be the largest ore deposit of its character in America. The ores carry from 2 to 13 per cent copper and $2.50 in gold and silver values to the ton. The ore also carries a good excess of iron that makes it an ideal fluxing base. The net costs of copper production in this mine average the lowest of any large mine in the world.

The most recent ore body opened up in the property is over 400 feet long and is better than 60 feet wide. It is not as large as some of the ore bodies, but development work may prove it up much larger than it shows at present.

In equipment the property is one of the best in Bingham.

TRADING ON EXCHANGE GREATEST IN HISTORY.

(Continued from page seventeen.)

TABLE NO. 1.

Month.	1907. Shares.	1907. Value.	1908. Shares.	1908. Value.	1909. Shares.	1909. Value.
January	1,680,096	$ 1,344,344.58	2,205,811	$ 949,739.35	3,493,639	$1,634,149.31
February	1,346,405	987,285.61	1,395,301	640,764.84	5,023,181	1,743,673.54
March	1,129,175	1,126,238.54	2,793,069	1,347,551.30	3,833,804	1,842,723.12
April	972,185	729,898.65	2,212,765	1,007,125.40	3,362,315	2,884,094.12
May	1,115,799	882,973.65	2,799,370	1,104,692.27	3,045,395	2,213,161.67
June	807,592	586,800.58	4,666,519	2,848,579.05	2,446,711	1,363,553.21
July	1,783,672	1,700,647.53	2,390,733	1,690,235.94	1,930,712	1,392,705.02
August	1,631,235	1,634,488.35	1,976,662	1,284,570.97	1,999,544	1,293,649.56
September	1,669,231	1,642,536.39	1,914,945	1,348,647.04	2,803,276	1,066,412.63
October	2,197,185	1,636,178.06	1,878,848	1,388,435.00	2,464,491	863,488.37
November	1,631,503	955,935.77	2,946,724	1,845,095.74	2,263,852	903,524.03
December	1,763,687	769,837.97	2,546,201	1,837,291.83	.....	.....
Total	17,725,687	$13,997,165.68	29,482,547	$17,254,164.50	32,653,920	17,201,134.58

records of the exchange covering a period of 12 years. We have seen the time when the transactions day after day on the floor of the exchange did not amount to $10. The business of April for this year exceeded the transactions of the year 1898, 1900, 1904 and 1905, so far as the value of the stocks is concerned. The present depression should be taken advantage of, therefore, and should give encouragement, for history will repeat itself.

WILLIAM H. TIBBALLS.