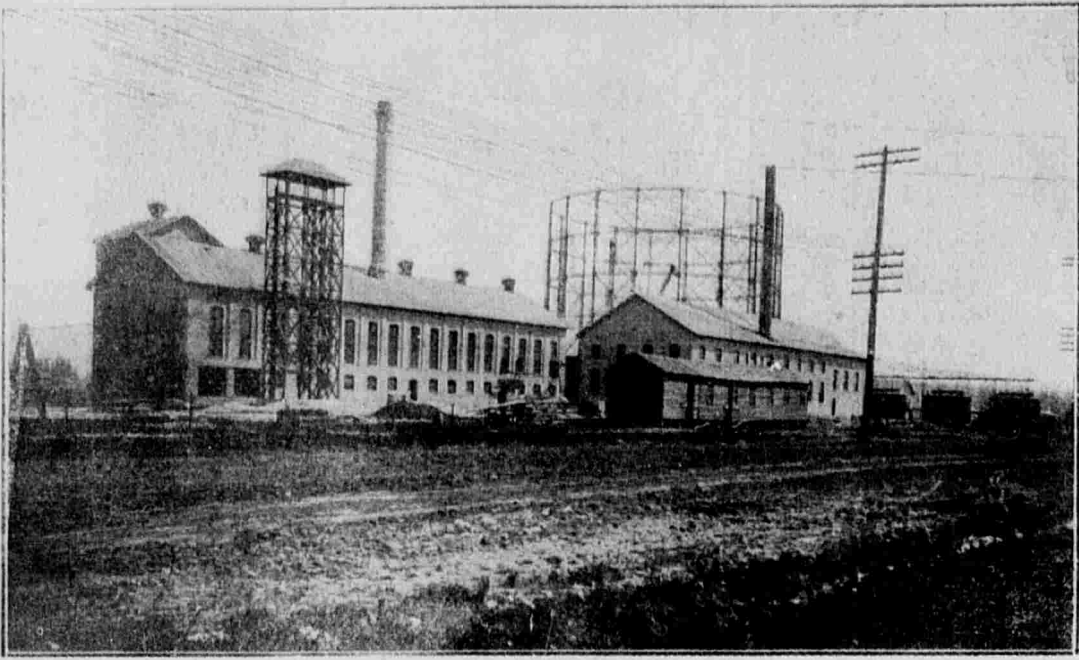


New Company Spends Three Millions in Salt Lake.



GENERAL VIEW OF THE PLANT.

THE Utah Gas and Coke company is fast bringing to completion the great plant which it is building on six and a half acres of ground on the block bounded by and Seventh and Eighth West streets and South Temple and First South streets. The property has reached such a point of development that in about 10 days the company expects to be sending the first lot of gas through its 75 miles of mains already laid, and when the company's plans have been fully completed the amount of money expended in this big improvement will, according to the figures given out by the company, reach the very respectable sum of \$3,000,000.

Under the enterprising and painstaking management of General Manager Ross, assisted by Engineers McKett and Sanford and a strong and able staff, the work which began last July, under adverse circumstances, has three fine buildings, the latest up-to-date machinery and one of the greatest gasometers in the country to show for it. To begin with, the company found the ground swampy and unfit to lay foundations in. So it was necessary to send 2,000 piles, 30 to 35 feet into the ground in the site of the buildings, and over these to lay a mattress of concrete, making a foundation three feet above the soil level. In fact it is the intention of the management to raise the

grade of the entire premises to three feet above the regular level. The great gasometer and cement stack are plainly visible from practically all over the city, the gasometer being one of the largest in the United States.

HUGE RETORT HOUSE.

The first feature of interest in a general descriptive is the retort house. This is of brick and steel and concrete, 60x200 feet, and contains 12 trenches of six retorts each, or 72 retorts in all. And as each trench has a capacity of over 100,000 cubic feet of gas in 24 hours, the total present capacity of the plant is nearly 1,500,000 cubic feet daily, certainly enough for a city of this size. These retorts will consume 100 tons per day of Sunnyside coal whose coking properties are unsurpassed by any other fuel in the west. The coal is dumped from the cars into a chute and great bins directly underneath it, and opening immediately into the retort house. It is there broken to the desired size by an electrically driven breaker lifted by a box belt. To the distributing bins overhead, iron cars, fed from the bins, haul the coal along the front of the trenches and the fuel is fed into the retorts by special apparatus manipulated by electricity. The fires in the furnaces beneath, while started with ordinary coal, are fed afterward by coke diverted into them from the emptying

retorts. A gas retort is a sealed, airtight receptacle wherein the coal gives off its gas and the residue becomes fixed carbon, or coke that is sold to the smelters and consumed also in other manufacturing industries. The car hauling the coal to the retorts is operated on the trolley principle from an overhead wire.

The crude gas escapes from the retorts into the hydraulic mains where a certain proportion of tar and ammoniacal liquors are separated, and the gas passes on to the primary condenser, 38 feet high and 20 feet in diameter, containing 3-inch tubes surrounded with water which cool it. In this latter process tar and ammoniacal vapors are removed, and the gas passes on through a 20-inch main to be cleaned and purified.

POWER AND BOILER PLANT.

All of the above processes are conducted in the retort building. The remaining are confined to the second building of brick, steel and reinforced concrete, and finishing apparatus outside. This second structure contains the power and boiler plant, the ammonia room, the condensers and scrubbers, and is 60x225 feet. The ammonia is pumped from the condensers to a tank up under the roof and run into the ammonia still where it is put through the process of distillation until it tests 20 degrees Beaume hydrometer. From this still the product is pumped into big hori-

zontal tank cars for shipment to the Western Chemical company of Denver which has bought this byproduct of the Utah Gas and Coke company. Special features in this part of the plant are the two Wilkes water tube boilers of 250 horsepower each, with two steam domes 25 feet high and 12 feet in diameter. In this apartment is a water heating plant which raises the temperature almost to the boiling point before it enters the boilers, the heating agency being the waste steam. The boilers furnish steam for two steam turbine engines of 100 and 150 horsepower respectively, and which are believed to be the only two engines of that kind in the west. They will operate the electric generators. A large marble switchboard equipped with the latest and most approved apparatus distributes the electricity which is used to light the plant and run motors. The nearly finished gas product is run from the second set of apparatus and ammonia separators to a special tar extractor which cleans out all the tarry matters, and then to the scrubber which is a large cylindrical machine in which revolve a series of gigantic wire brushes; the cylinder is filled five-eighths with water, and the forcing of the gas through this receptacle as the brushes revolve thoroughly wash and free it entirely from every trace of ammonia and tarry matter. However, the gas is still impregnated with the sulphur from the coal. So it is now run through two great purifiers. There are three of these, one being held in reserve, 18 feet high and 37 feet in diameter, and of iron. They contain each two layers of planer shavings covered with a coating of oxide of iron, and known as iron sponge. This sponge takes up the sulphuretted hydrogen, leaving the gas free from odorous impurities.

HUGE GASOMETER.

The vaporous product is now complete, and after being measured in the union station meter, is forced into the great gasometer, or gas holder which looms up in the western part of the city so that it can be seen from all over the valley. This immense affair is one of the greatest in the country. One thousand pipes were driven into the ground and a concrete mattress laid upon them. In order to make a flooring three feet thick. The gasometer, when full, will stand up in the air 140 feet, and is 150 feet in diameter, and will hold one and a half million cubic feet of gas. The holder connects immediately with the mains leading to the street.

The addition of this great industry to this city's industrial interests means yet others affiliated with it. From coal tar is manufactured a wide variety of dye stuffs—some of great value, perfumes and many chemical reagents,

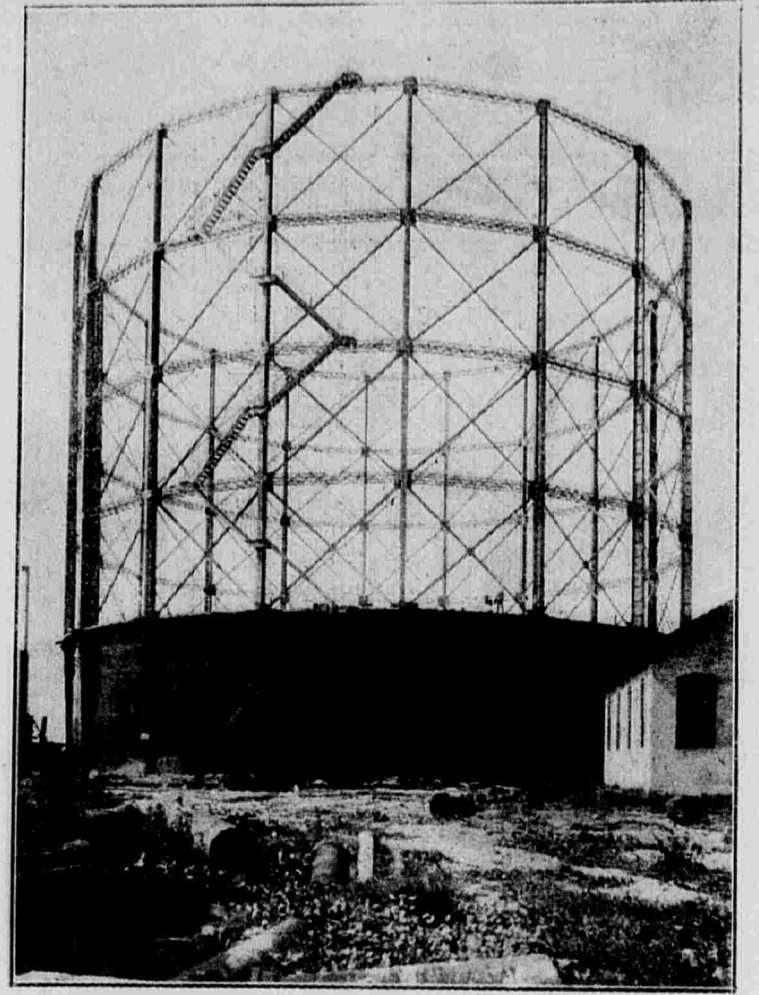
immense quantities of pitch, tar paper, roofing materials, etc. Then from the ammoniacal liquors is made a long list of products. General Manager Ross of the Utah Gas & Coke company is confident that factories that will manufacture this affiliated product will yet be erected here, and thus add to a marked degree to the commercial status of Salt Lake.

RADICAL CHANGES.

A conversation with one of the officials of this new concern disclosed several features which will probably be interesting to its consumers and the general public. He said in part: "In probably no other business has there been such a radical change in policy as may be found in the gas business in the attitude which the gas companies nowadays maintain toward their consumers. The time was, and not many years ago, when it was almost a common byword that the gas company would charge its consumers with bills for gas according to the way they felt about it or according to how much money they thought they needed from each customer each month. The consumer's wishes were seldom or never regarded and their requests for little accommodations were practically unheeded. The thought and study of gas men was confined chiefly to improvements in gas making machinery and distribution of their product, systems of mains, etc., and these have been so greatly improved within the last few years that it has come to a point where the building of gas works has been reduced to a science and a system of mains is nowadays laid out by the strictest rules of engineering."

PUSHING THE PRODUCT.

"Another great improvement is in the policy of gas companies with reference to the way in which they deal with the public. Instead of letting the gas advertise itself as heretofore, the gas companies are now pushing their product and advertising it much the same as a grocer, a dry goods man, or any other merchant would push his wares. They are also exerting much greater effort to have pleased and well satisfied consumers. Every company has its force of 'trouble men,' men who are ready at almost a moment's notice to call on any customer and adjust burners, to stop leaks in gas pipes, and look after the efficiency of appliances to see that everything is in the best of working order. It is a recognized fact and a logical one that in order to sell large quantities of gas the company must see that consumer's appliances are kept at their highest efficiency and that they give entire satisfaction and the result is that the consumer is not only well satisfied with his own results but he immediately makes of himself a standing advertisement for the gas company as one who is willing to



THE HUGE GASOMETER.

recommend their product to anyone else who can avail himself of the advantages of gas.

GAS BURNING APPLIANCES.

"Gas companies nowadays are very loath to enforce stringent rules which would work hardships on any of their consumers because one enemy made will do more damage to public opinion than 10 good friends can undo. That the gas company works for the interests of its consumers may be shown by the quality and efficiency which they insist upon in the manufacture of gas burning appliances. The efficiency of gas stoves and the efficiency and durability of gas ranges is one item which has been greatly improved since the gas companies began to recommend only such appliances as have been thoroughly tested and which the company can recommend as thoroughly reliable appliances. A modern gas range

is as different from the old style as day from night. They now are taking the lead in the sale of first-class appliances and have established standards of manufacture which compel first-class material and workmanship and certain high grade results in order to make it possible for a manufacturer to place his goods on the market.

"We have already received 16 carloads of ranges and are setting them rapidly. We consider Salt Lake City to be a very fertile field for our business and we shall be in sympathy with any movement which will tend to the betterment of the city and its interests. We have now started a series of free demonstrations and will probably have one or two every week from this time on. There will be a series of lectures intended to show the work which can be done with gas and the perfect results which may be obtained by its use."



PRIEST INVENTS AN AIRSHIP.

Father Joseph Aulino, an Italian priest of New York, has invented an airship and the Aulino Dirigible Airship company, capitalized at \$100,000, has been incorporated under the laws of New Jersey to further his project. Father Aulino has been 20 years at work on his invention and claims to have achieved a perfect success. The secret of the machine's flight and control is known to him alone. He says his ambition is to force international peace through the medium of his airships whose power of destruction while circling above an enemy would make war too awful for the most blood-thirsty people. With an airship which can float miles above a city and drop dynamite upon it, war would, he claims, cease for all time. He came to America in 1905 and intends to become a citizen. In Italy he was distinguished as a scholar and is the possessor of 20 gold and silver medals for the excellence of his literary works. In 1891 he was graduated from the Catholic university of Naples with the highest honors. Prominent capitalists are backing his scheme.

SCIENTIFIC MISCELLANY.

In modern use, the sun-dial is chiefly an ornament, as the ordinary instrument requires troublesome attention to show anything like true time, and it can be consulted only during hours of sunshine. The photo-heliometer shown at the late meeting of the London Royal society is an improved sun-dial giving direct time-readings with sufficient precision for regulating common clocks and watches. It consists essentially of a ball-and-socket stand or adjustment in latitude and level in hour circle which can slide round to follow the apparent motion of the sun, and a year circle on which are engraved the months, Greenwich meridian is indicated when the hour circle is moved so that the spot of light coming through an upper screen falls on the central line. The year circle is turned to indicate the current day and month, and a cam or curved plate on its under side automatically applies the necessary corrections.

Practical joking with even mild shocks of electricity, is not to be commended.

Some workmen in a Sheffield machine shop recently connected a live wire to a metal workbench, and requested that certain chosen fellow workmen open the door. One man was killed instantly. The current was not powerful, but the position showed that the victim had a fatal and unexpected disease known as lymphatemia, which made him liable to sudden death from a slight shock of any kind.

Copper is stated to be so hardened as to take a cutting edge by adding to it, while in a molten state, about 2 per cent of potassium ferrocyanide. The color is not affected. The reason for the change is not clear, but it is supposed to result from the introduction of iron and possibly carbon.

The teeth of a nation are a much neglected asset, and the British Dental association has been considering means for improvement as a national affair. Investigations have indicated that not more than 2 per cent of all children of school age have sound teeth. How great is the

influence of this in retarding development and producing weak and improperly nourished bodies cannot easily be estimated, but it is doubtless true that much dyspepsia and illness have resulted from poor teeth. In the South African war the inability of the soldiers to masticate ordinary food caused enormous waste of supplies, while defective teeth explain the rejection of a very large part of army recruits. To bring about a reform it seems necessary to make attention to the teeth of school pupils a public matter, and a conservative estimate is that Great Britain's outlay for this purpose should be at least \$5,000,000 a year.

The curious thinness of some skulls of Egyptian mummies of the fourth to the nineteenth dynasties has been studied by Dr. G. Elliot Smith, professor of anatomy at Cairo, and he suggests that the cause may have been the wearing of heavy wigs. It occurs in both male and female skulls. It is found only in mummies of wealthy people, and the upper classes of the period to which the phenomenon belongs are known to have followed the fashion of wearing enormous wigs. Intermittent pressure, such as that of the water-jars carried by modern Egyptian women, does not seem to affect the blood supply sufficiently to cause the bone atrophy.

The special camera of Dr. J. R. Milne is designed to record automatically the readings of the scale of any instrument. On using any apparatus having a scale and a mirror, the observer need only, by simply pressing a bulb, which causes the camera to make a photograph of a small section of the scale, which is then moved along automatically, and can be made to receive 70 records.

A distance meter for vehicles or ships was used by the Romans in the time of Cæsar, and a late German writer notes that Vitruvius in a curious chapter on architecture, referred to it as an ancient device. It was necessary that the chariot wheel should have a circumference of 12½ feet, or 1-100 of a Roman mile (5,000 feet). A second wheel geared to this one was driven at the same rate, showing an advance of 12½ feet for each revolution, and at each turn of this second wheel a projecting pin advanced another wheel one tooth or cog. As this upper wheel had 100 teeth, a complete revolution measured a mile traveled. A mile of holes on this wheel each held a stone, and at each turn one stone was dropped into a brass vessel, the sound giving warning of the completion of a mile, while the stones collected in the vessel at the end of the day's journey showed the miles traveled.

In the most recently discovered of the prehistoric cave art museums, that in the French pyrenees of Arles, the mural drawings are in the darkness of the heart of the mountain, 500 feet from the entrance. The two travelers who made the accidental discovery at once sent a plan of the cave to M. Cartailhac and M. Salomon Reinach, the French authorities on such matters. The designs include 30 or more with horses and wild goats, all drawn in black, but seven of the horses bear arrows of red and are labeled. This is thought to be the earliest of the art caves of the early stone age, the figures probably playing some part in ancient mysticism or magic.

The clinders from the waste burned in English municipal plants are made into building material by crushing, mixing with cement, and molding into great wall slabs. These have door and window openings and even an interior iron framework for holding them in place, such as much as 11 tons. The frames are bolted together, the joints being closed with cement.

The fiber of the dwarf palm—a tree until lately regarded as worthless or harmful—is developing an important German industry. Factories are multiplying and to these the natives bring the palm leaves, which are transformed into vegetable fiber by a steam carding machine and then spun and braided. The material has the advantage over horse hair of being proof against moths and insects. It is being used for mattresses, woven products, harness and carriage work, military bedding, various tissues, and even hats.

Though many plans to lessen the jar of machinery have been tried, annoyance from steam hammers, etc., continues. A new French remedy is to place under the machine a 2-inch elastic plate consisting of two sheets of steel with an intervening layer of coiled springs surrounded by felt.

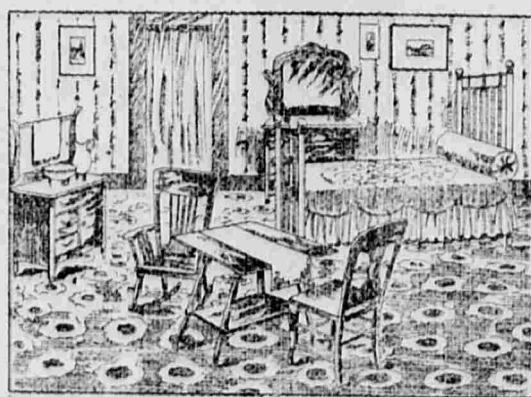
A man who is in perfect health, so he can do an honest day's work when necessary, has much for which he should be thankful. Mr. L. C. Rodgers, of Branchton, Pa., writes that he was not only unable to work, but he couldn't stoop over to tie his own shoes. Six bottles of Foley's Kidney Cure made a new man of him. He says, "Success to Foley's Kidney Cure." For sale by F. Hill Drug Co. "The never substitutes."

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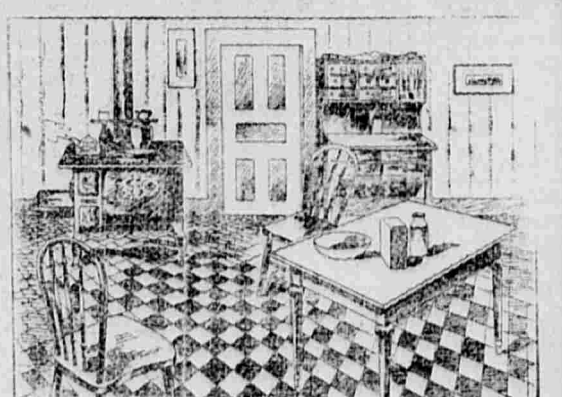
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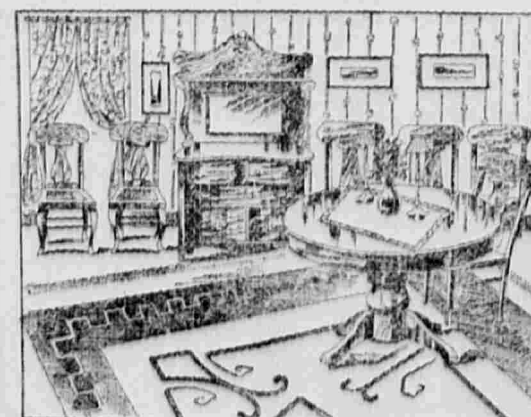
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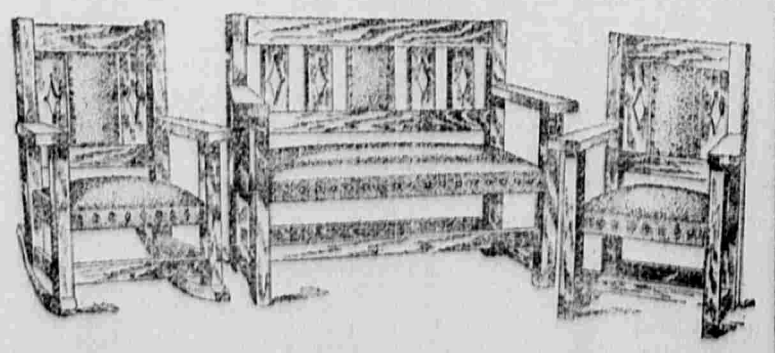
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