THE WORKS

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These occupy a site fronting Grey Street, between that thoroughfare and Devonport Road. The buildings, which are of brick, are arranged compactly across the southern portion of the site. The “retort house," 80ft. square inside by 17ft. to eaves of roof, stands next to Grey Street, upon which one of its side walls abuts. This house is intended to be twice its present size when finally completed, but will be amply large enough, as it stands, for several years to come. It contains the "retort bench," consisting of two, arches, and in these arches the retorts are set, in which the coal is carbonized for the production of the gas. The retorts am of fire clay, D shaped, 21ins x l5ins in section, and 9ft. long, and are set on the regenerative principle, by which the greatest economy in working and in consumption of fuel, to maintain the necessary heat, is secured. There is also room in the retort house for storing a considerable amount of coal used in making the gas.

From the “hydraulic main" on top of the retort bench, in the retort house, which receives the gas from the retorts as made, suitable cast iron mains conduct the gas to the “condensers" placed just outside the retort house, in which the gas is cooled and the process of separating the tar from it is completed. The condensers consist of a series of cast iron pipes, fixed vertically, and so placed on a cast iron base of box form, with internal partitions, that the gas passes through the whole series of pipes one after the other. Its heat, as it comes from the retorts is thus dispersed and absorbed by the surrounding air of the atmosphere, which has free circulation round the outside of the condenser pipes.

From the condenser the gas passes through the “exhauster" which is placed in -a brick house adjoining the retort house. This is practically a pumping engine, driven by the gas itself, through the medium of a gar engine, which draws the.gas from the hydraulic

main and contributes to economy in the manufacture of the gas by keeping .the pressure inside the retorts at a low limit.

The “scrubber” follows the exhauster, and in passing through this item of the gas plant the gas is thoroughly washed and brought into intimate contact with a descending flow of clean water. This water absorbs one of the impurities in crude coal gas (ammonia) which has to be removed before the gas is properly fit for consumption in an ordinary way. It may here-be said that the liquor discharged from the base of the scrubber, strongly charged as it is with ammonia, forms a really valuable manure for many crops, if properly diluted, and used with discretion and it would be well worth while for the farmers of the surrounding districts to bear this important fact in mind.

After passing through the scrubber the gas goes on to the "purifiers." These consist of a pair of cast iron vessels, of rectangular form with removable top covers from which the gas is made to percolate through layers of purifying material, consisting largely of a natural oxide of iron ore, which has the power of absorbing other impurities in the shape of various forms of sulphur and its compounds. After this treatment in the purifiers the gas reaches its purified and clean condition and is ready to send for consumption into the houses and offices of the consumers.

From the purifiers the gas passes through the "station meter,” where its volume is measured and registered, and thence into the. gasholder

The "gasholder” will not need much description, its form and appearance being familiar to most people, while it is the most prominent item of plant to be seen upon a gasworks. That under notice works inside a cylindrical tank of wrought steel plates, and floats - under the pressure and buoyancy of the gas itself—upon the water with which the tank is filled. The gasholder is 36ft. in diameter by 12ft. deep, with the usual crown of spherical form. In

working—rising and falling it is guided in its movements by the tank itself, in which it is placed and by upright standards fixed at intervals round the circumference of the tank, suitable rollers being fixed to the gasholder for this purpose. The steel tank containing the water on which the gasholder floats is 37ft. 6in. in diameter by 12ft. 9in. deep, and contains about 90,000 gallons of water.

The gas passes direct from the interior of the holder into the town mains, passing, however, immediately on leaving the holder, through another important item of the gas-works plant, in the shape of- the "governor." This apparatus regulates and controls the pressure in the town mains and service pipes, and, by its means, the pressure of the gas can be adjusted, from time to time, to suit the requirements of its working.

The forgoing is fairly complete as a brief and non-technical description of the plant generally installed in a gasworks of moderate size as that under notice, for the manufacture of coal-gas. The different items of the plant are of course connected and "strung on," one to another, -by the necessary cast iron mains, with valves, by-passes etc., where necessary.

On leaving the gasworks, the gas passes, as already mentioned, into the town mains. These begin with a 6in. bore at the gasworks, are reduced, as they pass through the town to the portions of the present arranged to be supplied to 5, 4, 3 and 2 inches internal diameter. The length of street mains already laid reaches the rather considerable figure of 460 chains (5.75 miles). It may be noted, in connection with these street mains that they have all been laid since the last week of June, which must be rather a record in the class of work and, in addition to this, a very considerable number of "services" have been laid on to customers' houses, as the work proceeded.

Upon the gasworks site it is intended to erect a residence for the manager, with office, showroom, etc. under the same roof.

The gasworks, as constructed, were designed about a year ago, or a little more, by Mr C. B. Norwood, gas engineer, of Wellington. The supervision of the work of construction was, however, entrusted to Mr Walter W. Martin, gas engineer of 41, Nairn-street. Wellington. Seeing that from the original laying down of the designs on paper, only a little more than twelve months have elapsed, that the whole of the plant had to be thrown open to tender and imported from England, that the first parts of the plant reached New Zealand in March and April last, and other parts continued to arrive until the latter end of last June, it goes without saying that those concerned and the contractor and supervising engineer particularly, deserve every credit for the expeditious way in which operations have been carried through and the works constructed.

The contracts for construction of buildings, etc., were placed in the last days of March, with Messrs. Harris and Crump, a firm of local builders, and they got into full swing with the execution of their work about the middle of April. The erection of the gasholder and its tank was placed in the bands of Mr H. Breakspeare, of Wellington, as a separate contract, and Mr E, H. Stone, of Wellington—an expert in such work—undertook the construction of the retort bench and carried the work through in a most satisfactory and expeditious manner. The work of opening the streets for the town mains was contracted for by Mr F. Lees, of Tauranga, and the execution of this work has been a matter of surprise so rapidly was it pushed along.

The proprietors of the gasworks are fortunate in their local representative in the town and manager of the works, Mr John Miller, who comes from a family of gas managers, his father and several brothers occupying .responsible positions to that line in the Old Country. He has come to this position in the town with very

high credentials and recommendations as to qualifications and previous experience, and has ready made a host of friends and gained a high reputation his unfailing courtesy and business abilities. While the interests of his employers are undoubtedly safe in his capable hands it is also certain that the consumers of gas in the town will meet with every consideration and attention from him.

One other point has also struck us and that is that the proprietors of the gasworks have every desire and intention that their customers shall be put into a position to start from the first with the very best and latest things in way of fittings and appliances, and to get full value from this most convenient system of lighting for their outlay in it. A very cursory visit of inspection to their show-room and the display of pendants, brackets, heaters, cookers, etc., there on view is sufficient to vouch for this.

The street lighting, so far as the lamp pillars and lamps are concerned, will also be up-to-date in every respect. The pillars arc quite handsome things in the streets and will make other posts, pillars, etc., to be seen rubbing shoulders with them look quite shabby. The lamps for the lighting of the streets are of a high-class type and as showing how up-to-date these are, it should be noted that they are quite automatic in action, the light being turned on at dusk and turned down at the desired time by apparatus attached to each individual pillar, without any attention from any such, old-fashioned official as the lamplighter. Should they be found not to be quite to electric searchlights in the streets or to leave a certain degree of gloom or shadow still lurking about some few important thoroughfares of the town, owing to their distance apart at places, are matters between the Borough Council and the Gas Company Proprietors, and admit of very easy remedy when found necessary.

The gasworks start with quite a satisfactory number of customers about 150 consumers having "signed on" most of whom are already connected and fitted up. There not much doubt that many others when they see their neighbours and friends so well served in the matters of illumination, heating and cooling conveniences, as well as power, and the advantages they enjoy, will not be happy till they have got the same.

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