

bridge of steel, 465 feet long, erected by Messrs. Scott Bros., of Christchurch, carries the line across the Wanganui river. This bridge was completed in 1903, and the earthworks had already been constructed for about five miles beyond to Piraka, where the line enters the celebrated Waimarino forest, and no time was lost in laying the rails after the bridge was available. In 1905 the rail-head had been advanced to Owango, another ten miles, a lot of heavy country having been negotiated in the interval, and at present the rails are laid to Oio, 194 miles from Auckland, with a prospect of shortly reaching Raurimu, five miles further on.

At the southern end renewed activity was also displayed. The construction of the Makohine and Pawhakarua sections was commenced in 1891-2, and during the following year the section to Mangaonoho was opened for traffic. Early in 1896 tenders were invited for the Makohine viaduct, but as no satisfactory offers were received, the work was undertaken by the Public Works Department's own workmen, and the Mangaweka viaduct was subsequently undertaken in the same way. Formation works were also put in hand beyond these viaducts, so that in 1902, shortly after the completion of the former structure, the railway was opened for traffic to Mangaweka, and the further section to Taihape was similarly opened in September, 1904. The rails now extend to Turangarere, and are expected to reach Waouru during the coming summer.

(To be continued).

[EDITOR'S NOTE.—This article is to close in next issue, when the opportunity will be taken to present our readers with many interesting and hitherto unpublished matters bearing on the Main Trunk Line. The work of our Special Commissioner will be accompanied by diagrams and maps showing grades and deviations, illustrations of the types of locomotives to be constructed for the Line, and proposals with regard to time-tables, fares, etc., etc.]

### Railway Carriage Cleaning in France.

In England cleanliness is supposed to be next to Godliness, and the railways keep an army of carriage cleaners constantly engaged upon removing the dust from the exterior and interior of railway coaches. The French Minister of Public Works has recently addressed a special circular to the managers of French railways, entitled, "Hygiene, Cleanliness, and Disinfection of the Carriages and Railway Buildings." The Minister reminds the managers of the various regulations that have been issued to them on the subject from time to time, and adds significantly that by the decree of March, 1901, the Minister is empowered to prescribe the measures that he may think necessary with respect to public safety and hygiene. The circular, particularly in respect to railway carriages, requires that.—

- (1) The interior surfaces of the compartments of passenger carriages, excepting the seats, backs, and elbow-rests, shall be covered with material that can be washed easily, and the furnished parts should be movable if possible.
- (2) The cleansing of the washable parts of passenger carriages should be rigorously carried out, whilst the cushions and furniture shall be cleaned in such manner as shall remove the dust.
- (3) The disinfection of passenger carriages must take place periodically—at least once a month, and without fail immediately after contamination.
- (4) Passenger carriages must be disinfected according to regulations already issued.
- (5) Disinfection, or at least cleaning, after each journey must be effected under the following conditions:—
  - (a) when the carriages have served to carry invalids or pilgrims;
  - (b) in the case of carriages that habitually run to sanatoria and watering-places (seaside or otherwise) if frequented by consumptives, and immediately after a case of epidemic disease has been officially announced by the Minister of the Interior.
- (6) All passenger carriages should be heated according to the season and suitably ventilated without inconvenience to the passengers.
- (7) A notice forbidding spitting shall be shown in all carriages and places frequented by the public or employees.
- (8) The provision of suitable spittoons in all stations and waiting-rooms is insisted upon, as well as in passenger carriages when there is convenient accommodation for them. A long series of similar regulations is added for application to railway buildings, offices, etc.

With all the numerous inventions that have been made from time to time in pumps, it might appear to many that there would be little room for improvement, but Hawera sends out a patented pump which is much enquired for.

### The New Dock at Port Chalmers.

This fine dock, excavations for which are proceeding, is being constructed by the Otago Dock Trust, a body corporate acting under the provisions of the Harbour Act, 1876. The dock was designed by Mr. Robt. Hay, M.I.C.E., of Dunedin, and the dimensions are—length on sills, 500 ft.; width at coping, 90 ft.; width at bottom, 67 ft.; width at entrance, 70 ft.; depth from coping to floor, 29 ft.; depth of water on sill, 22 ft. The contract is let to Messrs. Luttrell & Scott, of Christchurch, for £58,961. The Dock Trust supplies the cement and pumping plant, separate contract for which has been entered into, making the total cost of the dock £74,000. The time allowed for completing the work is sixteen months. The Trust has borrowing powers up to £100,000, and it has exercised these powers up to £75,000. The loan was raised locally at par bearing interest at 5 %.

Patea Meat Preserving Co.—A considerable addition has been made to this Company's works in the form of a detached insulated building fitted up with a Linde refrigerator driven by a suction gas engine, supplied by Niven & Co., of Napier, under a guarantee that the plant will do the work of refrigeration, etc. Mr. Watt is superintending the erection of the machinery for Niven & Co. The freezing this year, instead of being carried out at the butter-grading depot, will now be done on the Company's own premises, and altogether will comprise extracting, canning, tallow rendering and freezing.



EXCAVATIONS AT THE NEW PORT CHALMERS DOCK.

### Electrically Immune.

#### REMARKABLE FEATS.

The possession of a remarkable power of withstanding electric currents has led Senor Francisco Godinez, of Brooklyn, to issue invitations to any one who would like to try to "electrocute" him (writes the New York correspondent of the *Daily Express*). He even asked Mr. Davis, the New York State electrician, to attempt the task, but Mr. Davis pleaded that the execution of criminals at Sing Sing Prison took up too much of his time already.

Senor Godinez thrives on 5,000,000 volts of electricity. At Sing Sing they give a man only 7,000 volts to put him to death. Lord Kelvin, the famous British physicist, once took a million volts of electricity, and lived through it, Senor Godinez says. The world wondered at it, and then Nikola Tesla went a step further, and took a half-million more. This was the record up to the time that Senor Godinez completed an electric machine, from which he occasionally receives mild shocks of 2,000,000 volts, and recently, he says, he took the limit of 5,000,000.

The secret which enables Senor Godinez to make his body a safe conductor of almost any amount of electricity was discovered, he says, after long experimental work. He has given an exhibition, turned on 5,000,000 volts, and he never quivered. Around his wrists were coils of copper wire, and between the two hands lightning flashed back.

His is soon to go on the stage, where he will have himself handcuffed to the electric generator, and invite any expert in the audience to come on the stage and turn on the current. Another of his performances will be to let a constant stream of lightning pass straight through his body. The lightning will strike Senor Godinez, who is a tall young man, just beneath the ribs and go out at the small of the back.

"When the doctors tested me," Senor Godinez declared in an interview, "they made me wash my hands in some kind of acid, thinking I might have some chemical painted on them to conduct the electricity around in a circle. I washed my hands in what they gave me, and I convinced them that the electricity passed through my body."

### Remarkable Whispering Telephone.

The dictograph is the latest in telephones. One can stand 10 feet away and whisper a message, or when 30 feet distant speak in an ordinary tone of voice and the message will be clearly and audibly transmitted. Its construction is a secret of the inventor. It can very easily be used by an employer for dictating to a short-hand writer, as the latter could take the dictation at any distance from the speaker, without having to hold a receiver to the ear. It, of course, works both ways, allowing both persons to converse equally well. This explains the name "dictograph." In detective work it promises to prove an exceedingly valuable adjunct. Where a third party is desired to hear an interview between two others it will no longer be necessary for the witness to hide behind screens and in other

inconvenient places. The dictograph can be hung behind a picture or under a desk, or even placed in a partly opened drawer of the desk, and will transmit faithfully the entire conversation to one or more witnesses in another room, or to a stenographer.

The treatment of milk fever by sterile air is so successful that two hundred of the Simplex Sterile Air Syringes have been sold in the Taranaki district, including a number for the Government experimental stations.

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