


## PAPERSPAST

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## A DESCRIPTION

The new bridge over the Henui in Devon-street is about completed, and the following particulars of it will therefore prove interesting at the present time:—This bridge, which is technically known as a pin combination truss, is 60ft. span, and 42ft. wide between handrails, and has concrete abutments. This type of bridge was, before the advent of steel bridges which are now nearly always adopted, largely in vogue in America, owing chiefly to the handiness of lumber for compression members of the bridge and the lightness and consequent portability of the tension members. This class of bridge has been designed and built in many parts of N.Z. by Mr T. E. Fulton, M.I.C.E., of Wellington. In fact, it is commonly known among contractors as a "Fulton bridge." He has just completed a very large one in the Manawatu Gorge of, we believe, nearly 200ft. span and a great height above the river. The new Henui bridge was designed by the late Borough Engineer, Mr L. G. Spencer, after the class of bridge had been referred to Mr Fulton for his recommendation, which was

on the present lines. We understand that Mr Spencer recommended a steel girder bridge with abutments somewhat similar to those adopted, as he considered the ground at the foundation of the western abutment was not sufficiently solid to carry an arched bridge unless at an unwarrantable cost. After exhaustive borings, which showed a very soft bottom for 20ft. below the river bed on the western side, it was decided to put in a wide base of broken metal to act as a cushion on top of the soft ground, and on top of this 15 x 8 totara sleepers and old railway rails, six under the front wall and three under each wing wall, the concrete work commencing above this. Results have shown that this course was justified, as no sign of any settlement or crack in the concrete are discernible, although the abutment is keeping up many hundred tons of earth. The foundation of the east abutment was a much simpler undertaking, as it is seated on a conglomerate reef, which has been stepped up wherever possible, following the dips of the reef so as to economise concrete, and secured to the reef with a concrete key to obviate any possibility of the earth backing causing it to slide forward. The trusses carrying the road on their top chords are of iron bark and wrought iron. The iron bark was imported by Mr A. Pikett, the contractor, direct from Sydney, where it was passed by the P.W.D. Inspector prior to shipment. Its life is estimated at about 25 to 35 years, depending chiefly on

the position in the bridge. Most of it is fairly easily getatable to renew when necessary. The ironwork was all forged by McIntyre & Co., at Onehunga, and tested in Auckland by the Railway Department. The road bed on top of the decking is to be tarred McAdam, which will make a clean road if time is given it to set well, and should have the effect of preserving the decking, beams, and trusses if it is made impervious. The work has presented some little difficulty in carrying out, inasmuch as a large traffic has had to be provided for throughout the contract and the town water supply kept going. The former was diverted over a substantial temporary bridge and the latter turned into a new steel riveted main, made by Mr Ferguson, of Wanganui, on the opposite or south side of the road. We understand that Mr Spencer was, when drawing up the plans and specifications, rather anxious about this portion of the job, and considered that the contractor would have to exercise great care in carrying out the work to prevent any mishap or inconvenience, and that none has happened reflects credit on the way the contractor provided against any contingency. The approach grades to the bridge will be 1 in 24, which should make a good workable gradient for any kind of locomotion, and will no doubt be duly appreciated by 'bus driver and his toiling team. The contract, which was let to Mr A. Pickett for a sum somewhat under Mr Spencer's estimate, has been carried out in a faithful and workmanlike man-

ner, and should prove a much needed boon to the residents of New Plymouth and its eastern surroundings.

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