

of the sports clubs, supervised by the Department's foreman. The completion of the ground will provide for the recreation of the staff within the limits of their own settlement and in close proximity to their homes.

One hundred and one new cottages have been built during the year, in addition to one hostel at Marton, and offices for staff at Frankton Junction.

AUTOMATIC SIGNALS.

With a view to providing greater facility in train-working between Lambton and Upper Hutt it was decided to install the automatic power signalling. The work has been completed on the tablet-line section between Lambton and Lower Hutt, and has been working satisfactorily for some time. The installation on the single-line section, Lower Hutt to Upper Hutt, is in hand, and will be completed shortly. The equipment of the line with automatic power signals has resulted in a material saving in staff, and a further reduction in the number of men employed at tablet stations will be made as the system is extended. It has been decided to install this system of working between Christchurch and Greymouth in connection with the East and West Coast line, in view of the economy that will be effected and the fact that the system will enable the line to be worked at a maximum capacity with a minimum of cost.

LEVEL CROSSINGS.

The provision of automatic warning-bells at level crossings is being proceeded with as circumstances permit. Bells have been installed at thirteen additional crossings during the year, and "Wig-wag" automatic flag warning-signals at four crossings. The "Wig-wag" is the latest type of crossing signal experimented with, and has distinct advantages over a purely bell signal. During the course of the year many drivers of motor vehicles displayed a total disregard of warning-signals at railway-crossings, whether given by bells or crossing-keepers, and by driving on to crossings when trains were in close proximity thereto not only incurred grave risk to themselves, but endangered the safety of the train and the passengers therein. This recklessness on the part of drivers of road vehicles is not singular to New Zealand.

The experience in this country and elsewhere is that the advent of the motor vehicle has created dangers that were previously non-existent, and the great majority of accidents that occur at railway-crossings are due to the failure of the driver of the motor vehicle to exercise proper care when approaching crossings, and his disregard of the warning signals exhibited in the vicinity. During the year forty accidents have occurred at level crossings, principally with motor-driven vehicles; in two of these fatalities occurred. There have in addition been many instances of exceedingly narrow escapes through drivers rushing railway-crossings when fast trains were approaching, and getting clear by the narrowest margin. The law which provides that road-vehicles approaching a level crossing shall exercise care is generally disregarded, the drivers of road-vehicles acting as if they expected the trains to be pulled up while they get clear of the line.

In 1917, 1,083 occupants of automobiles were killed and 3,000 injured in accidents at grade crossings in America. In 1920, 1,273 occupants of automobiles were killed and 3,977 injured from the same cause. Of the 1,201 occupants of automobiles killed in accidents in which the car was struck by the train, 931 deaths happened at crossings protected by flagmen, 154 at crossings where audible signals were in service, 22 where tablet and visible signals were used, and 24 at crossings where visible signals only were employed.

In 1920 there were 404 accidents in which motor-cars were driven into the sides of the trains. Of the 71 persons killed in these accidents 2 were the result of driving through closed gates, 5 from not obeying flagmen; 9 were caused at crossings protected by audible signals.

In South Africa in 1921 there were 92 accidents on level crossings, 21 resulting from drivers of motor-cars and other vehicles running into crossing gates or booms while closed to road traffic—3 persons injured. In 40 cases drivers of vehicles deliberately tried to rush crossings while gates were being closed or endeavoured to cross in front of approaching trains—4 were killed, 19 injured. In 2 cases vehicles ran into trains on the crossings; 7 pedestrians were killed and 5 injured while walking or loitering on crossings. In 18 other cases accidents resulted from drivers losing control of motor-cars or animals or deliberately ignoring warnings of flagmen. The total fatalities were 11, and 30 were injured.

ACCOUNTING-MACHINES.

Powers accounting-machines have been installed in the office of the Chief Accountant, and the system of accounting has been reorganized. Much of the work formerly done at railway-stations is now performed in the Accountant's office by these machines, the use of which greatly facilitates the work of the Accounting Branch and enables the Department to obtain useful statistics the cost of producing which by manual labour would have been prohibitive.

The alteration in the method of dealing with station accounts made it possible to rearrange the staff, and in some cases to reduce the number of men at stations. The use of the machines is being widened almost daily to a good purpose, and the balancing-up of accounts has been greatly facilitated by their introduction. The economies that have resulted from the use of the machines will pay the cost incurred in their installation in three years, while at the same time the Department is getting a better service than it could have obtained by any other means.

It being essential to the success of the installation that the Department should have in its employ a member who could overhaul and effect repairs as required it was decided to send Mr. F. B. Freed, who served his apprenticeship as a mechanic in the New Zealand railway workshops, to America to familiarize himself with the manufacture and setting-up of the machines. Mr. Freed worked for several months in the American factory, where he was given every facility to acquire the necessary technical knowledge, and he returned to New Zealand fully equipped for undertaking the setting-up, supervision, and repair of the machines.