

1925.

## NEW ZEALAND.

## FIRE BRIGADES OF THE DOMINION

(REPORT ON THE) FOR THE YEAR ENDED 30TH JUNE, 1925, BY INSPECTOR OF  
FIRE BRIGADES.*Presented to both Houses of the General Assembly by Command of His Excellency.*

THE INSPECTOR OF FIRE BRIGADES TO THE HON. THE MINISTER OF INTERNAL AFFAIRS.

SIR,—

Office of the Inspector of Fire Brigades, Wellington, 3rd September, 1925.

Herewith I have the honour to lay before you my seventeenth annual report, for the year ended the 30th June, 1925, relative to the working of the Fire Brigades Act, and including matter in connection therewith.

During the year three new fire districts have been constituted—viz., Pahiatua, on the 8th June, 1925; Onehunga and Wairoa, on the 25th June, 1925. Following is a list of the forty-three fire districts now constituted :—

Auckland	Hamilton	Napier	Taumarunui
Balclutha	Hastings	New Plymouth	Tauranga
Christchurch	Hawera	Oamaru	Te Aroha
Dannevirke	Hokitika	Ohakune	Timaru
Dargaville	Invercargill	Onehunga	Waihi
Dunedin	Kaiapoi	Otaki	Wairoa
Eltham	Kaitangata	Pahiatua	Waitara
Feilding	Lawrence	Palmerston North	Wanganui
Foxton	Levin	Petone	Westport
Gisborne	Masterton	Port Chalmers	Whangarei.
Greymouth	Milton	Rotorua	

I have officially inspected the brigades, their stations and equipment, working under Fire Board control, as follows :—

Auckland—January 24 and 26, 1925.	Masterton—February 19, 1925.
Balclutha—February 10, 1925.	Milton—February 5, 1925.
Christchurch—March 3 and April 4, 1925.	Napier—January 14, 1925.
Dannevirke—June 1, 1925.	New Plymouth—September 23, 1924.
Dargaville—January 20, 1925.	Oamaru—March 11, 1925.
Dunedin—March 10, 1925.	Ohakune—May 5, 1925.
Eltham—September 25, 1924.	Otaki—June 16, 1925.
Feilding—October 15, 1924.	Palmerston North—June 2, 1925.
Foxton—March 24, 1925.	Petone—June 11, 1925.
Gisborne—January 16, 1925.	Port Chalmers—March 9th, 1925.
Greymouth—December 9, 1924.	Rotorua—November 21, 1924.
Hamilton—May 21, 1925.	Taumarunui—May 1, 1925.
Hastings—April 23, 1925.	Tauranga—November 20, 1924.
Hawera—September 22, 1924.	Te Aroha—November 25, 1924.
Hokitika—December 12, 1924.	Timaru—April 2, 1925.
Invercargill—February 9, 1925.	Waihi—November 19, 1924.
Kaiapoi—April 3, 1925.	Waitara—September 24, 1924.
Kaitangata—February 11, 1925.	Wanganui—October 13, 1924.
Lawrence—February 6, 1925.	Westport—December 10, 1924.
Levin—March 23, 1925.	Whangarei—January 22, 1925.

A number of special visits have been paid, of which the following are the principal :—

- Rotorua—November 24, 1924 : King George V Hospital, inspection and report.
- Burnham—December 15, 1924 : Inspection and report upon fire protection for the camp.
- Masterton—August 5, 1924 : Testing of motor pumping outfit for Masterton and Ohakune.
- Christchurch—September 4, 1924 : Testing of motor-pump on behalf of Kaiapoi Fire Board.
- Hamilton—November 26, 1924 : In the matter of additional land for extension of central station.
- Lecston—December 16, 1924 : Inspection and report upon the fire protection of the town.
- Trentham Camp—December 23, 1924 : Inspection and report.
- Masterton—March 17, 1925 : Trial of motor-pump.
- Dunedin—April 1, 1925 : Trial of motor-pump.
- Onehunga—May 20, 1925 : Inspection of borough.
- Otaki—May 29, 1925 : Meeting of Fire Board.
- Fort Dorset—June 22, 1925 : Inspection and report.

Following upon an invitation from the executive officers of the United Fire Brigades Association, I attended their annual conference and subsequent demonstration held in Christchurch in March last, and delivered an address to the conference delegates entitled "Fire-prevention and Relative Matters." At the request of the conference the address is to be printed and distributed to the brigades.

During the conference several interesting addresses were delivered, exhibits shown, and demonstrations given; also, there is a continuing improvement in the competition programmes, new events have been introduced and the older ones brought into greater conformity with more modern and practical ideas of fire-fighting. Altogether both conferences and demonstrations are each succeeding year becoming of greater educational value to the fire service generally.

Inspections have been made and reports prepared in respect to public buildings and institutions; also, as usual, advice has been given to local bodies and others in regard to fire-prevention, water-supply, &c., and specifications for the supply of plant and appliances have been drawn up.

During the year the Department has, on behalf of various Fire Boards and of the United Fire Brigades Association, imported and distributed, in accordance with the requisitions received, 11,500 ft. of fire-hose, and various other fire-brigade equipment that is not manufactured in the Dominion.

Following are the principal improvements and additions to equipment :—

- Auckland : Purchase of land adjoining headquarters station for extension of building; installation of two additional street fire-alarm circuits.
- Christchurch : New 85 ft. petrol-electric turntable fire-ladder; tenders called for erection of new district station at Sydenham.
- Dannevirke : Tender accepted for installation of street fire-alarm system.
- Dunedin : New 90 h.p. 1,000 g.p.m. pump, hose, ladder, and first-aid pump combination motor machine.
- Gisborne : Two trailer 200 g.p.m. motor-pump outfit; tender accepted for installation of street fire-alarm system.
- Greymouth : New engine-shed erected in Blaketown.
- Hawera : Tenders called for supply of 35 h.p. motor pumping combination machine, and for installation of street fire-alarm system.
- Invercargill : New 65 h.p. 700 g.p.m. pump motor combination machine.
- Kaiapoi : New 22 h.p. 150/200 g.p.m. pump, motor hose-and-ladder tender.
- Masterton : New 45 h.p. 300/350 g.p.m. pump motor combination machine.
- Milton : 20 h.p. motor hose-and-ladder tender.
- Ohakune : Trailer 250 g.p.m. motor-pump outfit.
- Palmerston North : A nine-call-point fire-alarm circuit installed.
- Wanganui : New 35 h.p. 255/300 g.p.m. pump, ladder, and first-aid pump combination motor machine.

A most regrettable incident of the year's working was the motor accident which occurred in Christchurch on the 15th June, resulting in the instant death of the officer in charge of the motor fire-engine, and more or less seriously injuring the other six firemen forming the motor squad.

The returns show a decrease in the number of calls, but a large increase in the number of actual fires. The number of calls received throughout the fire districts for 1924-25 totalled 1,628, as against 1,702 for 1923-24, a decrease of 74. The 1,628 calls are made up under the different headings as follows: Fires, 828 (741); increase, 87. Chimney fires, 238 (223); increase, 15. Bush and rubbish fires, 254 (358); decrease 104. False alarms, 257 (319); decrease, 62. Out-of-district fires, 51 (61); decrease, 10.

Of the 828 fires, 17 are reported as due to incendiarism, 14 as having occurred on unoccupied premises, and 224 as of unknown origin. The principal causes as shown by the returns are—sparks from copper-fires and fireplaces, 77; electricity, 69; lighted matches, 45; motors backfiring, &c., 42; smoking and cigarette-butts, 41.

The total fire loss throughout the fire districts for the twelve months ended 30th June, 1925, amounted to £306,614, as against £358,024 for the previous twelve months, this showing a decreased loss of £51,410 in face of an increase of 87 in the number of actual fires. The three heaviest district losses occurred in Auckland (£85,342), Christchurch (£78,331), and Invercargill (£19,783), a total of £183,456, and accounting for 60 per cent. of the total loss. As compared with the first six months of the Fire Board year (ended 31st December, 1924) the returns from the fire districts show a very large decrease—£99,070 as against £207,044—in the fire loss for the last six months (ended 30th June, 1925).

The insured fire loss throughout the Dominion for the twelve months ended 31st December, 1924, amounted to £1,073,337. The proportion of insured loss throughout the fire districts for the corresponding twelve months amounted to £406,337. The fire waste throughout the Dominion for the same period is estimated at £1,234,338, or 17s. 2d. *per capita* of the population as estimated to the 1st April, 1925.

The returns show that only nine new installations of automatic fire-alarms have been installed during the year. After all that has been preached and published throughout the Dominion in regard to the well-authenticated efficiency of certain sprinkler and automatic fire-alarm systems as safeguards against serious fire losses, it is surprising that more owners of properties such as the larger emporiums, factories, mills, &c., do not install one or other of the systems in their premises, and this is one illustration of the general apathy displayed towards the huge fire waste obtaining in New Zealand. When giving evidence before the Royal Commission on Fire-prevention, sitting in London, published in 1923, the manager of the Associated Fire Alarms Company submitted the following records: The value of property protected by the company's alarms rose steadily in ten years from twenty-nine millions in 1911 to forty-eight millions in 1920; total premiums received for the ten years, £1,615,914; total fire damage for the ten years, £42,272; percentage of fire damage to premiums, 2.6 per cent.—this as against a fire damage of 51 per cent. of the premiums received on property not protected by automatic alarms, a result shown by the records of twelve of the leading British insurance companies for the last ten years.

It is a close-up certainty that had the building in which the fire broke out in Auckland in November last been fitted with automatic alarms the loss, instead of running into over £50,000, would not have exceeded £400 or £500 at the outside. In addition to the visible loss when large fires occur, the ensuing dislocation of business also proves a serious consideration in very many cases.

As pointed out in previous reports, in addition to an almost complete immunity from serious loss provided by installations of automatic sprinklers and alarms when properly maintained, the insurance companies allow a large rebate of premium where property is so protected. In face of published results the rebate might well be larger, but, even so, it is sufficient in cases to cover, or nearly cover, the interest on the capital cost of installation. Any way, the installation of automatic sprinklers or alarms is a good, sound business proposition, and it is quite time that owners of large properties should realize that fact and act accordingly. In this last connection I would point out there is more than one system of fire-alarm invented and in great part manufactured in New Zealand, that, in my judgment at least, is quite equal in efficiency to anything on the market.

Appended are the following tables:—

- (1.) Summary of calls attended by each brigade;
- (2.) Fire loss in each district;
- (3.) Annual cost of each brigade;
- (4.) Summary of the causes of fires in each district;
- (5.) Personnel and equipment of each brigade;

also short detailed reports dealing with each fire district.

I have, &c.,

THOS. T. HUGO,

Inspector of Fire Brigades.

The Hon. the Minister of Internal Affairs, Wellington.

## DETAILED REPORTS.

### AUCKLAND.

Inspection, 26th January, 1925. The turnouts at the various stations were performed smartly, and the equipment was found in good order. The smart, athletic appearance of the brigade personnel is worthy of comment.

A strip of land adjoining the headquarters station has been purchased for the purpose of partial reconstruction and extension of the workshops section of the building; also, two circuits having nine call-points thereon have been added to the street fire-alarm system of the city.

The more urgent matters now calling for the attention of the Board are (1) increase of the permanent staff, (2) erection of married quarters at the Remuera Station.

At the instigation of their Superintendent the Auckland Fire Board has introduced an innovation in the fire service of New Zealand in the appointment of a special officer whose duty it is to visit all business and other premises for the purpose of supervising private installation of fire-appliances and of advising property-owners in matters of fire-prevention generally. This is a step in the right direction, and should be productive of tangible results.

### BALCLUTHA.

Inspection, 10th February, 1925. One officer and nine firemen were in attendance at the inspection muster. The inspection drills were carried out energetically, but more instruction and drill is necessary. The station and equipment were in good order. The attendance at the four fire calls averaged 52.14 per cent. of the membership—a poor attendance.

A supply of new hose is required, also a new stand-pipe: further, the Board should provide a motor machine for the transport of men and equipment.

## CHRISTCHURCH.

Inspections, 3rd March and 4th April, 1925. The several stations and their equipment were in good order, and the various turnouts were performed in a smart and efficient manner. A demonstration of the newly acquired 85 ft. petrol-electric turntable fire-ladder showed it to be a very fine and efficient piece of equipment, and it should prove a valuable addition to the plant of the brigade.

Conditions as to accommodation generally at the Sydenham district fire-station is most unsatisfactory; in particular the men's living-quarters are cramped and unhealthy, this although the necessity for the erection of a new district station was recognized and a new site purchased as far back as February, 1920. However, I believe the Board have now called tenders for the building of the new station, and the work should be commenced at the earliest possible date. Another matter to be borne in mind is the necessity for a station for protection of the Avonside - St. Martin district.

## DANNEVIRKE.

Inspection, 1st June, 1925. At the inspection muster two officers and fourteen firemen were in attendance. The inspection drills were carried out in a very satisfactory manner, showing great improvement since my last inspection. At conclusion of the drill certain instruction was given, and the station and equipment were found in good order and condition.

There was an average attendance of 87.1 per cent. of the membership at the eleven fire calls—a good average.

A tender for the installation of a sixteen-call-point street fire-alarm system has been accepted.

## DARGAVILLE.

Inspection, 20th January, 1925. One officer and nine firemen were in attendance at the inspection muster. The inspection drills were carried out in a satisfactory manner, and the station and equipment were in good order and condition. The attendance at six fire calls averaged 61.8 per cent. of the membership—not a good record.

The brigade should be provided with a 35 ft. extension fire-ladder.

## DUNEDIN.

Inspection, 10th March, 1925. The several stations and their equipment were found in very good order, and the various turnouts and subsequent getting to work was performed smartly and in an efficient manner.

The newly acquired motor combination, a six-cylinder 90 h.p. machine fitted with a 1,000 g.p.m. turbine pump, was taken to the wharf for trial run of the pumping unit. The vacuum-pump was not in effective working-order, but in all other respects the machine proved satisfactory. At a second trial run on the 1st April with all in order very satisfactory results were obtained, and even better results may be anticipated when the engine has had more work. I consider the machine is a very valuable addition to the brigade equipment, and particularly for work along the waterfront.

The more urgent work now requiring the Board's attention is in regard to the provision of better protection from fire in the Mornington, North-east Valley, and Anderson's Bay districts, and also erection of the proposed new headquarters fire-station.

## ELTHAM.

First inspection of the Eltham Fire District made 25th September, 1925. Estimated population of borough, 2,100, with an area of 1,590 acres of an undulating character. Owing to the moderate height and comparatively small cubical capacity of the buildings generally, together with numerous fire-breaks in the way of brick buildings and dividing-walls, there are no very serious block risks.

Brigade: The strength of the brigade is sixteen all told. The members are apparently an active, willing body of men, and drilled to some degree of efficiency.

Station: The fire-station is well situated in regard to the town risks, and, subject to recommendations set out below, suited to requirements.

Equipment: The principal equipment consists of a 22 h.p. motor hose-and-ladder tender, and two hand-drawn hose-reels, all with the usual outfit.

Recommendations: The water-supply is the most serious and urgent matter. The static head, 220 ft. at the Borough Chambers, is adequate to local conditions, but the volume over a great part of the town, owing to the small diameter of a large proportion of the mains (and which is accentuated by corrosion and the number of dead ends), is quite insufficient for fire-extinction purposes, and the situation calls for the provision of a motor pumping-outfit; it must be understood, however, this would be only a partial remedy pending improvement of the gravitation reticulation. Extra rooms and conveniences for the proper accommodation of the caretaker are necessary, and the lighting of the engine-shed inside and out requires attention; also, the brigade should be provided with certain smaller equipment; but this and other minor matters are fully dealt with in my report to the Board.

## FIELDING.

Inspection, 15th October, 1924. Two officers, fourteen firemen, and two messengers were in attendance at the inspection muster. The inspection drill showed considerable improvement in the handling of the brigade and in the work of the men themselves. The attendance at six general alarms averaged 70.2 per cent. of the membership—a fair average.

Several minor recommendations were made, which have since been given effect to; but should there be no prospect of any immediate extensive improvement in the water-supply, provision of a pumping outfit is necessary.

## FOXTON.

Inspection, 24th March, 1925, when, at the inspection muster, there were present the Superintendent and nine firemen. In view of there being only 600 ft. of serviceable hose available, I deemed it inadvisable to require any wet drill, but instruction in various phases of squad dry drill was given. The motor was in good order, but the station premises were not in the cleanly and orderly condition usual in fire-brigade stations. There was an average attendance of 78.9 per cent. of the membership at the ten fire calls—a fair average.

There were several matters requiring prompt attention—viz., purchase of ferules to enable the 500 ft. of new hose to be put in commission; new hose required for the chemical extinguisher. A number of the street fire-hydrants are not in effective order. The stock of fire-hose is not sufficient: an order should be placed for another 500 ft.

## GISBORNE.

Inspection, 16th January, 1925. At the inspection muster there were present two officers, eighteen firemen, and three cadets. The inspection drills were carried out in an efficient manner, and the station and equipment were in good order. The attendance at the twenty-four fire calls averaged 89.3 per cent. of the membership—a very good average.

At a meeting of the Board the same evening I pointed out that fire-prevention conditions in Gisborne were not satisfactory, and that of recent years very little had been done to improve matters in that direction. I stated that the more urgent requirements were—purchase of motor pumping plant, installation of street fire-alarms, and provision of a 50 ft. fire-ladder and a jumping-sheet. Since then an order has been placed for the supply of two trailer motor-pumps, and a tender has been accepted for the installation of a street fire-alarm system.

## GREYMOUTH.

Inspection, 9th December, 1924. Two officers and sixteen firemen were present at the inspection muster. The inspection drills were carried out in the usual satisfactory manner, and the station and equipment were in good order and condition. At the nineteen fire calls 90.2 per cent. of the membership attended—a very good average.

A number of new buildings have been erected along and in the vicinity of Marsden, and in view of the poor water-supply for fire-extinction purposes in that neighbourhood a new 6 in. main should be laid there.

A new fire-engine shed and meeting-room for the brigade has been erected to serve the Blaketown section of the district.

## HAMILTON.

Inspection, 21st May, 1925. The full strength of the brigade was in attendance at the inspection muster, and the inspection drills were carried out in a very efficient manner. The station and equipment were found in thorough good order and condition. There was an attendance of 80.9 per cent. of the membership at each of the thirty-nine general alarms—a good average.

In view of the rapid growth of the town, both as to building and extension of area, I have again pointed out to the Board the necessity for purchasing additional land adjoining the central fire-station, and also the necessity of establishing a substation to protect the Frankton section of the district.

## HASTINGS.

Inspection, 23rd April, 1925. Two officers, seventeen firemen, and two messengers were in attendance at this inspection muster. The various inspection drills were carried out in an energetic and efficient manner, and the station and equipment was in first-class order. There was an attendance at thirteen general alarms of 70.2 per cent. of the membership—a fair average.

A large number of new buildings have been erected in Hastings during the last two or three years, some, in the business section of the town, of fairly large cubical capacity; and, in view of disastrous possibilities due to the absence of efficient means of promptly summoning the brigade, it is quite time the Board installed a system of street fire-alarms.

## HAWERA.

Inspection, 22nd September, 1924. Two officers and fifteen men were in attendance at the inspection muster. The various inspection drills were carried out in a fairly satisfactory manner, and the station and equipment were in good order. There has been an average attendance of 80.1 per cent. of the membership at the fifteen general alarms—a good average.

The Board has decided to call tenders for the supply of a motor pumping unit, and also for the installation of a street fire-alarm system.

## HOKITIKA.

Inspection, 10th December, 1924. Two officers and eighteen firemen were in attendance at the inspection muster, and the inspection drills were carried out in a very satisfactory manner. The steam fire-engine was taken to the wharf, and proved to be in good working-order; also, the stations and equipment were found in their usual good order and condition. There was an attendance of 80 per cent. of the membership at the six fire calls—a good average.

## INVERCARGILL.

Inspection, 9th February, 1925. Two officers and twelve firemen were in attendance at the inspection muster; of the remaining strength, four were on picture-theatre duty and two were on leave. The personnel appear to be an active body of men of good physique, and the inspection drills were carried out in a smart and efficient manner. The authorized strength of the brigade—twenty all told—is dangerously low, and should be increased to twenty-five.

The street hydrant-indicators were in very bad condition—altogether missing in some cases. This is a matter considerably affecting the efficient working of the brigade, and should be remedied at once. The present street fire-alarm system is old and has become quite unreliable, and a more up-to-date and reliable system should be installed.

The position in regard to the supply of water for fire-extinction purposes is very serious, and calls for prompt action. In this latter connection, since making my inspection, a new 65 h.p. 700 g.p.m. motor-pump has been purchased, and is now in commission: this should improve matters to some small extent.

## KAIAPOI.

Inspection, 3rd April, 1925. At the inspection muster there were present two officers and nine firemen. The attendance at the five fire calls averaged 70·1 per cent. of the membership, just reaching a fair average.

The Board had recently purchased a 22 h.p. commercial chassis, built a suitable body thereon, and fitted a small 150/200 g.p.m. turbine pump on the front of the motor. The machine was taken to the river-wharf for testing purposes, with satisfactory results. It was then taken to the public baths for further testing, but almost immediately after getting to work the engine broke down. Subsequent examination showed that the key on pump end of crank had sheared; also, the cam-shaft had shifted. The damaged parts were repaired, and since then up to the present the machine has done good work. At any time the motor is out of commission the water in the steam fire-engine should be heated and maintained at a temperature of about 200° F. until the motor is again in order.

## KAITANGATA.

Inspection, 11th February, 1925. Seven officers and men were in attendance at the inspection muster. The required inspection drills were carried out in an energetic and willing manner, but more instruction and drill are necessary. The attendance at the four fire calls averaged 87·5 per cent. of the membership—a good record.

The recently purchased site for the purpose of erecting a station thereon is not, in my opinion, a suitable one, and the Board should procure another site more centrally situated.

## LAWRENCE.

A visit was paid to Lawrence on the 6th February, 1925, but at the inspection muster only the Deputy Superintendent and three firemen were in attendance; of the remainder, three were at work and two on "picture" duty, consequently no inspection drills were performed, but certain instruction was given. The station and equipment were in good order. The present strength of the brigade, nine all told, with the probability of not more than seven being available for calls, is quite too low, and the membership should be increased forthwith.

No fire occurred in the Lawrence fire district throughout the year.

## LEVIN.

Inspection, 23rd March, 1925. Two officers and seven firemen were in attendance at the inspection muster. The inspection drills were carried out smartly, and there is a steady improvement in that respect. The station and equipment were in first-class order and condition. At the six general calls there was 70·1 per cent. of the membership in attendance—a fair average.

As at the time of my previous inspection, the brigade is numerically weak, and every effort should be made to raise the membership to the authorized strength.

## MASTERTON.

Inspection, 19th February, 1925. Two officers and nineteen firemen were in attendance at the inspection muster. The inspection drills were carried out in a satisfactory manner, and the station and equipment were in good order. There was an attendance of 80·1 per cent. of the membership at the twelve general fire calls—a good average.

A second visit was paid to Masterton on the 17th March for the purpose of a final test of the newly acquired 40/45 h.p. 300/350 g.p.m. motor pumping engine. The test proved the efficiency of the pumping unit, and in all other respects the machine was in good and proper working-order.

Certain of the street hydrants require replacing by others of standard pattern.

## MILTON.

Inspection, 6th February, 1925. Two officers and nine firemen were in attendance at the inspection muster. There was a decided improvement in the carrying-out of the inspection drills, and the station and equipment were in good order and condition.

A 20 h.p.-motor hose-and-ladder tender has been purchased and is in commission. The suggestion that the manual fire-pump and the chemical fire-engine should now be sold is ill-advised. One or the other should be retained as a stand-by, and maintained in good working-order.

## NAPIER.

Inspection, 14th January, 1925. At the inspection musters at the central and Port stations a total of three officers and thirty firemen were present—a very satisfactory parade. There was a decided improvement in the carrying-out of the inspection drills and in the bearing of the brigadesmen in general, but more instruction and drill are necessary in certain directions.

The street fire hydrant-indicators were in an unsatisfactory condition in certain localities. A contract has been let for installation of a street fire-alarm system.

## NEW PLYMOUTH.

Inspection, 23rd September, 1924. At the inspection muster two officers and twenty-one firemen were in attendance. The station and equipment were in good order. The attendance at the twenty-three fire calls averaged 75 per cent. of the membership—a fair average, and proving that the recently adopted system of calling the firemen by means of a bell circuit is working in a satisfactory manner.

The motor-pump was got to work, and it is satisfactory to note that overheating of the exhaust-pipe, as also the slow starting of the engine, have been remedied. Instruction was given in the recently standardized squad drill, and practice therein carried out.

A new 35 ft. trussed extension fire-ladder has been acquired, and it has been decided to adopt the Morris instantaneous couplings in place of the present V-pattern coupling.

## OAMARU.

Inspection, 11th March, 1925. There was an attendance of one officer and ten firemen at the inspection muster. There was a decided improvement in the carrying-out of the inspection drills, and the station and equipment in general were in good order. Attendance at the thirteen fire calls averaged 60.2 per cent. of the membership—only three-fifths of the total strength, a poor attendance.

The street hydrants had not been fixed on the North Road main, nor had any improvement been made in regard to the hydrant-indicators, and neglect in these matters seriously affects the protection from fire of the adjacent buildings.

The present fire-motor has always been more or less unsatisfactory, and is becoming more so. The large number of new buildings now in course of erection, and the increasing fire risks in the town, call for more adequate protection than there is at present, and in that view I again recommend provision of a new fire-motor and installation of a street fire-alarm system.

## OHAKUNE.

Inspection, 5th May, 1925. Two officers and ten firemen were in attendance at the inspection muster. There was a great improvement in regard to fire-prevention matters since my previous inspection, and the present members, both officers and men, are showing an active interest in the work.

The recently acquired motor trailer-pump was got to work with satisfactory results, but the suction-hose requires covering with a canvas jacket to prevent chafing, and a further 500 ft. of new hose is required.

It was intended to sell the motor steam fire-engine. To do so would, for various reasons, be a great mistake. It is well and suitably housed at the Junction, costs practically nothing for maintenance, and its sale would not realize any large sum.

## OTAKI.

Otaki was constituted a fire district on the 2nd February, 1925; the first meeting of the Board was held on the 18th May, and the first inspection made on the 16th June, 1925.

The large area of the borough, with its comparatively small population; the business section situated practically in the centre, with smaller settlements at each of the four cardinal points, and having long stretches of unbuilt-upon land intervening, make it a difficult problem to formulate, at a reasonable cost in the first instance, any comprehensively efficient scheme for the whole of the borough, and the Board should commence by covering the business section, and in such a way that will provide some degree of protection to the other portions of the borough.

Water-supply: Subject to the foregoing remarks, I consider the water-supply has been well planned and carried out, and the proposed extensions will add considerably to the efficiency of the system, but street-hydrants should be interspaced between those already in place in the business portion of Mill Road.

Brigade: Two officers and eleven firemen were in attendance at the inspection muster. They appear to be an active, willing body of men, of good physique; and if the various drills, as explained and illustrated at the time of my visit, are regularly and consistently carried out they should soon attain a reasonable degree of efficiency.

Fire-station: A building of much larger dimensions than the present hose-reel shed is required. The pencil sketch of a proposed new station is well and economically designed, and quite equal to requirements for some years to come.

New station-site: The proposed new site in Mill Road is very centrally situated, and suitable for all time, and the price is most reasonable.

Fire-alarm: The efficiency of the present hand-operated fire-alarm siren is considerably nullified by the enclosing louvres and wire netting, and which should be removed; later some mechanical means, either water-power or electricity, should be installed to operate the siren.

Equipment generally: A better means of transporting men and appliances is absolutely necessary, and I recommend purchase of a motor-chassis, and a suitable body built thereon. The provision of other equipment, such as hose, nozzles, hand-pumps, &c., as set out in detail in my report to the Board, is necessary.

## PALMERSTON NORTH.

Inspection, 5th June, 1925. There were present at the inspection muster two officers and nineteen firemen. The inspection drills were carried out in the usual efficient manner, and the station and equipment were in good order. There was an average attendance of 77·3 per cent. of the membership at the thirty-four general fire calls—a fair average.

Fire-prevention conditions in Palmerston North are not satisfactory. As far back as 1911 I called attention to the necessity of installing a street fire-alarm system, and, although the work has been commenced, up to the present (30th June) only one circuit with nine call-points has been installed.

In 1919 attention was called to the inadequacy of the present station for its purpose, and also to the fact that the site itself was altogether too cramped to be of any further use for headquarters fire-station. Ultimately, after some five years' negotiations, a site was purchased in 1923, but so far no building contract has been let. Further, the water-pressure record shows that at times the pressure falls as low as 30 lb., and frequently only some 40 lb. to 50 lb. is registered—a dangerous condition of things; and, as the water loan has been rejected, the position calls for the provision of a second pumping unit.

## PETONE.

Inspection, 11th June, 1925. Two officers and fourteen firemen were in attendance at the inspection muster. The inspection drills were carried out in the usual efficient manner, and the station, motors, and other equipment were in good order and condition. The returns show the attendance at the twenty-two fire calls averaged 50·2 per cent. of the membership—not a good attendance.

## PORT CHALMERS.

Following is a copy of my report to the Port Chalmers Fire Board, covering my inspection made in March last:—

“An inspection of the Port Chalmers Brigade and its equipment was made on the 9th instant, when at the inspection muster there were present the Superintendent and five firemen; and in this connection I would point out that I have not had a proper opportunity of judging, so far as can be decided by my inspections, of the efficiency of the personnel of the brigade, in that at my inspections during the last six years there has never been a satisfactory attendance, and in other ways there appears to be a want of interest in fire-brigade matters, with little or no knowledge of the improvements in drill and in other matters that have been and are being introduced throughout the fire service in New Zealand.”

In regard to non-attendance at the inspections, it is right I should mention that upon three occasions absence was due to a number of the men having to return to work on the respective nights.

Three hundred feet of new hose and nine pairs or new couplings are required.

## ROTORUA.

Inspection, 21st November, 1924. At the inspection muster two officers and thirteen firemen were in attendance. The inspection drills were carried out in an efficient manner, and the station and equipment were in good order and condition. There was an average attendance of 70·6 per cent. of the membership at the sixteen general fire calls—a fair average.

The street fire-alarm boxes have been fitted with telephones, and the Board has decided to purchase a motor pumping unit.

## TAUMARUNUI.

Inspection, 6th May, 1925. At the inspection muster there were present two officers and thirteen firemen. The inspection drills were carried out in a satisfactory manner, and the station and equipment were in good order. At the twelve fire calls there was an average attendance of 70·84 per cent. of the membership—a fair average.

The present firebell is too small; it should be replaced by a larger bell or a siren, and the small bell re-erected at Matapuna. Several minor matters require attention, as pointed out during my visit.

## TAURANGA.

Inspection, 20th November, 1925. Two officers and eleven firemen were in attendance at the inspection muster. Instruction was given in the recently standardized squad drill. The inspection drills were carried out in a satisfactory manner, and the station and equipment were in good order.

Since establishment of Fire Board control, with the exception of purchase of motor fire-engine and some attention to minor details, nothing has been done to improve fire-prevention matters in Tauranga, and present conditions in that respect are unsatisfactory. Following are some of the more particular matters requiring attention, and that have regularly for years past been brought under the notice of the Board: The provision of some system of street fire-alarms (as there is no police patrol, and the civilian night watch has been discontinued, this has become an even more urgent matter); purchase of additional land for extension of the present fire-station; provision of mechanical means of ringing the firebell; also, I noticed the roadway, corner of Durham and Wharf Streets, adjacent to the fire-station, was still in the dangerous condition as at the time of my previous visits.

## TE AROHA.

Inspection, 25th November, 1924. Two officers and eleven firemen were in attendance at the inspection muster. Instruction was given in the recently standardized drill, and practice therein, as a first attempt, was carried out in a satisfactory manner. At the seven fire calls there was an average attendance of 83·1 per cent. of the membership of the brigade—a good average.



Some of the street hydrants are spaced farther apart than is specified in the Municipal Corporations Act, and quite a number of hydrant-indicators are missing. A new battery is required for the motor fire-engine.

#### TIMARU.

Inspection, 2nd April, 1925. At the inspection muster there were present two officers and eighteen firemen. The inspection drills were carried out in a thoroughly efficient manner, and the station and equipment were in good order. There was an average attendance at the forty-four general fire calls of 80·6 per cent. of the membership—a good average.

I again, for reasons fully set out in previous reports, impressed upon the Board the expediency of purchasing one or other of the sections of land adjoining the central fire-station; also, I pointed out to the Board that the time had arrived for the appointment of a permanent Superintendent of the Timaru Brigade, in view of the steady growth of the town during recent years, involving more time and closer attention to the brigade work than a partially paid officer can be expected to give.

#### WAIHI.

Inspection, 19th November, 1924. Two officers and ten firemen were in attendance at the inspection muster. During the course of the inspection drills a good attempt was made in the carrying-out of the recently standardized squad drill, and with a little persevering practice the brigade should soon become efficient in the system.

The serviceable stock of hose was dangerously low—an order was at once placed for a further supply; also, a hose-repairing outfit was required.

With a strength of fifteen all told, the attendance at the forty-two fire calls averaged 60·5 per cent. of the membership—a low average, possibly due, in some measure at least, to the large number of false alarms. A constant repetition of false alarms, particularly when nearly entirely preventable, as in this case, tends to discourage the most willing of brigades. Out of the forty-two fire calls twenty-one proved to be false alarms. Out of that number five are set down as malicious, and the remaining sixteen as due to line faults, and so preventable. The present installation of alarms has been very unsatisfactory for some years past. Recommendations have been made in that connection, and the Board would be well advised to replace the defective installation by a more up-to-date and reliable system.

#### WAITARA.

Inspection, 24th October, 1924. At the inspection muster there were present two officers and ten firemen—a satisfactory attendance. Instruction was given in the recently standardized drills, and upon the occasion of my next inspection I expect to see the brigade has reached a reasonable degree of efficiency therein.

It is necessary the Board should make stringent conditions in regard to the taking of the motor hose-tender anywhere outside the borough boundaries, and also that proper precautions are taken when the motor is so absent.

#### WANGANUI.

Inspection, 13th and 14th October, 1924. At the inspection musters there were present—at the central station, two officers and twenty firemen; at Castlecliff station, one officer and eleven firemen. The various inspection drills were carried out in a satisfactory manner, and the stations with their equipment were in good order.

A new 35 h.p. 300 g.p.m. motor pumping-machine has been acquired, and housed at Castlecliff, where a site has been purchased, and a new district fire-station is now in course of erection; also, three new street fire-alarm circuits, having twenty-three call-boxes fixed thereon, have been installed.

#### WESTPORT.

The first inspection of this brigade was made on the 10th December, 1924, when at the inspection muster there were present two officers and thirteen firemen. During the carrying-out of the inspection drills the necessity of more drill and instruction was apparent.

Brigade personnel consists of nineteen members all told, the majority unusually youthful, but apparently active, willing, and of good physique.

Fire-station: In view of the limited area of the present site, the condition and other circumstances of the present building, as also of the growth and future trend of the town, the Board would be well advised to consider the purchase of another site and erection of a new station thereon.

Water-supply: The station pressure is adequate, but the reticulation requires attention. In places, including the main streets, some of the street fire-hydrants are spaced over 500 ft. apart—200 ft. more than is required by the Municipal Corporations Act; also, the hydrant-indicators require attention.

Street fire-alarms: Seven out of the eight box instruments are unsuitable, unreliable, and in a very dirty and neglected condition. They should be replaced with more efficient movements; also, a readjustment of their positions and an extra box is required.

Minor equipment: The men's uniforms—such as there are—are in a more or less dilapidated condition, and require prompt attention; also, the brigade should be provided with a hand-pump, another hand chemical extinguisher, and a hose-repairing outfit.

There was an average attendance at the eight fire calls of 74 per cent. of the membership—a fair average.

## WHANGAREI.

Inspection, 22nd January, 1925. Two officers and eleven firemen were in attendance at the inspection muster. The inspection drills were carried out in a satisfactory manner, showing quite an improvement. The station and equipment, with the exception of some minor faults in the escape-ladder hoisting-gear, were in good order.

The street at the corner of Norfolk and along Dent Street is in bad condition, and a cause of delay in the getting-away of the fire-motor.

I had to again recommend an extension of the remote-switch system of street alarms along Kamo and Mauna Roads respectively.

## TABLES.

## I. SUMMARY OF FIRE CALLS, 1924-25.

District.	Fires.	Chimney Fires.	Bush, Grass, and Rubbish Fires.	False Alarms.	Out of District.	Totals.
Auckland .. .. .	192	22	30	49	12	305
Balclutha .. .. .	3	1	..	..	..	4
Christchurch .. .. .	117	33	28	74	16	268
Dannevirke .. .. .	6	1	3	1	..	11
Dargaville .. .. .	6	..	2	1	..	9
Dunedin .. .. .	106	66	26	37	..	235
Eltham .. .. .	3	1	..	..	..	4
Feilding .. .. .	3	1	1	1	..	6
Foxton .. .. .	7	..	..	1	2	10
Gisborne .. .. .	16	2	5	..	1	24
Greymouth .. .. .	12	3	4	..	..	19
Hamilton .. .. .	22	7	9	6	4	48
Hastings .. .. .	17	3	1	..	..	21
Hawera .. .. .	17	3	4	..	3	27
Hokitika .. .. .	6	..	..	..	..	6
Invercargill .. .. .	43	20	35	19	2	119
Kaipoi .. .. .	4	..	1	..	..	5
Kaitangata .. .. .	4	..	..	..	..	4
Lawrence .. .. .	..	..	..	..	..	..
Levin .. .. .	6	1	..	..	..	7
Masterton .. .. .	12	7	3	3	..	25
Milton .. .. .	1	5	2	2	..	10
Napier .. .. .	20	9	3	..	4	36
New Plymouth .. .. .	12	3	6	2	..	23
Oamaru .. .. .	8	2	2	..	1	13
Ohakune .. .. .	1	..	3	..	..	4
Onehunga .. .. .	..	..	..	..	..	..
Otaki .. .. .	..	..	..	..	..	..
Pahiatua .. .. .	..	..	..	..	..	..
Palmerston North .. .. .	45	17	10	14	2	88
Petone .. .. .	12	1	3	6	..	22
Port Chalmers .. .. .	3	2	8	..	2	15
Rotorua .. .. .	6	6	4	2	..	18
Taumarunui .. .. .	10	..	..	2	..	12
Tauranga .. .. .	2	..	..	..	..	2
Te Aroha .. .. .	6	1	..	..	..	7
Timaru .. .. .	22	9	10	5	..	46
Waihi .. .. .	14	2	4	21	1	42
Wairoa .. .. .	..	..	..	..	..	..
Waitara .. .. .	1	..	..	..	..	1
Wanganui .. .. .	52	10	44	11	1	118
Westport .. .. .	7	..	1	..	..	8
Whangarei .. .. .	4	..	2	..	..	6
Totals .. .. .	828	238	254	257	51	1,628

## 2. SUMMARY OF FIRE LOSSES.

District.	Insured.	Uninsured.	Totals.	District.	Insured.	Uninsured.	Totals.
	£	£	£		£	£	£
Auckland ..	84,496	846	85,342	New Plymouth ..	3,086	150	3,236
Balclutha ..	5,675	1,415	7,090	Oamaru ..	3,670	1,070	4,740
Christchurch ..	75,470	2,861	78,331	Ohakune ..	100	400	500
Dannevirke ..	2,270	400	2,670	Onehunga ..	..	..	..
Dargaville ..	1,413	310	1,723	Otaki ..	..	..	..
Dunedin ..	7,537	457	7,994	Pahiatua ..	..	..	..
Eltham ..	2	2	4	Palmerston North ..	6,130	5	6,135
Feilding ..	2,816	1,090	3,906	Petone ..	410	223	633
Foxton ..	4,142	42	4,184	Port Chalmers ..	104	33	137
Gisborne ..	2,216	1,090	3,306	Rotorua ..	317	133	450
Greymouth ..	580	1,115	1,695	Taumarunui ..	3,161	515	3,676
Hamilton ..	6,597	475	7,072	Tauranga ..	1,250	150	1,400
Hastings ..	535	564	1,099	Te Aroha ..	4,305	8	4,313
Hawera ..	5,943	2,306	8,249	Timaru ..	3,071	167	3,238
Hokitika ..	1,565	790	2,355	Waihi ..	3,277	1,355	4,632
Invercargill ..	18,063	1,720	19,783	Wairoa ..	..	..	..
Kaipoi ..	1,950	1,305	3,255	Waitara ..	1,107	400	1,507
Kaitangata ..	..	32	32	Wanganui ..	12,651	1,280	13,931
Lawrence ..	..	..	..	Westport ..	7,975	4,014	11,989
Levin ..	413	224	637	Whangarei ..	750	350	1,100
Masterton ..	513	285	798				
Milton ..	290	..	290	Totals ..	276,523	29,591	306,114
Napier ..	2,673	2,009	4,682				

## 3. COST OF FIRE BRIGADES (CAPITAL EXPENDITURE INCLUDED).

As taken from the Estimates for the respective Years.

District.	Year ending 30th June, 1920.	Year ending 30th June, 1921.	Year ending 30th June, 1922.	Year ending 30th June, 1923.	Year ending 30th June, 1924.	Year ending 30th June, 1925.	Year ending 30th June, 1926.
	£	£	£	£	£	£	£
Auckland ..	12,305	17,000	18,375	16,325	16,700	18,400	20,000
Balclutha ..	260	140	350	400	400	500	500
Christchurch ..	8,550	9,650	14,113	12,100	12,100	13,000	13,000
Dannevirke ..	586	617	672	585	739	620	614
Dargaville ..	416	523	675	504	816	600	675
Dunedin ..	9,500	11,500	13,500	13,500	13,500	13,500	15,500
Eltham ..	..	..	..	..	..	750	600
Feilding ..	464	568	594	648	623	554	639
Foxton ..	..	..	..	250	397	626	594
Gisborne ..	1,069	1,586	1,517	1,734	2,188	2,200	2,462
Greymouth ..	920	943	890	887	948	949	1,005
Hamilton ..	1,300	1,449	1,900	2,350	2,650	2,800	2,930
Hastings ..	1,038	1,024	978	837	1,012	1,206	1,120
Hawera ..	732	764	751	837	713	1,241	1,302
Hokitika ..	425	550	425	570	570	480	550
Invercargill ..	..	..	..	..	10,300	3,200	4,300
Kaipoi ..	..	..	..	..	947	1,279	663
Kaitangata ..	..	..	260	192	175	290	230
Lawrence ..	60	80	80	80	90	100	90
Levin ..	611	660	1,086	921	799	803	586
Masterton ..	1,501	1,536	2,029	1,880	1,946	1,649	1,790
Milton ..	85	232	250	167	240	340	200
Napier ..	..	..	2,190	1,671	2,886	3,522	3,852
New Plymouth ..	1,302	1,500	2,435	2,183	1,965	1,953	2,076
Oamaru ..	550	800	800	750	800	950	1,050
Ohakune ..	481	468	462	435	348	420	537
Otaki ..	..	..	..	..	..	..	325
Palmerston North ..	1,530	2,055	2,417	2,100	2,143	2,224	4,502
Petone ..	838	893	1,030	1,306	1,450	1,394	1,484
Port Chalmers ..	350	400	400	325	310	269	252
Rotorua ..	1,490	875	1,424	1,340	1,328	1,356	958
Taumarunui ..	..	510	600	640	650	445	530
Tauranga ..	455	414	547	541	499	559	509
Te Aroha ..	..	500	731	683	573	621	778
Timaru ..	1,930	1,750	2,400	1,750	1,850	2,250	2,050
Waihi ..	1,160	930	990	710	822	651	837
Waitara ..	201	143	209	200	120	220	234
Wanganui ..	5,141	4,505	5,255	4,800	4,450	7,050	7,400
Westport ..	..	..	..	..	..	550	630
Whangarei ..	340	576	680	550	1,000	1,016	1,018
Totals ..	56,642	66,433	82,484	74,754	89,052	90,541	98,372

4. SUMMARY OF CAUSES.

Summary of Causes.	Auckland	Balclutha	Christchurch	Dannevirke	Dargaville	Dunedin	Ehlanui	Felling	Foxton	Gisborne	Greymouth	Hamilton	Hastings	Hawera	Hokitika	Invercargill	Kaitiaki	Lawrence	Levin	Masterton	Milton	Napier	New Plymouth	Oamaru	Ohakune	Okaki	Palmerston North	Petone	Port Chalmers	Rotorua	Taumarunui	Tauranga	Te Aroha	Timaru	Waihi	Waikanae	Wanganui	Westport	Whangarei	Totals			
Ashes, live ..	5	..	2	..	..	2	..	..	1	1	..	..	2	1	..	7	1	..	..	..	..	3	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32	
Benzine—proximity to lights ..	7	..	..	..	..	5	..	..	..	1	..	1	..	2	..	3	..	..	..	1	..	2	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
Candles—drapery, &c., in contact ..	11	..	2	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
(Clothes, airing before fire ..	1	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
Defective building ..	8	1	1	..	..	1	..	..	..	3	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Defective chimneys, hearths ..	1	..	6	..	..	1	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34	
Defective hot-water services ..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	
Electricity—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Short-circuits, fusing of wires ..	29	..	5	..	..	2	..	..	..	..	1	1	1	1	1	1	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46
Irons left switched on ..	4	..	3	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
Faulty installations ..	6	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Fireworks, sparks from ..	1	..	1	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Gas—defective fittings ..	3	..	4	..	..	3	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	
Gas rings, stoves ..	..	..	..	..	..	3	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	
Incendiarism ..	..	..	4	..	..	3	..	..	..	..	1	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17	
Kerosene-heaters, incubators ..	2	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	
Lamp-explosions ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Matches—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Children with ..	6	..	6	..	..	2	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
Rats ..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Thrown down alight ..	3	..	5	..	..	..	..	..	1	..	..	2	1	..	3	..	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
Miscellaneous causes ..	5	..	4	..	..	5	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
Motors back-firing, &c. ..	10	..	8	..	..	9	..	..	..	1	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
Naked lights ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Overheating—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Beeswax, fat, &c. ..	2	..	2	..	..	5	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
Machinery exhaust pipes ..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Tar ..	9	..	4	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Wood proximity to furnaces ..	4	..	2	..	..	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
Painters burning off paint ..	2	..	1	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	
Picture-films ..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Smoking ..	2	..	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
Smoking cigarette-butts ..	6	..	6	..	..	..	..	..	1	1	2	1	..	1	..	4	..	..	..	1	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
Sparks—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
From chimneys ..	2	1	8	..	3	2	1	..	..	1	3	3	..	1	..	..	1	..	1	1	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19
From copper fires ..	8	..	7	..	..	7	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45
From locomotives ..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	
From fireplaces, furnaces ..	2	..	7	..	..	4	..	..	..	1	1	3																															

## 5. SUMMARY.—PERSONNEL, PLANT, AND APPLIANCES.

	Anckland.	Balcutha.	Christchurch.	Dannevirke.	Dargaville.	Dunedin.	Elttham.	Felling.	Foxton.	Gisborne.	Greymouth.	Hamilton.
Brigades, total strength of	65	14	40	21	18	43	16	23	17	24	20	33
Fire-stations—												
Residential	4	1	4	1	1	3	1	1	1	1	1	1
Non-residential	1	..	..	1	..	..	..	1	..	..	5	1
Fire-alarms—												
Circuits (C.), boxes (B.)	27 (C), 254 (B)	..	21 (C), 154 (B)	..	..	14 (C), 140 (B)	..	..	..	..	..	4 (C), 32 (B)
Automatic, private	65	..	37	..	..	32	..	..	..	..	..	2
Telephones (points)	18	2	8	1	4	5	3	3	2	4	3	2
Motors—												
Hose-and-ladder tenders (h.p.)	5 (40)	..	..	1 (40)	..	..	1 (25)	2 (23, 22)	1 (22)	1 (35)	..	..
First-aid, hose-and-ladder (h.p.)	3 (65, 38, 30)	..	3 (2, 35; 1, 25)	..	1 (20)	5 (1, 95; 3, 60, 1, 38)	..	..	..	1 (50)	1 (22)	..
Pump, hose-and-ladder (h.p.)	1 (110)	..	5 (70; 3, 50; 1, 20)	..	..	1 (90)	..	..	..	..	..	1 (60)
First-aid, pump, hose-and-ladder (h.p.)	..	..	..	..	..	..	..	..	..	..	..	1 (40)
Runabouts	2 (20)	..	(1, 20)	..	..	1 (20)	..	..	..	..	..	..
Petrol-electric, ladders (height)	1 (87)	..	1 (85)	..	..	1 (83)	..	..	..	..	..	..
Fire-engines—												
Manual (g.p.m.)	..	..	..	..	..	..	..	..	..	..	..	..
Steam (g.p.m.)	..	..	..	..	..	..	..	..	..	..	..	..
Chemical-engines, hand-drawn (gals.)	..	..	..	..	..	..	..	..	..	1 (600)	1 (600)	..
Hose-carts, reels, hand-drawn	1	1	2	2	2	..	2	2	1	1 (80)	1 (40)	..
Ladders—												
Motor-traction (height)	1 (65)	..	1 (65)	1 (35)*	1 (25)*	1 (80)	2 (30; 20)	1 (30)*	1 (26)	1 (35)*	2 (32; 28)	3 (50; 35; 30)*
Extension (height) (on motor)	2 (22), 1 (35)*	..	6 (2, 40; 4, 35)*	1 (35)*	1 (30)	5 (50; 3, 30)*	1 (25)	1 (30)*	..	5 (80)	5 (98)	1 (12)
Single and coupling (total length)	12 (240)	3 (58)	22 (320)	3 (75)	1 (30)	..	1 (25)	(8, 95)	..	1	1	1
Jumping-sheets	5	..	3	2 (M.)	2 (M.)	1	..	..	..	1 (H.)	2 (M.)	2 (M.)
Smoke-jackets (J.), helmets (H.), masks (M.)	2 (J), 2 (H.)	..	1 (H.), 3 (J.)	2 (M.)	2 (M.)	1 (J.), 1 (H.)	2 (H.)	..	..	..	..	..
Hand-pumps	5	1	7	2	1	7	1	2	2	1	1	1
Hand chemical extinguishers	6	2	8	2	..	6	1	5	2	4	2	2
Portable standpipes—												
Ratchet valves	17	..	1	..	1	11	1	..	..	..	..	2
Double heads	..	2	19	8	1	6	3	8	2	7	11	..
Single heads	6	..	1	..	2	1	..	1	..	4	1	6
Hose—												
Rubber-lined (diameter)	1,000' (2½"); 540' (¾")	..	2,800' (2½")	..	120' (¾")	200' (2½")	..	..	..	180' (¾")	..	..
Unlined (diameter)	11,000' (2½"); 386' (¾")	1,050' (2½")	13,450' (2½")	3,300' (2½")	2,000' (2½")	14,000' (2½")	1,700' (2½")	2,900' (2½")	1,300' (2½")	3,500' (2½")	5,600' (2½")	4,300' (2½")
Water-supply (P. = pumping; G. = gravitation)	P. and G.	P. and G.	P. and G.	G.	G.	G.	G.	G.	P. and G.	G.	P. and G.	G.
Pressure, average, noon-midnight	40-120	70-80	95-105	80-85	80-90	100-150	75-90	85-135	53-120	116-130	80-110	45-48

5. SUMMARY.—PERSONNEL, PLANT, AND APPLIANCES—continued.

	Castings.	Lawera.	Hokitika.	Invercargill.	Kaipoi.	Kaitangata.	Lawrence.	Levin.	Masterton.	Milton.	Napier.	New Plymouth.	Oamaru.	Ohakune.	Otaki.
Brigades, total strength of	22	19	30	20	14	8	10	12	23	12	37	26	17	15	17
Fire-stations—															
Residential	1	1	..	1	1	..	..	1	1	1	2	1	1	1	..
Non-residential	..	..	5	..	..	..	1	..	..	..	3	1	..	..	1
Fire-alarms—															
Circuits (C), boxes (B.)	..	..	..	7	..	..	..	1 (C), 6 (B)	6 (C), 16 (B)	..	1 (C), 2 (B)	2 (C), 26 (B)	..	..	..
Automatic, private	..	..	..	5	..	..	..	2	2	2	8	4	..	..	..
Telephones (points)	3	1	10	..	1	..	..	..	..	..	..	..	5	..	..
Motors—															
Hose-and-ladder tenders (h.p.)	1 (40)	1 (35)	..	1 (35)	..	1 (22)	..	1 (22)	1 (25)	1 (22)	..	1 (22)	1 (20)	..	..
First-aid, hose-and-ladder (h.p.)	1 (30)	..	..	..	1 (22)	1 (22)	..	..	1 (25)	..	1 (35)	1 (30)	1 (40)	..	..
Pump, hose-and-ladder (h.p.)	..	..	..	1 (60)	..	..	..	..	1 (40)	..	2 (45', 65')	1 (60)	..	..	..
First-aid, pump, hose-and-ladder (h.p.)	..	..	..	1 (65)	..	..	..	..	1 (40)	..	..	..	..	..	..
Runabouts	..	..	..	1 (20)	..	..	..	..	1 (20)	..	..	..	..	..	..
Petrol-electric, ladders (height)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fire-engines—															
Steam (g.p.m.)	..	..	1 (380)	..	1 (300)	..	..	..	1 (300)	..	..	..	..	..	..
Manual (g.p.m.)	..	..	2 (80, 80)	..	..	..	..	..	..	1 (50)	..	..	..	1 (400) motor	..
Chemical-engines, hand-drawn (gals.)	..	..	..	..	..	..	..	..	..	1 (50)	..	..	..	1 (80)	..
Hose-carts, reels, hand-drawn	..	..	..	..	..	..	..	..	..	1 (50)	..	..	..	..	..
Ladders—															
Motor-traction (height)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Extension (height) (*on motor)	2 (35', 25')*	1 (35')*	..	2 (50', 30')*	1 (30')*	..	..	1 (28')*	2 (35', 30')*	1 (16')*	3 (50', 2, 35')*	2 (50', 35')*	1 (30')*	2 (32')	..
Single and coupling (total length)	4 (74')	6 (110')	5 (99')	2 (32')	3 (24')	1 (20')	2 (49')	5 (57')	6 (87')	1 (25')	14 (200')	2 (46')	2 (34')	..	2
Jumping-sheets	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Smoke-jackets (J.), helmets (H.), masks (M.)	2 (M.)	1 (H.)	..	1 (H.)	..	..	..	..	..	..	2 (J.)	..	1 (H.)	..	..
Hand-pumps	2	2	2	3	1	4	1	1	1	1	2	2	2	2	2
Hand chemical extinguishers	2	2	..	9	2	..	2	2	2	2	5	8	1	4	..
Portable standpipes—															
Ratchet valves	..	1	..	..	..	..	1	2	2	..	1	1	1	..	..
Double heads	..	3	5	..	..	..	1	2	3	2	14	7	5	..	2
Single heads	..	2	3	6	..	..	..	2	3	..	3	1	2	..	..
Hose—															
Rubber-lined (diameter)	..	..	..	..	..	..	..	..	..	..	..	200' (2 1/4")	..	..	..
Unlined (diameter)	3,000' (2 1/2")	2,500' (2 1/2")	2,700' (2 1/2")	6,700' (2 1/2")	2,300' (2 1/2")	1200' (2 1/2")	1,200' (2 1/2")	2,900' (2 1/2")	2,000' (2 1/2")	1,200' (2 1/2")	9,500' (2 1/2")	2,310' (2 1/2")	2,500' (2 1/2")	1,900' (2 1/2")	650' (2 1/2")
Water supply (P. = pumping; G. = gravitation)	P. and G.	P. and G.	G.	P. and G.	River and sumps	G (partial)	G.	G.	G.	P. and G.	P. and G.	G.	G.	Creeks and Races	G.
Pressure, average, noon-midnight	120-130	34-74	100-105	45	..	80	65-80	90-110	75-80	50-60	65-130	100-110	90-100	..	130-135

5. SUMMARY.—PERSONNEL, PLANT, AND APPLIANCES—continued.

	Palmerston North.	Petone.	Port Chalmers.	Rotorua.	Taumarunui.	Tauranga.	Te Aroha.	Timaru.	Waihi.	Waikato.	Wanganui.	Westport.	Whangarei.	Totals.
Brigades, total strength of	26	18	15	18	21	16	16	23	16	13	38	18	20	847
Fire-stations—														
Residential	2	1	2	1	1	1	1	1	1	1	2	1	1	46
Non-residential	1	1	..	1	1	1	..	..	..	1	..	..	1	30
Fire-alarms—														
Circuits (C.), boxes (B.)	1 (C), 9 (B)	1 (C), 13 (B)	..	3 (C), 16 (B)	..	..	..	6 (C), 27 (B)	3 (C), 13 (B)	..	7 (C), 76 (B)	8 (B.)	1 (C), 1 (B)	98 (C), 783 (B)
Automatic, private	2	1	..	1	..	..	..	2	1	..	11	..	..	154
Telephones (points)	2	1	..	2	4	2	2	3	6	..	3	4	1	120
Motors—														
Hose-and-ladder tenders (h.p.)	1 (25)	1 (30)	1 (22)	1 (50)	1 (22)	1 (22)	1 (22)	..	1 (22)	1 (22)	2 (40, 20)	1 (35)	1 (22)	30
First-aid, hose-and-ladder (h.p.)	..	..	1 (22)	..	..	1 (22)	..	1 (60)	..	..	1 (40)	..	..	22
Pump, hose-and-ladder (h.p.)	1 (55)	..	..	..	..	..	..	1 (60)	..	..	..	..	..	13
First-aid, pump, hose-and-ladder (h.p.)	..	1 (40)	..	..	..	..	..	1 (45)	..	..	2 (60, 35)	..	..	11
Runsabouts	..	..	..	..	..	..	..	..	..	..	1 (20)	..	..	7
Petrol-electric, ladders (height)	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Fire-engines—														
Steam (g.p.m.)	..	..	..	..	..	..	..	..	..	..	..	1 (300)	..	7
Manual (g.p.m.)	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Chemical-engines, hand-drawn (gals.)	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Hose-carts, reels, hand-drawn	2	1	2	2	2	2	1	1	2	1	..	1	1	67
Ladders—														
Motor-traction (height)	..	..	..	..	..	..	..	..	..	..	..	..	..	3
Extension (height) (*on motor)	2 (50', 25')	1 (35')	1 (26')	1 (35')	1 (26')	1 (34')	1 (30')	2 (60', 30')	1 (30')	1 (30')	3 (60', 35', 35')	1 (24')	1 (50')	61
Single and coupling (total length)	8 (90')	4 (32')	1 (25')	6 (91')	2 (20')	2 (55')	3 (42')	6 (75')	3 (73')	1 (35')	2 (36')	2 (47')	2 (55')	157
Jumping-sheets	1	1	..	1	..	..	..	1	..	..	2	..	..	21
Smoke-jackets (J.), helmets (H.), masks (M.)	..	1 (H.)	..	..	..	..	..	2 (H.)	..	1 (M.)	1 (H.)	..	2 (M.)	8 (J.), 14 (H.), 13 (M.)
Hand-pumps	2	2	2	1	2	2	1	2	1	1	2	2	2	79
Hand chemical extinguishers	1	3	..	4	2	..	2	4	2	..	3	..	2	106
Portable standpipes—														
Ratchet valves	1	2	..	1	3	..	1	4	..	3	6	2	..	59
Double heads	5	2	3	1	3	4	2	4	1	..	4	2	4	155
Single heads	4	5	..	5	1	1	..	..	3	..	..	3	2	68
Hose—														
Rubber-lined (diameter)	..	..	..	..	..	..	..	..	..	..	..	..	..	3,800' (23"), 400' (2 1/2")
Unlined (diameter)	5,900' (2 1/2")	4,100' (2 1/2")	2,000' (2 1/2")	1,900' (2 1/2")	2,400' (2 1/2")	2,300' (2 1/2")	1,800' (2 1/2")	3,000' (2 1/2")	1,500' (2 1/2")	2,500' (2 1/2")	7,600' (2 1/2")	1,500' (2 1/2")	2,000' (2 1/2")	(2 1/2", 840' (3/4"), 36,150' (2 1/2"), 109,350' (2 1/2"))
Water-supply (P. = pumping; G. = gravitation)	40-90	48-72	50-110	60-64	100-125	75-110	120-125	70-75	90-110	90-120	110-130	100-125	150-165	..
Pressure, average, noon-midnight	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Approximate Cost of Paper.—Preparation, not given; printing (625 copies), \$22 10s.

By Authority: W. A. G. SKINNER, Government Printer, Wellington.—1925.

Price 6d.

