

1943

NEW ZEALAND

PUBLIC WORKS STATEMENT

(BY THE HON. R. SEMPLE, MINISTER OF WORKS)

MR. SPEAKER,—

In accordance with the provisions of section 8 of the Public Works Act, 1928, I submit my report on works carried out during the year ended 31st March, 1943, together with a statement of expenditure certified by the Controller and Auditor-General.

My resumption of the portfolio of Public Works during the year under review was in consequence of the death of my colleague, the late Hon. H. T. Armstrong, whose passing is deeply regretted. His term of office was characterized by the added strain of circumstances arising from war conditions, and the loss of his personal qualities as a Minister is much to be deplored.

As was the case in the preceding year, normal public-works activities have been practically suspended on account of war conditions, and only works of special national importance have been carried out. A general review of such works will be found later in this Statement and in the Appendices hereto.

The resources of the Department as regards both men and material have been devoted to the prosecution of construction works required for the armed Services. Honourable members are aware of the substantial demands which have had to be met in this connection by reason of the circumstances which altered the national situation in New Zealand following the declaration of war against Japan. The obligations, which this Dominion is privileged to share, in relation to hostilities in the Southern Pacific area have necessitated an expansion of constructional activities of all kinds in order to meet the requirements of our own forces and of our Allies.

The Public Works Statement which was submitted to this House last year made reference to the constituting of a Defence Construction Council and to the appointment of a Commissioner of Defence Construction. The justification of this action has been demonstrated by the acceleration in the completion of all classes of buildings and services, which had to be provided with the utmost expedition for the Allied Services in New Zealand and certain Pacific locations.

The determination of priorities and the co-ordination of construction organizations, including those directed by private enterprise as well as of Government Departments, were administered under the Commissioner for the urgent completion of numerous works, with very satisfactory results.

In order to establish more appropriate control over the execution of all construction works, including housing construction, legislative measures were recently placed before this House in the form of the Ministry of Works Bill, and these were agreed to by honourable members.

The Council appointed last year in terms of the Soil Conservation and Rivers Control Act, 1941, has been meeting regularly, and is pursuing its investigations with a view to determining broad questions of policy which can be implemented in the future. It is anticipated that during the ensuing year it will be possible to constitute a number of catchment areas as a preliminary step towards the election of Catchment Boards for these districts as provided for in the Act.

The Council has already made contact with a number of local authorities, and in addition to discussing general matters from the viewpoint of the special legislation, has also conferred regarding the particular river and soil-conservation problems in the respective districts. I am pleased to report that the attitude of the local authorities which have been approached so far has been most helpful, and that there is every indication that they will co-operate as far as possible with the Council in its important work.

There is no prospect of major rivers-control and soil-conservation work being undertaken during the war period, but research and investigations are being carried out as far as the very limited staff available will permit.

A notable occasion during the year was the establishment for the first time of railway communication between Gisborne and the existing trunk line at Waikokopu, an event long anticipated by the settlers in the Poverty Bay district.

Although for a time work was practically suspended on the South Island Main Trunk Railway, constructional operations have been expedited in order that rail traffic can be extended and road services correspondingly curtailed at the earliest possible date. As I regard the conservation of rubber and petrol as a most vital matter, I have made personal efforts to see that the work of platelaying has been pushed on with best possible use of our now very limited resources in men and materials.

As suitable staff becomes available, surveys are being commenced in connection with proposals associated with the planning of works for the post-war period and especially those relating to rehabilitation.

I wish to acknowledge the continued services of the officers and workmen of the Department, who have not spared themselves in carrying out the very urgent programme of a large number of works required in connection with the Dominion's war effort.

At the end of the year 1,019 officers of the Department were serving with the forces, and I very much regret that 41 have made the supreme sacrifice and that many have suffered casualties or are prisoners of war.

FINANCE

The payments and receipts in connection with the Public Works Account and other associated votes and accounts for the year 1942-43 are shown in the tabulation following.

By reason of the extensive construction work carried out by my Department, as part of the Dominion defence programme, on behalf of the respective Defence Services, the expenditure administered through the Department reached a gross total of £25,925,772, details of which are set out below. The amounts received as credits-in-aid show an aggregate of £3,638,181, leaving net expenditure at £22,287,591.

Of this sum, £16,507,422 represented direct war expenditure outside the Department's ordinary accounts, and the remaining £5,780,169 includes maintenance services in respect of main highways, public buildings, electric-supply undertakings, &c., as well as expenditure on particular work associated with the war effort, such as linen-flax development.

Revenue collected by the Department totalled £2,299,186 for the year, and of this sum £2,190,278 represents the sale of electrical energy and miscellaneous receipts credited to the Electric Supply Account. The balance is made up of irrigation revenue and other sundry receipts exclusive of taxation for main highways purposes, which is collected by other Departments.

Class of Work.	Expenditure, 1942-43.		
	Gross.	Credits.	Net.
EXPENDITURE, PUBLIC WORKS ACCOUNT			
Public works, departmental	£ 649,840	£ 649,940	Cr. 100
Railway construction	337,528	103,699	233,829
Public buildings	475,056	20,824	454,232
Education buildings	207,391	2,678	204,713
Lighthouses and harbour-works	7,665	591	7,074
Roads, &c.	154,148	26,187	127,961
Lands, miscellaneous	41,939	24,344	17,595
Irrigation, water-supply, and drainage	208,313	126,317	81,996
Linen-flax development	910,445	388,876	521,569
Totals, General Purposes Account	2,992,325	1,343,456	1,648,869
Electric Supply Account—			
Construction	1,492,205	10,863	1,481,342
Working-expenses	658,786	124,847	533,939
Totals, Public Works Account	5,143,316	1,479,166	3,664,150
EXPENDITURE, OTHER VOTES AND ACCOUNTS			
Main Highways Account—			
Annual appropriation—			
Construction, reconstruction, and improvements	181,952	46,167	135,785
Maintenance, repairs, and renewals	1,185,854	129,452	1,056,402
Administration, plant, and miscellaneous expenditure	30,468	54,854	Cr. 24,386
Interest, fees, &c.	455,757	..	455,757
Permanent appropriations (rate subsidies, interest on transfer from Public Works Fund, &c.)	313,552	..	313,552
Consolidated Fund—			
Maintenance, public buildings, roads, &c.	303,249	46,656	256,593
Plant, material, and miscellaneous services	1,804,202	1,881,886	Cr. 77,684
Other accounts (expenditure by Public Works Department):			
Amounts not included above	16,507,422	..	16,507,422
Totals, other votes and accounts	20,782,456	2,159,015	18,623,441
Grand total of expenditure, Public Works Account and other votes and accounts, for the year ended 31st March, 1943 ..	25,925,772	3,638,181	22,287,591

Class of Work.	Receipts, 1942-43.
RECEIPTS,* PUBLIC WORKS DEPARTMENT	
Ordinary Revenue Account—	£
Irrigation (receipts for year)	26,100
Miscellaneous receipts for year	55,901
Electric Supply Account (sales of energy, miscellaneous receipts, &c.): Receipts for year	2,190,278
Main Highways Account (repayment of advances, &c., and interest): Receipts for year	26,907
Total receipts	2,299,186

* Excludes motor-spirits tax, registration fees, &c., collected by other Departments

Summary

	Public Works Department.	Other Departments.	Total.
	£	£	£
Gross expenditure	24,807,936	1,117,836	25,925,772
Recoveries and receipts	5,545,813	391,554	5,937,367

Of the net expenditure of £22,287,591 previously mentioned, £19,612,291 may be regarded as having been expended from loan-moneys (£1,648,869 General Purposes Account, £1,186,000 Electric Supply Account, £270,000 Main Highways Account, and £16,507,422 War Expenses Account), the balance—*i.e.*, £2,675,300—being expended from loan recoveries, revenue, and taxation.

The ratio which the various classes bear to the whole is shown below. It should be noted that the figures are gross—that is, before deducting recoveries, which, if deducted, would detract from the true portrayal of activities:—

Roads, including construction and maintenance of main highways	£	Per Cent.
Hydro-electric (construction and working expenses)	2,321,731 =	8.23
Railway construction	2,150,991 =	7.62
Public buildings, including schools	337,528 =	1.20
Lands improvement	682,447 =	2.42
Irrigation	41,939 =	0.15
Public buildings, roads, &c. (maintenance)	208,313 =	0.74
Plant, materials, and services, other Departments	303,249 =	1.07
Linen-flax development	1,804,202 =	6.39
Miscellaneous	910,445 =	3.23
Navy, Army, Air, and civil defence expenditure	657,505 =	2.33
Revenue receipts	16,507,422 =	58.49
	2,299,186 =	8.13
	<u>£28,224,958 =</u>	<u>100.00</u>

Summary of Votes under the Control of the Minister of Works, and proposed Ways and Means of raising the Necessary Funds, Year ending 31st March, 1944

Vote.	Loans.	Consolidated Fund.	Special Revenue.	Total.
	£	£	£	£
Departmental	150,000	..	..	150,000
Railway Construction	275,000	..	..	275,000
Public Buildings	500,000	..	..	500,000
Lighthouses and Harbour Works	25,000	..	..	25,000
Roads	200,000	..	..	200,000
Lands-improvement	30,000	..	..	30,000
Irrigation	230,000	..	..	230,000
Electric Supply	2,299,000	..	901,000	3,200,000
Main Highways	300,000	..	1,382,200	1,682,200
Housing Construction	3,224,000	..	..	3,224,000
Soil Conservation and Rivers Control	40,000	..	..	40,000
Maintenance of Public Works and Services .. .. .	..	500,000	..	500,000
Totals	7,273,000	500,000	2,283,200	10,056,200

For the current financial year 1943-44 a sum of £500,000 will be provided from the Consolidated Fund for expenditure on maintenance of public works and services. The expenditure on main highways (including permanent appropriation estimated at £317,800) is estimated to reach £2,000,000, of which a sum totalling £1,700,000 is expected to be raised by way of special revenue. It is anticipated that the revenue from the supply of electrical energy will reach a sum of approximately £2,490,000, which will be utilized for the payment of sinking fund instalments, operating-expenses, interest, and income-tax, &c.

HYDRO-ELECTRIC DEVELOPMENT

The supply of electricity in both Islands continued at its usual high standard of efficiency and the revenue therefrom maintained the same buoyancy as in previous years. The generating-stations on the North Island system were hard pressed to meet the increased peak demand.

With the assistance and co-operation of distributing authorities and consumers, various economies were effected, and these enabled the demands for essential industries and defence purposes to be met without that degree of restriction which has unfortunately been necessary in some other directions.

The completion of one machine at the new station at Waikaremoana Lower Development has made a further 20,000 kW. available this coming winter, but this will only be enough to meet the increased demands of our essential services and those of our Allies.

The purchase of the King's Wharf steam-operating station from the Auckland Electric-power Board marks another step in the scheme for the whole of the generation of electric supply becoming the function of the Government.

A scheme to meet the anticipated demand for electricity in the immediate post-war period has been prepared and is under consideration.

All development loans, including those raised for the Electric Supply Account, were merged upon the passing of the National Development Loans Act, 1941. This has resulted in an increase in the interest payable for the year by the Electric Supply Account. Under the new method of pooling, however, the average rate will include all costs in connection with the raising of loans and exchange payments.

Owing to departmental circumstances arising from the war, it has not been found possible to include an audited statement of the Electric Supply Account with this report, but the matter is now in hand and the statement, duly audited, will be included in paper B.1 [Pt. IV], in terms of section 57 of the Finance Act, 1932.

MAIN HIGHWAYS

Every effort has been made by the Main Highways Board during the year to keep the main traffic arteries up to a high standard of efficiency. Curtailment of new highway construction has increased the maintenance requirements by making impossible replacement of old lengths of highway that are rapidly cutting up under the increased load of war traffic.

While the operations of the private motor-car have been greatly restricted, heavy-truck traffic has increased, thus accelerating the rate of wear on highways in localities where this truck traffic is greatest. Loss of men to the armed forces and the shortage of bituminous supplies have added to the difficulties of the Board and local bodies, but it has been possible to keep the 4,000-odd miles of State highways, under the direct control of the Main Highways Board, in a reasonably satisfactory condition. In some areas local bodies have not been able to obtain sufficient labour, transport, and maintenance metal to adequately meet requirements, and the highways have suffered as a consequence. Wherever possible, an attempt will be made to rectify this position during the current year.

There are numerous bridges requiring urgent renewal, but again the man-power position and shortage of materials have limited operations, and a large bridge-building programme will require to be undertaken when conditions improve.

The funds provided for the current year are intended to cover the cost of maintenance and fixed charges only, together with a limited amount of urgent bridge renewals.

RAILWAY-CONSTRUCTION

As was the case in the preceding year, active construction works were largely curtailed in order that men and materials could be utilized on the more urgent requirements of the defence programme.

The Railways Department continued the operation of freight and passenger services on the Dargaville Branch line during the year, while the final construction work was being carried out by the Public Works Department, and took over full control towards the end of March, 1943.

Also, on the Westport-Inangahua section, freight and passenger services were operated by the Railways Department throughout the year under review, and the completion of the remaining items of construction on this section is receiving attention as circumstances allow.

I have already mentioned that during the past year rail connection was made between Gisborne and the remainder of the North Island railway system. A restricted goods-service on this length was inaugurated by the Railways Department in August, 1942, and although minor works are still receiving attention, this line was taken over for the operation of both passenger and freight services on 1st February, 1943.

The Wharanui-Clarence section of the South Island Main Trunk Railway was taken over by the Railways Department on 19th October, 1942. Construction work has recently been speeded up in order to expedite the completion of the remaining length between the railhead at Okarahia and Clarence Bridge.

ROAD-CONSTRUCTION

Owing to the more urgent demands upon available man-power and materials, only a small amount of road-construction work and bridging was carried out during the past year. Until more favourable conditions prevail there is little prospect of formation, metalling, or bridging works being undertaken on a major scale either by the Government itself or by local authorities operating under the assistance of State subsidies.

IRRIGATION AND WATER-SUPPLY

Notwithstanding that a very mild winter was followed by a wet spring and unusual summer, the demand for irrigation water in Central Otago has been maintained at close to last year's figure, a total of 52,377 acres being irrigated, from which approximately £27,000 of revenue was derived.

In Canterbury the area irrigated was 3,500 acres, producing a revenue of £572, being slightly less than last year. Lack of labour is the principal retarding factor, but though development is slow, it is proceeding on sound lines. Sixty per cent. of the irrigators have established lucerne stands with the object of increasing their stock-carrying capacity.

The Mayfield-Hinds and Ashburton-Lyndhurst Schemes have remained static on account of the transfer of labour and plant to defence works. Construction work on the Rangitata diversion race has for the same reason been reduced to a very slow pace, but now that some of the more-important defence works are nearing completion, it is hoped to revive this important work so as to complete it if possible in time for the Highbank Hydro-electric Station to assume its share of the winter load of 1944.

The Downlands Water-supply Scheme continues to give excellent service to more than 140,000 acres, but an area of 10,453 acres in Waimate County remains unreticulated on account of the shortage of galvanized pipes.

I look forward to the resumption of irrigation activities at the earliest possible date.

PUBLIC BUILDINGS

Agriculture.—Some progress has been made in the construction of a new block at Te Kauwhata Horticultural Station. There was some unavoidable delay owing to the contractors having to concentrate upon urgent defence work, but the building is now almost complete and will be of material assistance in catering for the increased demand for New-Zealand-made wines.

Health and Hospital Institutions.—Work completed during the year at Queen Mary Hospital, Hanmer, included an occupational therapy block, whilst a new hydro-extractor plant was installed in the laundry. Additional cooking facilities were provided in the nurses' home and soldiers' pavilion. The domestic and male staff quarters were also completed.

In Wellington the buildings of the Registered Nurses' Association Club in Kensington Street were purchased for use as a post-graduate centre and hostel. Additional accommodation has also been purchased and erected in Hobson Street for dental nurses. Substantial alterations and renovations were made to the existing buildings at Hobson Street.

Mental Hospitals.—Only minor works were carried out at a few institutions, and these comprised principally laundry, water-supply, and heating services.

Police-stations.—Expenditure during the year was confined to the provision of a very limited amount of residential and office accommodation.

Postal and Telegraph.—During the year the following departmental buildings were completed: Post-office buildings at Brighton, Clydevale, and Ōwaka; a residence at Johnsonville; a residence and staff quarters at Musick Point Radio; staff quarters at Awarua Radio; an automatic-telephone-exchange building at St. Heliers; a line-store-garage building at Helensville; and emergency radio-station buildings at Blenheim, Gisborne, Greymouth, Johnsonville, Nelson, Napier, Opotiki, Palmerston North, Timaru, Westport, and Whangarei.

Additions were made to the post-office building at Dargaville, to the departmental building at Herd Street, Wellington, and to the automatic-telephone-exchange building at Ponsonby.

Improved accommodation was provided at Auckland (chief Post-office), Waihi (post-office), Awarua Radio (staff quarters), and Newmarket (store and workshops building).

One building and several sites which were no longer required were disposed of during the year.

Sites and additional land for departmental purposes were acquired at fourteen places. Two residences for departmental officers were also acquired.

At the end of the year the following buildings were in course of erection: Lower Hutt Post-office, Motueka Post-office, Te Kuiti Post-office and residence, and a residence at Westport.

Also in progress were additions to the post-office buildings at Glenorehy and Paihia and the original staff quarters at Musiek Point Radio, and alterations to the old chief-post-office building at Wanganui and the post-office building at Foxton.

EDUCATION BUILDINGS

The gross expenditure for the year on school buildings, additions, teachers' residences, and the purchase of sites totalled £226,477, this sum including £19,074 provided by the Consolidated Fund to meet the cost of minor works. Practically the whole of this expenditure was incurred in respect of primary, secondary, technical, and Native schools.

LANDS-IMPROVEMENT

A limited amount of stop-banking was carried out at Naumai and Ruawai, and a commencement was made with the construction of certain culverting and flood-gates.

Sand-dune reclamation was continued on a much-reduced scale.

River control and protection were undertaken in respect of the Otaki, Karamea, and Ashley Rivers, and towards the end of the year work was resumed on the Whirokino Cut, Manawatu River.

With regard to the rehabilitation of the flax industry, development work at Moutoa was continued by my Department, but early in the year under review arrangements were made whereby the Department of Industries and Commerce assumed control of this area and continued the work in association with the National Service Department.

LINEN-FLAX DEVELOPMENT

The successful development of the linen-flax industry in New Zealand has been continued, and additional facilities have been provided as required at the factories established throughout the South Island.

Living-quarters have been provided where necessary, including the erection of a number of hostels to accommodate female workers, a considerable number of whom are employed in this industry.

A recent feature of the successful development of the linen-flax industry in New Zealand has been that the Government has been able to arrange for the disposal of its surplus linen-flax seed from which linseed-oil is now being manufactured.

LIGHTHOUSES

During the year progress has been made with the completion of radio-beacon stations, electrification of lights, and the provision of additional navigational aids, &c. In addition, in some cases road access to isolated stations has been improved, and, where possible, amenities at light stations have been added to improve the general conveniences there.

At stations where power plants are in operation the Department has maintained and overhauled the engines from time to time during the year.

Further information relating to public works carried out during the past year is included in the attached reports by the Engineer-in-Chief, the Government Architect, and the Chief Electrical Engineer.

In accordance with section 24 of the Main Highways Act, 1922, the annual report of the Main Highways Board for the year ended 31st March, 1943, is also submitted herewith, *vide* Appendix E.

As required by subsection (2) of section 33 of the Soil Conservation and Rivers Control Act, 1941, I also submit with this Statement, the first report of the Soil Conservation and Rivers Control Council, covering the operations of the Council up to 31st March, 1943.

APPENDICES

TO THE

PUBLIC WORKS STATEMENT, 1943

APPENDIX A

AUDITED STATEMENT OF EXPENDITURE ON PUBLIC WORKS
OUT OF THE PUBLIC WORKS ACCOUNT FOR THE YEAR 1942-43*Prepared in compliance with Section 8 of the Public Works Act, 1928*

Public Works Department, Wellington, 26th May, 1943

SIR,—

In compliance with the 8th section of the Public Works Act, 1928, I enclose a statement of the expenditure during the preceding financial year on all works and services chargeable to the Public Works Account.

I have, &c.,

R. SEMPLE,
Minister of Works.

The Controller and Auditor-General, Wellington.

STATEMENT OF NET EXPENDITURE ON ALL WORKS AND SERVICES CHARGEABLE TO THE PUBLIC
WORKS ACCOUNT FOR THE YEAR 1942-43

Summary.	Appropriation.	Gross Expenditure.	Credits in Aid.	Net Expenditure
	£	£ s. d.	£ s. d.	£ s. d.
PUBLIC WORKS ACCOUNT				
Public Works, Departmental	150,196	649,840 11 8	649,940 7 5	<i>Cr.</i> 99 15 9
Railways: Railway Construction	275,000	337,528 5 3	103,699 14 4	233,828 10 11
Public Buildings	350,000	475,056 8 5	20,824 0 9	454,232 7 8
Education Buildings	200,000	207,390 18 8	2,678 2 7	204,712 16 1
Lighthouses and Harbour-works	21,200	7,414 9 11	590 16 11	6,823 13 0
Roads, &c.	270,000	154,147 18 1	26,186 11 11	127,961 6 2
Lands, Miscellaneous	70,000	41,939 3 10	24,344 3 1	17,595 0 9
Irrigation, Water-supply, and Drainage	230,000	208,312 15 9	126,316 18 8	81,995 17 1
Linen-flax Development	400,422	910,445 1 5	388,875 14 6	521,569 6 11
	1,966,818	2,992,075 13 0	1,343,456 10 2	1,648,619 2 10
Unauthorized expenditure— Services not provided for .. ..	..	250 0 0	..	250 0 0
Totals, Public Works Account	1,966,818	2,992,325 13 0	1,343,456 10 2	1,648,869 2 10
ELECTRIC SUPPLY ACCOUNT				
Development of Water-power	2,360,000	2,150,990 17 10	135,709 19 10	2,015,280 18 0
Totals	4,326,818	5,143,316 10 10	1,479,166 10 0	3,664,150 0 10

NOTE.—This statement includes only the expenditure on works, and does not include expenditure such as interest, sinking funds, and charges and expenses of loans.

J. W. SCOTT, A.R.A.N.Z.,
Chief Accountant.

W. L. NEWNHAM, M.Inst.C.E.,
Engineer-in-Chief and Under-Secretary.

The expenditure charged to the Public Works Account and the Electric Supply Account has been examined and found correct.—CYRIL G. COLLINS, Controller and Auditor-General.

APPENDIX B

ANNUAL REPORT ON PUBLIC WORKS BY THE ENGINEER-IN-CHIEF

The ENGINEER-IN-CHIEF to the Hon. the MINISTER OF WORKS.

SIR,—

I have the honour to submit the following report upon the various public works completed and in progress throughout the Dominion during the year ended 31st March, 1943:—

RAILWAYS

Dargaville Branch Railway.—During the past year the Railways Department has operated passenger and goods services over the entire branch, while the Public Works department has carried out all maintenance.

On the Kirikopuni loop-elimination all construction work, platelaying, and ballasting has been completed, and yards, roads, and buildings maintained to standard. The control of this branch line was handed over to the Railways Department towards the end of March, 1943.

Turakina-Okoia Railway Deviation.—Practically all work on this deviation has been suspended on account of the war, but the only works still to complete are ballasting, platelaying, erection of station buildings, and the completion of the bridges over the Turakina and Wangaeahu Rivers.

Napier-Gisborne Railway.—This line was taken over by the Railways Department on 1st February, 1943, for traffic, but a certain amount of construction work and clearing up of plant and material is still incomplete, and a number of men are still engaged on this work.

The principal activities on this line during the period were the completion of platelaying and ballasting, the completion of station yards and buildings, fences, overbridges, culverts, &c., together with a limited amount of earthwork.

South Island Main Trunk Railway.—Progress on this work was very much reduced during the past year owing to the necessity of transferring most of the men, material, and staff to urgent defence works.

The Wharamui to Clarence section was taken over by the Railways Department, and regular services were instituted on 19th October, 1942.

Since that period there has been a renewal of activities on the portion generally between the railheads at Okarahia and Clarence Bridge. The platelaying and ballasting in particular on the south end has been pushed on vigorously, and the line will be available for traffic as far as Oaro very early in the ensuing period.

Formation and bridging, which is well in hand over the balance of the length, are being manned to an increasing extent as men and material become available.

Westport-Inangahua Railway.—Although this section of railway has not been fully completed, freight-services have been operated since July, and rail-car service since September, without any delays.

The various uncompleted works—bridges, ballasting, and the removal of slips—have been steadily pushed on, and only minor works and general clearing up are now required. It is anticipated that with reasonable weather conditions work should be finally completed by about the end of June next.

IRRIGATION

Central Otago.—Lack of snow on the high country and abnormally low rainfall during the winter necessitated the conservation of water by reducing the normal quota by 5 per cent. this year.

No new construction was carried out, and in some schemes maintenance was hampered by shortage of labour. Irrigation water was supplied to 506 irrigators, and the total area irrigated was 43,377 acres out of a total of 45,052 acres commanded.

Financial results of the year's working are as follows: Revenue, £27,150; expenditure, £21,635; profit on working £5,515.

On the Omakau Scheme, where water is sold on demand, the total sales were 7,440 acre feet, showing a decline of 2,540 acre feet on last year's figures.

Canterbury.—Redcliff Scheme: The sale of water was equal to last year's figure, but the area irrigated dropped by 250 acres.

Levels Scheme: The return from sales was below last year's figure, but the area irrigated increased by 350 acres. Statistics for these schemes are as follows: Revenue, £572; expenditure, £2,491; area irrigated, 3,500 acres; area commanded, 17,400 acres; number of irrigators, 63.

These schemes and the Omakau Scheme are operated on a demand basis, and the continued fall in revenue is mainly due to the shortage of labour on the farms, aggravated by the unavailability of materials needed to put intensive farming methods into practice. It is significant, however, that the development is on sound and permanent lines. More than 60 per cent. of the farmers using water have established lucerne for winter feed, and many are going into seed-production.

Downs Water-supply Scheme: With the exception of maintenance of the area at present served, over 140,000 acres, this work has been at a standstill during the year owing to the shortage of galvanized pipes and fittings. An area of 10,543 acres, wholly in Waimate County, is still to be reticulated, but the reservoir and trunk main for this area have been installed.

SCHEMES UNDER CONSTRUCTION

Ashburton-Lyndhurst and Mayfield-Hinds Schemes.—These schemes have remained static during the year on account of the transfer of labour and plant to urgent defence works.

Rangitata Diversion Race.—Although some progress was made during the year, work was severely retarded by the transfer of men and equipment to urgent defence works. Some of the more important of these are nearing completion, and consequently I hope to increase the speed of the diversion race and Highbank Power-house construction so as to have the plant ready for service in the winter of 1944. The capacity of the station will be 36,000 h.p., and sufficient to relieve much of the strain on the generating capacity of the South Island system.

Canterbury Irrigation Investigations.—The collection of data from meteorological and river-flow stations has continued, but much important detail work has been suspended for the duration of the war.

CONSTRUCTION AND IMPROVEMENT OF ROADS

The roading programme has remained greatly curtailed, and the activities under this heading were confined mainly to the completion of works which had already been in hand.

Many proposed works which in normal times would have been undertaken as part of the ordinary programme have been deferred until more favourable conditions obtain, particularly in respect of man-power and materials.

The following is a summary of the works completed during the past year: Formation, 28 miles; metalling, 69 miles; bridging, 3,164 lineal feet; culverting, 3,616 lineal feet. In addition, over 70 miles of road in process of construction were maintained, to preserve the work already executed.

HYDRO-ELECTRIC DEVELOPMENT: CONSTRUCTION WORKS

Karapiro.—This work has been virtually at a standstill due to shortage of man-power and plant. Preparations are, however, well in hand for diverting the river from the dam and power-house sites.

Taupo Control.—Steady progress has been made towards deepening the river channel up and down stream of the control gates.

Waikaremoana Lower.—All essential headworks are complete; there is, however, a good deal of cleaning up to be done. One generating-set is now in operation; the other still lacks a few parts before it can be completed.

Waikaremoana Upper.—Boring and preliminary work on the camp and power-house sites are in hand.

Cobb River.—Cleaning and lining the tunnel are nearing completion. On account of the steel shortage, second-hand pipes were obtained from Waipori, and these, and some steel plates taken over from the company, are being assembled. Heavy steel plates for the high-pressure section are not yet available.

Highbank.—The power-house and staff cottages have been completed, and the erection of the plant and steel penstock is in hand.

Tekapo.—This work has been closed throughout the year, and only supervision and maintenance have been attended to.

LANDS-IMPROVEMENT

Swamp Drainage.—The work of enlarging and raising stop-banks at Ruawai and Naumai has been steadily proceeded with, and a contract for culverts and flood-gates is well in hand.

Sand-dune Reclamation.—Only a limited amount of work has been carried out on the various areas—additional trees have been planted out and general maintenance attended to.

Manawatu River (Whirokino Cut).—Very little progress has been made here, the men and plant having been diverted to defence works. The contractors resumed towards the end of the period, but very little effective work has been completed.

Otaki River Protection.—Fairly-extensive work has been carried out in the repair of various breaks in the banks, and new channels cut with the aid of mechanical plant.

Karamea Flood Control.—Existing stop-banks have been maintained and protective groynes built. Several floods have been experienced during the year, one of them being of exceptional height, and considerable improvement has taken place at the entrance.

Ashburton River Control.—This work was closed down during the greater portion of the year, but the works generally have been maintained.

Ashley River Control.—Further flood damage was sustained during the year, repair work was put in hand, and is now practically complete.

LIGHTHOUSES AND HARBOUR-WORKS

LIGHTHOUSES

General maintenance and routine overhaul of equipment have been carried out at the various lighthouses where necessary.

Puysegur Point.—The tower at this station, which was recently burnt down, has been rebuilt, and the station completely electrified and provided with radio beacon and radio telephone.

Hole-in-the-Wall Passage.—Two navigation lights have been provided, one on Old Man Rock and the other on Opito Point.

Various miscellaneous works involved the provision of four new lights and one lighted buoy for naval purposes, and the provision of standard kerosene storage-tanks at various lighthouses.

HARBOUR-WORKS

With the exception of temporary accommodation at Westhaven, there have been no major harbour-works carried out during the period.

LINEN FLAX

The programme of the previous year has been expanded, and work carried out during the past twelve months may be summarized as under:—

In the Blenheim area a women's hostel has been erected at Seddon, and at the Blenheim factory itself a women's rest-room, two married quarters, and a chive-store have been erected.

In the Canterbury area the two new linen-flax factories at Geraldine and Fairlie in hand at the end of last year have been completed, and are now in operation.

At the Makikihi factory a large reinforced-concrete fibre-store has been erected.

At the Oxford factory, a clerk's residence, further workers' cottages, and accommodation for girl workers were erected, and an extension to the water-supply and fire-fighting service was carried out.

At the Methven factory a foreman's residence, nine extra cottages (with the necessary services), and additions to the straw-store were completed during the year.

In the Otago area a new retting-tank factory has been erected at Clydevale, complete with women's hostel and residences; at Balclutha further factory facilities have been provided; and at Tapanui one married quarter has been constructed and a hotel is being converted into a hostel for women workers.

In the Southland area, at Gore and Woodlands, two new four-tank-unit factories complete with all facilities and services have been erected, each costing approximately £23,000. At Winton accommodation for married workmen has been provided.

DEFENCE WORKS

The past year has been one of very great activity in order to meet the requirements of the armed Services, and practically the whole of the available resources of the Department have been engaged on these works. The growing scarcity of man-power has made it difficult to meet all demands, but in spite of this a very large volume of engineering and building work has been put through.

PUBLIC BUILDINGS AND ELECTRIC SUPPLY

Reports on public-buildings works and on the operations of the State electric-supply undertakings are contained in the separate reports, included herewith, of the Government Architect and Chief Electrical Engineer, respectively.

STAFF

I would again like to place on record my appreciation of the response which all members of the staff have made to the demands made upon them. A further huge programme of defence construction work has been carried out, and despite very difficult conditions every member of the staff has worked strenuously and efficiently to enable the work to be done.

Many members of the staff are mobilized in the armed forces, both overseas and in New Zealand, the total number now exceeding 1,000. Numerous reports have been received of the splendid work done by our officers and men in overseas units, and they have established a name to be proud of. Eighteen decorations have been awarded to officers of the Department, and 41 officers have made the supreme sacrifice.

I have, &c.,

W. L. NEWNHAM, M.Inst.C.E.,

Engineer-in-Chief.

APPENDIX C

ANNUAL REPORT ON BUILDINGS BY THE GOVERNMENT ARCHITECT

The GOVERNMENT ARCHITECT to the Hon. the MINISTER OF WORKS

SIR,—

I have the honour to submit the following report on the activities of the Architectural Branch for the year ended 31st March, 1943.

During the period 1942-43, our third year of hostilities, we have achieved really remarkable results in the building industry. Centralized control of man-power and materials, co-ordination of requirements of the fighting Services, and the establishment of a close liaison between the contracting organizations and the State Architectural Service have resulted in administrative efficiency and, above all, speed in construction. We have built to a scale never previously equalled and most certainly never contemplated as possible with the reduced man-power and restrictions in available materials resultant respectively upon the demands of the Services for personnel and the necessity of limiting shipping-space for the transport of essential war equipment, &c. Local building-materials have been used to the fullest extent possible, and New Zealand industries have made a valuable contribution in the manufacture of essential building products.

The volume of work completed and the speed attained in the prosecution of major schemes have so far outdistanced our peace-time efforts that I consider it well worth while recording the means by which these results have been attained. They are—

- (a) Centralization of administration, and co-ordination of requirements of the various fighting Services in a directorate called the "Administrative Planning Committee," directly responsible to War Cabinet:
- (b) Centralization of executive, and control of priorities, man-power, and materials required for the building industry through the Commissioner of Defence Construction, who is directly responsible to the Minister of Works, and thereafter decentralization through the various State works offices:
- (c) Complete cessation of civil works, and concentration upon the defence building programme and those civil works classified as "essential defence works":
- (d) Abandonment of competitive tendering, and adoption of a system whereby work is allocated to contracting organizations having the requisite man-power, experience, and administrative capacity for the class of work involved. Work done is quantity surveyed and paid for at unit rates agreed to by the State and contracting organizations. Wage and material rates, though fixed, are subject to review, and amended as deemed necessary from time to time. This is equivalent to price stabilization in the building industry:
- (e) Total control of the timber-supplies. The source of supply and fulfilment of timber demands in accordance with priorities accorded defence works are arranged through the State Forest Service. Payment to the mills is made by the State through the State Forest Service and is not the responsibility of the Contractor:
- (f) The efficient manning of all works through Allocation Committees located in all the main centres. These Committees comprise directors of contracting organizations, the local Man-power Officer, and the District Engineer in each centre. Through these Committees small contracting organizations are welded into well-organized co-operative groups, and competition for labour is eliminated:
- (g) Wherever possible, prefabricated demountable accommodation has been employed in order that buildings may be utilized for rehabilitation purposes at the conclusion of hostilities. This also permitted full utilization of joinery-factories and factory personnel, thus materially supplementing labour available in the building industry.

In all major schemes, careful consideration has been given to the possible utilization of defence accommodation for civilian needs. Hostels erected for "essential" war workers are so designed and located that they may ultimately be converted to flats, schools are being erected for use as hospitals for the duration of hostilities and will ultimately revert to modern educational centres, and new hospitals erected for military purposes are located in centres where they will be readily available for civilian use after the war.

During 1942-43 the capital cost of defence buildings erected, together with ancillary services, amounted to £12,200,000, and 7,100 tradesmen were employed, working a minimum of forty-eight hours, and in the main averaging between fifty-four and sixty hours per week. These tradesmen were supplemented by factory personnel engaged upon the prefabricated work, but accurate records of men so employed are not at the moment available.

In addition to the defence building programme, the following civil works were carried out:—

Department of Agriculture.—Vegetable-production camps were established in various sections of the country suitable for the purpose and the necessary buildings erected by this Department. At Te Kauwhata, Block B of the winery and distillery was completed.

Education Department.—Extensive alterations and renovations were made at Titirangi Hotel for use as a school for deaf children. The additions at Waimate High School have been completed.

Mental Hospitals Department.—Comprehensive repairs and renovations were carried out at Avondale.

Considerable reorganization was necessary in the Wellington Province due to earthquake damage rendering Porirua Mental Hospital untenable, and a large amount of demolition work has been carried out before rebuilding.

Health Department.—At Palmerston North Hospital two new military wards and a new wing of the nurses' home have been completed. A soldiers' block and nurses' home were erected at Cashmere, while a new stores block was built at Queen Mary Hospital, Hanmer.

Post and Telegraph Department.—Additions were made to post-offices at Dargaville and Mangonui. Extensive alterations to the chief post-office, Auckland, were completed, and a new line store was erected at Helensville.

Wholesale earthquake repairs were necessary in Wellington district.

Three new post-offices were erected at Owaka, Clydevale, and Brighton.

The new post-office at Lower Hutt was officially opened on 3rd February, 1943.

Native Department.—Thirteen houses were erected under the Native housing scheme.

Linen Flax.—Factories were erected at Clydevale, Tapanui, Balclutha, Otautau, Woodlands, and Gore.

Otago Iron-rolling Mills.—Duplication: The above work was completed.

Earthquake Work.—The earthquakes occurring in June and September of 1942 threw a very heavy load upon the architectural staff at a time when personnel required for the prosecution of the defence programme could ill be spared. It was necessary to arrange immediate inspections and reports upon a large number of State and civil buildings throughout the Wellington district. Many contracts were prepared for the reconstruction of "essential" public buildings, and this work was perforce undertaken concurrently with urgent defence works, and necessitated a considerable amount of overtime work.

In many instances it was imperative that buildings be temporarily strengthened pending detailed investigation to determine the extent of reconditioning necessary to render them safe for future use, and this further complicated the work of the staff involved.

There was a large volume of defence building work under construction at the time of the earthquakes, and the erection of these buildings was seriously hampered owing to the necessity of diverting both man-power and materials to reconstruction of buildings essential for the maintenance of public services and for the demolition of buildings damaged beyond repair.

General.—In addition, the usual maintenance and renovation work was carried out at various departmental buildings throughout the country.

Team-work and co-operation have been two marked features of a most successful building programme, and I wish to place on record my keen appreciation of the work of the staff both directly under my control and associated with me, and also of contracting organizations and their tradesmen, for the whole-hearted and loyal support which has made such an effort possible.

I have, &c.,

R. A. PATTERSON, A.N.Z.I.A.,

Government Architect.

APPENDIX D

ANNUAL REPORT OF THE CHIEF ELECTRICAL ENGINEER

The CHIEF ELECTRICAL ENGINEER to the Hon. the MINISTER OF WORKS

SIR,—

I beg to report on the position of the development of electric power in the Dominion for the past year, as follows:—

NORTH ISLAND ELECTRIC-POWER SYSTEM

1. *Capital Outlay.*—Extensions to the system being retarded by the lack of man-power due to the war, the increase in capital outlay was small. Details will appear in paper B.-1 [Pt. IV] when audited.

2. *Financial Results.*—The usual buoyancy in revenue was maintained, and from progress figures produced the result of operations for the year was satisfactory. The completion of the Waikaremoana Lower Development Station and the purchase of King's Wharf Station brought more capital into operation and consequently increased the amount payable to Depreciation Reserve for the year.

3. *System Operation.*—On account of the non-delivery, due to the war, of further generating plant it was necessary to run all stations on substantial overloads at intervals to cope with the increased peak loading on the system. The maximum half-hourly load on the system was 257,700 kW. and occurred at 17.30 hours on 4th June, 1942. This represents an increase of 2.09 per cent. on that of last year. The units sold were 1,255,100,000 as compared with 1,185,600,000 for the previous year, an increase of 5.86 per cent.

All main stations were operated continuously in parallel, and the standby and smaller stations were called upon as required. Approximately 42,345 tons of coal were burned at King's Wharf Steam Station, and approximately 21,262 tons of coal and 7,794 tons of oil were used at Evans Bay Station.

Greater use was made of the control gates at Lake Taupo, which contributed largely to the 9.35 per cent more units being generated at Arapuni and Horahora Stations.

4. *Construction.*—Arapuni: No. 5 penstock lining was completed, and the foundations of both Nos. 5 and 6 units were concreted.

Karapiro: Some progress was made with the diversion tunnel, but progress was retarded by the diversion of labour to the more urgent defence jobs.

King's Wharf: This station was purchased from the Auckland Electric-power Board as at 1st April, 1942, the Board operating it for and on behalf of the Department until 31st March, 1943.

Waikaremoana, Main: The new outdoor station, making provision for the paralleling of the Lower station, was proceeded with and No. 9 bay completed.

Waikaremoana, Lower: The installation of one machine was completed, and, after test, put on commercial load on 1st March, 1943. The erection of the second machine is in hand.

Waikaremoana, Upper: Contracts were let for the supply and delivery of 2/19,000 kVA. generators and turbines complete with transformers, switchgear, &c.

Substations: New substations were completed at Mount Roskill, Ohakune, and Upper Hutt and put into service. The transformer capacity at several substations was increased by the installation of larger transformers to meet the growing demand. Supply to the Ohakune Borough Council was commenced during the year. Four new cottages were erected at Hangatiki.

A contract was let for the erection of the Central Park Sub-station building, but before a commencement could be made the contractor was requisitioned for urgent defence works and the contract was cancelled. A further contract has now been let, and work is progressing slowly.

Transmission-lines: Work on the 110 kV. line between Arapuni and Ongarue is progressing slowly with a limited number of men. Some lines were deviated to reduce hazards to aerodromes, &c. A reconnaissance survey was made round the west side of Lake Taupo to determine the engineering difficulties likely to be encountered upon the construction of a possible 220 kV. line through that locality. A commencement was made on the erection of the Khandallah-Central Park 110 kV. line.

5. *Operation and Maintenance.*—The usual high standard of reliability and continuity of supply was maintained during the year. The fact that supply was able to be resumed within a few hours in the region affected by the earthquakes reflects credit on those responsible for the organization in that area.

SOUTH ISLAND ELECTRIC-POWER SYSTEM

1. *Capital Outlay.*—Extensions to the system being retarded by the lack of man-power due to the war, the increase in capital outlay was small. Details will appear in paper B.-1 [Pt. IV] when audited.

2. *Financial Results.*—The usual buoyancy in revenue was maintained, and from progress figures received the result of operations for the year was satisfactory.

3. *System Operation.*—The annual increase in demand was maintained, 479,094,860 units being generated, as compared with 424,535,310 last year, an increase of 12.85 per cent. The system maximum demand (excluding Waipori) also increased by 8 per cent., from 90,440 kW. last year to 97,680 kW. The system maximum demand (including Waipori) was 117,924 kW.

4. *Construction.*—Power-stations: The erection of a new cottage was completed at Lake Coleridge. The station building at Highbank was completed, and the crane erected. The erection of outdoor steelwork at this station is nearly completed, and a commencement is being made on the installation of the machines.

Substations: At Hororata the new outdoor structure was completed, and both banks of the 110/66 kV. auto transformers were moved from Timaru and put into service.

Transmission-lines: The 110 kV. line between Timaru and Tekapo was completed, as was also the 66 kV. line connecting Highbank Station with Hororata. Neither line, however, is yet in service.

The Timaru—Ashburton—Hororata lines, which hitherto have been operating at 66 kV., were changed over to operation at 110 kV.

5. *Operation and Maintenance.*—The number of interruptions was again almost negligible, reflecting credit on those responsible. Monowai and Waipori Stations were run in parallel with the system as required.

The continued increased retail sales of energy in Southland confirm the confidence and appreciation of the consumers in the improved service given by the Department consequent upon the linking-up of Southland with the South Island network. The number of consumers is steadily increasing, and at 31st March 12,497 were taking supply in Southland direct from the Department.

6. *Cobb River Scheme.*—Owing to the shortage of man-power, progress on this work was slow. The tunnel is now almost completed, and work is proceeding on the erection of the pipe-line. The contractors are making good progress with the installation of the generating plant.

Transmission-lines are nearing completion, and use has already been made of them for the interchange of standby power between supply authorities in the district.

REGISTRATION OF ELECTRICAL WIREMEN

Arrangements were finalized for giving credit for the time spent by apprentices in electrical work whilst members of the armed forces.

The time allowed for the written examination for wiremen was increased from three hours to four hours.

Examinations were held for electrical wiremen, electrical servicemen, radio servicemen, radio transmitters, and cinematograph operators.

Further endeavours were made to have adequate provision for study in defence camps. The first woman to be registered under the Act was registered in January, 1943.

Arrangements for the registration of assistants to mine electricians were finalized.

Further discussions took place with regard to the increasing shortage of registered electrical wiremen, and it is anticipated that some relief to the position will be forthcoming in the near future and thus permit arrears of maintenance to be overcome.

DESIGN OFFICE

Power-stations.—The design work for Waikaremoana Lower and Highbank Power-stations was completed. Layout drawings were prepared for new power-stations at Karapiro, Waikaremoana Upper, and Tekapo, and the structural-design work for the two former stations was put in hand. Other design work for power-stations included outdoor station building for Karapiro, foundations for new outdoor station at Lake Coleridge, foundation details for new outdoor station at Waikaremoana Main Station, cottages and hostel for Cobb River, and unloading-shed at Cambridge for Karapiro machinery.

Substations.—Buildings designed included administrative block, new workshop block, and temporary office and store building at Hamilton No. 1; new workshop at Waihou; and substation buildings at Motupipi.

Other design work included layout and foundation drawings for control-room, switch-gear extensions, and synchronous condenser at Khandallah and for synchronous condenser at Hororata, and for equipment at Central Park.

New handling equipment dealt with included 200 ton, 60 ton, 50 ton, and 45 ton overhead travelling cranes and 25 ton, 35 ton, and 45 ton traverser trucks.

Existing fire-protection equipment was augmented at a number of power-stations and substations by larger mains, storage reservoirs, and, where necessary, petrol-driven pumping-sets.

The progress of design work was in many cases seriously retarded through late arrival of drawings and information from manufacturers of equipment.

Hydraulic. Investigations were continued on the development of further sources of supply to meet the ever-increasing demand for electric power.

I have, &c.,

F. T. M. KISSEL, B.Sc., M.I.E.E., A.M.I.C.E.,

Chief Electrical Engineer.

APPENDIX E

NINETEENTH ANNUAL REPORT OF THE MAIN HIGHWAYS BOARD

The Hon. the Minister of Works, Wellington.

SIR,—

In accordance with the requirements of section 24 of the Main Highways Act, 1922, the Main Highways Board has the honour to submit its nineteenth annual report for presentation to Parliament.

The report covers the period 1st April, 1942, to 31st March, 1943.

General.—The restriction of construction and improvement works has been even more in evidence this year than last. The shortage of man-power has resulted in the virtual stoppage of urgent bridge renewals which had been intended for completion, though a few were disposed of early in the year.

The length of bridging completed amounts to 972 ft., compared with 3,513 ft. last year. There is a considerable leeway to make up in respect of bridge renewals, including many large structures which have been given extended life at the expense of high maintenance costs. The reconstruction of these bridges will have to be undertaken just as soon as man-power and materials can be made available.

With regard to surfacing, very little except maintenance sealing has been carried out, the increase in dustless highways being 24 miles, which is approximately one-third of last year's figure, and one-tenth of that of the previous year. The total mileage is now 3,564, or 28·8 per cent. of the highway system.

Eighty-three miles of sealed surfaces were renewed, compared with 103 last year, both of which must be regarded as inadequate in relation to the total mileage of dustless highways, which under normal conditions would now require about 400 miles of resealing annually to maintain them in proper order. The deterioration of surfaces now proceeding is evidenced by the amount of patching required in various districts, and this cannot be considered a satisfactory form of maintenance. A large part of this work is undoubtedly due to military traffic, but with a return to anything approaching normal conditions the usual traffic would have much the same effect, and, of course, a greater mileage would be involved.

A considerable proportion of the recent sealing has been done with tar, owing to shortage of bitumen, and this may be expected to have an appreciably shorter life than the latter material.

The cost of bituminous road-binders has more than doubled during the past three years, nevertheless their adhesive and lasting qualities make them preferable to tar where important highways and heavy traffic are concerned. Other costs have also advanced considerably, the net result of which is that sealing-work can only be done to about half the former extent on a fixed appropriation.

It is acknowledged that during the past year assistance from the War Expenses Account has enabled some additional work to be done in the form of surface repairs necessitated by military traffic, but it is, of course, preferable, owing to seasonal and other conditions, that the amount of finance available for expenditure by the Board should be made known well in advance, so that suitable preparations for the various works can be made.

As anticipated in last year's report, the Board's revenue for the year was not sufficient to cover the cost of maintenance and fixed charges, and a further decrease in revenue is expected during the current year. This position should not be allowed to continue, and some provision should be made whereby it will not be necessary to borrow capital funds for expenditure on maintenance works.

Personal.—In consequence of the death of Mr. C. J. Talbot, Fairlie, who had been a member of the Board for sixteen years, Mr. F. R. Flatman, Woodbury, Geraldine, was appointed to be a member of the Board on the 28th July, 1942. Mr. Flatman is one of the members representing the New Zealand Counties Association, and has been a member of the Association for over twenty years.

It is with deep regret that the Board records the death during the year of two former members of the Board, in the persons of Mr. C. J. McKenzie and Mr. A. J. Baker, the former on the 5th October, 1942, and the latter on the 16th February, 1943. Both of these gentlemen gave valuable service to the Board over a number of years, Mr. Baker having been a member for seven years and Mr. McKenzie twelve years, during four of which he occupied the office of Chairman.

Works.—The principal works carried out in the various districts during the year are briefly as follows:—

In the Whangarei district the Waiaruhe (Black) Bridge, near Pakaraka, and two large culverts have been completed, and work is about to recommence on two other bridges in this area.

The 630 ft. Titoki Bridge, in Whangarei County, a contract for which was let early last year, has made slow progress, but work on the piles and cylinders is now nearing completion.

A number of bridges have been strengthened for military traffic.

The $1\frac{3}{4}$ miles Topuni deviation on the Birkenhead—Maungaturoto State highway has now been formed and metalled.

North of Auckland, the 57 ft. Awaroa bridge at Helensville and the Croydon Road overbridge were completed, together with their approaches. The improvement works south of Helensville have been suspended.

The reconstruction of $5\frac{3}{4}$ miles on the Pokeno—Paeroa State highway was completed and the length has now been sealed. This completes the sealing of this highway, which may be considered the principal improvement carried out in the district during the year.

On the Waihi—Coroglen highway, Grahams and Pepe Bridges have been erected, and the Waiwawa is in hand. Bridges throughout the district to the number of twenty-three have been repaired or strengthened.

The Tauranga and Gisborne districts had no major works in hand during the year. In the former district the protective work on the State highway along the shore of Lake Taupo was continued, and the position is now satisfactory unless further erosion becomes evident. This work is consequent on the controlling of the lake-level for hydro-electric purposes, and has required some 7,000 cubic yards of stone up to the present. Part of the cost is being met from the Hydro-electric Account.

In the Gisborne district tree-planting to minimize erosion has been continued, and some flood-protection works constructed.

In the Napier district new bridges over the Waikoau and Matahouira streams on the State highway to Gisborne are under construction, contracts having been let for these early last year. The foundations and piers have been completed in both cases.

A contract has also been let for the 42 chains of approaches to the Waikoau Bridge.

On the Napier—Palmerston North Highway the 70 chain Piri Piri deviation and 7 chains of approaches to the Manga-atua Bridge were sealed, also 41 chains of McLean Street main highway in Woodville.

Heavy slipping occurred as a result of floods and earthquake damage in the southern part of the district.

In the Taumarunui district the principal works comprised the construction of several short bridges and concrete culverts, and the restoration of flood damage, the latter being a recurrent item in this district.

The metalling of the remaining gap between Ohura and Aria was completed.

On the Stratford—Taumarunui highway, Stratford district, the 85 ft. No. 4 Mangotuku Bridge was completed, and No. 1 bridge of similar length is in hand.

The Wanganui district has been largely concerned with the effect of military traffic on highways, particularly that from Bulls through Taihape to Waiouru. The light metalling and tar-sealing applied a few years ago has failed over considerable lengths, and has been under extensive repair. Three miles were sealed below Waiouru, 8 miles resealed between Bulls and Hunterville, and further work is in hand.

In the Wellington district the principal items were the erection of three bridges, of moderate length, and two large concrete culverts, one being 12 ft. by 12 ft. by 52 ft.

The two severe earthquakes which occurred in June and August caused considerable damage to bridges in the Wairarapa area, and accentuated the effect of subsequent floods.

In the Nelson district, Murchison County, the 93 ft. Granity Creek bridge and several short timber bridges were erected. A considerable amount of flood-damage was repaired.

On the West Coast the year has been remarkable for heavy rainfall, with exceptional local storms, which have caused much damage to almost all of the highways. The outstanding item was the demolition of 280 ft. of the Big Wanganui Bridge, near Harihari, the restoration of which has now been completed by the erection of six 60 ft. hardwood truss-spans. Extensive protection works have also been necessary at several other bridges.

Two short bridges and several large culverts have been constructed, and the 4-mile creek water-drive, 160 ft. long, on the Nelson—Westport highway was completed. A 32 chain deviation on the Christchurch—Kumara highway was formed and metalled.

In Canterbury the approaches to the Benmore Bridge, in Cheviot County, comprising a 36 chain deviation, have been formed and metalled, and the approaches to the Waiiau Bridge at Parnassus are being altered in consequence of the completion of the new railway bridge, which leaves the original bridge solely for highway traffic.

The Bower Bridge over the Avon near New Brighton, 90 ft. in length with a 30 ft. roadway, has been completed. A contract has been let for sealing 9 miles of the Tinwald—Westerfield highway.

In the Otago and Southland districts the chief works of importance were the completion of the approaches to the Wairuna Overbridge near Clinton, the erection of a short bridge on the Outram—Berwick highway, and the completion of a large twin concrete box culvert replacing Barratta Creek Bridge on the Balclutha—Kaka Point highway. A contract is in progress for the reconstruction and sealing of $5\frac{1}{4}$ miles south of Kurow, and a contract let for sealing $2\frac{1}{2}$ miles between Branxholm and Buxton's Corner, at Invercargill. A 20 chain deviation improving the alignment and grade of Jollie's Hill between Lowther and Atholl was completed, also a $1\frac{1}{2}$ miles deviation in Vincent County near Wanaka, which has been held up for some time.

Magnetic Truck.—The machine has been in operation throughout the year, principally on aerodromes and military camps, where it has done very useful work. The quantity of puncture-producing material picked up on these was $5\frac{1}{2}$ tons, and on highways $2\frac{3}{4}$ tons, the latter being at the rate of 2.4 lb. per mile, compared with 2.1 lb. in the previous year. The clearing of highways was practically confined to those traversed on journeys between camps and centres.

The maintenance of signposts has been carried out on main highways by automobile associations under subsidy from the Board. Although it has not been possible to make personal contact with local authorities and motor organizations during the year, the usual spirit of co-operation and good will has existed, and the Board looks forward to a continuance of the same good feeling in the future.

The Board acknowledges the continued co-operation of the Public Works Department in matters relating to main highways administration, and records its appreciation of the valuable services rendered by officers of the Department.

Signed on behalf of the Main Highways Board:

W. L. NEWNHAM, Chairman.

APPENDIX F

FIRST ANNUAL REPORT OF THE SOIL CONSERVATION AND RIVERS CONTROL COUNCIL

The Hon. the Minister of Works.

SIR,—

In accordance with the requirements of section 33 of the Soil Conservation and Rivers Control Act, 1941, the Soil Conservation and Rivers Control Council has the honour to submit its first annual report for presentation to Parliament.

The report covers the period from the constitution of the Council on 9th June, 1942, to the 31st March, 1943.

INTRODUCTORY.

The Act has as its objects conservation of the soil resources of New Zealand and the more effective protection of property from damage by flooding, and places under the control of this Council the administration and co-ordination of all activities in relation thereto.

River control has in the past been the responsibility of River Boards, Drainage Boards, and local authorities generally, and while much good work has been done with Government assistance, much that has been achieved has, with certain notable exceptions, been lost by lack of maintenance. Works, moreover, have for the most part been local and have not formed part of a comprehensive scheme covering the whole of a river. In every province considerable river-control work will be necessary, with provision for adequate maintenance of new and existing works.

Erosion has also received the divided attention of individuals, local authorities, and of Government Departments within the scope of respective departmental activities, but in the absence of sufficient statutory authority there has been little unity of effort and no adequate machinery for the institution of a programme of correct soil-conservation practice. Information available to the Council from the Soil Survey Branch of the Department of Scientific and Industrial Research, and other sources, indicates that erosion in many areas has reached a serious stage and must be controlled at an early date if further deterioration is to be arrested. The need for river-control work is perhaps more prominently before the public eye than the need for soil-conservation practice, but even at this early stage in the Council's existence members are of the opinion that soil conservation will be the more important phase of the Council's activities.

COUNCIL

For the purpose of the Act a Council to be known as the Soil Conservation and Rivers Control Council was established, and this Council was constituted by His Excellency the Governor-General on 9th June, 1942, with the following membership:—

Chairman—

Mr. W. L. Newnham (Wellington), Engineer-in-Chief, Public Works Department.

Members—

Mr. R. G. Maemorrán (Wellington), Under-Secretary for Lands.

Mr. T. G. G. Beek (Wellington), of the Public Works Department.

Messrs. J. Callesen (Karere) and G. A. Monk (Reikorangi), representing River Boards, local authorities, Drainage Boards, and Catchment Boards.

Mr. A. J. Davey (Waitohi), representing agricultural and pastoral interests.

POLICY

At the initial meeting of the Council held in Wellington on 9th September, 1942, it was realized that during the course of the war the Council would not have the finance, or the staff, man-power, and material, necessary to embark on an extensive programme of works, and with this knowledge it was decided that the preliminary period should be devoted to the development of a sound policy and an efficient organization, which could implement fully the functions of the Act immediately the war is over.

Individual matters receiving the Council's attention are dealt with below.

CATCHMENT DISTRICTS

Section 34 of the Act provides for the setting-up by His Excellency the Governor-General of catchment districts, which are administered by Catchment Boards. Consideration has already been given to the question of constituting catchment districts embracing the Manawatu, Hawke's Bay, and Nelson districts, and the Council expects to be in a position to make early recommendations to the Government.

Proposals affecting other areas are being worked out.

SOIL CONSERVATION DISTRICTS AND RESERVES

Section 13 of the Act provides for the constitution of soil conservation districts, and section 16 for the acquisition of soil conservation reserves, and several proposals are at present under investigation.

CENTRAL AND DISTRICT COMMITTEES

A central standing committee, and district committees in the various public-works districts, comprising representatives of existing Departments, have been set up to act in an advisory capacity as required on all matters pertaining to river control and soil conservation as may be referred to them from time to time by the Council. The local knowledge of the members of such district committees will be of considerable value to the Council. The central standing committee, which consists of representatives of the Public Works, Lands and Survey, Agriculture, Scientific and Industrial Research, and Forestry Departments, will have a most important function in connection with the work of co-ordinating the activities of the various Departments concerned in the problems of soil conservation and rivers control.

TECHNICAL INFORMATION

The collation of reports, maps, and other information will proceed as staff becomes available. Arrangements have been made for the exchange of information with the soil-conservation services of America and Australia, and much benefit is expected to accrue thereby.

SURVEYS AND RESEARCH

A programme of survey work, the collection of data in connection with soil erosion, soil conservation, and river control, together with related research and experimental work, is to be instituted.

AFFORESTATION

A programme of afforestation and work in connection with protective vegetative covering is planned, and district committees have been requested to make recommendations affecting their districts as to suitable areas for nurseries.

PUBLICITY AND EDUCATIONAL

Publicity and educational work will play a large part in the development of correct soil-conservation practice, and arrangements are in hand for the appointment of a publicity and educational officer so that the considerable task of the collection and collation of suitable material can be commenced and as much publicity and educational work carried out as present conditions will allow.

INSPECTION

Field inspections are being made as opportunity permits to enable members to become fully conversant with the varying problems which obtain in the different districts.

Travel restrictions and the pressure on members' time of other essential activities has greatly reduced the scope of these inspections. Nevertheless, brief visits have been made to the Hawke's Bay, Westland, and Nelson districts, and further inspections are proposed as opportunity offers.

GENERAL

The Council wishes to make it clear that progress in the work outlined is dependent on the financial provision made available, and, further, that the ability to take advantage of that provision is in turn dependent on the staff and man-power available to the Council. While the war is running its course the prior needs of the armed forces and essential services will overshadow the Council's activities and severely restrict its functions. This is to be regretted, but is unavoidable, and members of the Council look forward to happier days ahead when the organization which is being built up will be fully tested.

Signed on behalf of the Soil Conservation and Rivers Control Council:

W. L. NEWNHAM, M.Inst.C.E., Chairman.