1941.

NEW ZEALAND.

NEW ZEALAND STANDARDS INSTITUTE.

(DEPARTMENT OF INDUSTRIES AND COMMERCE.)

ANNUAL REPORT FOR THE YEAR 1940-41.

Presented to both Houses of the General Assembly by Leave.

The Hon. D. G. Sullivan, Minister of Industries and Commerce.

Sir,

I have the honour to submit herewith the annual report of the New Zealand Standards Institute for the year ended 31st March, 1941.

I have, &c.,
L. J. Schmitt,
Permanent Head, New Zealand Standards Institute.

A. R. Galbraith, M.Inst.C.E., F.R.S.E., Chairman, New Zealand Standards Council.
L. J. McDonald, Secretary, New Zealand Standards Institute.

REPORT.

The work of the New Zealand Standards Institute has proceeded satisfactorily throughout the year ending 31st March, 1941, under the direction of the Standards Council, the personnel of which is as follows:—

A. R. Galbraith, Esq., M.Inst.C.E., F.R.S.E., M.N.Z.I.E. (Chairman), Municipal Association of New Zealand.
F. W. Furkert, Esq., C.M.G., M.Inst.C.E., M.I.Mech.E., M.N.Z.I.E. (Deputy Chairman), New Zealand Institution of Engineers.
S. Cory-Wright, Esq., B.Sc., A.M.Inst.C.E., M.N.Z.I.E., New Zealand Importers' Federation and United Kingdom Manufacturers' and New Zealand Representatives' Association.
W. Donovan, Esq., M.Sc., F.I.C. (R. L. Andrew, Esq., F.I.C., deputy), Dominion Laboratory.
A. Fletcher, Esq., Building Interests.
G. A. Holmes, Esq., B.Ag., M.Sc., Department of Agriculture.
W. A. Joiner, Esq., M.Sc., A.I.C., Chemical Divisional Committee.
F. T. M. Kissell, Esq., B.Sc. (Eng.), M.I.E.E., A.M.Inst.C.E., M.N.Z.I.E., Hydro-electric Branch, Public Works Department, and Electrical Engineering Divisional Committee.
E. H. Langford, Esq., M.A., Consumer Interests.
G. A. Lawrence, Esq., B.Sc., F.I.C., New Zealand Institute of Chemistry.
E. Marsden, Esq., M.C., C.B.E., D.Sc., F.R.S.N.Z., Department of Scientific and Industrial Research.
L. J. McDonald, Esq., Department of Industries and Commerce.
H. C. Morton, Esq., A.R.I.B.A., A.N.Z.I.A., New Zealand Institute of Architects.
P. M. Muir, Esq., Stores Control Board.
W. W. Mulholland, Esq. (A. P. O'Shea, Esq., deputy), New Zealand Farmers' Union.
W. L. Newnham, Esq., A.M.Inst.C.E., M.N.Z.I.E., Public Works Department.
A. W. Nisbet, Esq., F.C.S. (N.Z.), New Zealand Manufacturers' Federation.

K. Pallo, Esq., New Zealand Manufacturers' Federation.
G. A. Pascoe, Esq., Council of Scientific and Industrial Research.
J. Read, Esq.,Trades and Labour Council.
L. J. Schmitt, Esq., A.C.I.A., F.C.A.A. (F. Johnson, Esq., deputy), Department of Industries and Commerce.
E. T. Spidy, Esq., M.N.Z.I.E., Railways Department.
F. B. Stephens, Esq., M.A., B.Com., Department of Internal Affairs.
W. B. Sutch, Esq., Ph.D., M.A., B.Com., Consumer Interests.
G. W. Wyles, Esq., A.M.I.E.E., M.I.R.S.E. (C. R. Lovatt, Esq., deputy), Electrical Regulations Advisory Committee.

Meetings of Council.

The Council met on three occasions to examine and consider the general work of the organization and the reports of the committees which have been active.

Current Projects.

In response to requests for the development of standards, 37 projects were authorized, bringing the total number examined during the year under review to 93. Of these, 74 have been active in varying degree, while 10 have been left in abeyance until more urgent work is disposed of. Nine have been abandoned.

Stores Control Board.

The Stores Control Board has requested the Standards Institute to undertake a revision of the 110 specifications it uses in purchasing necessary supplies for Government Departments. The Board has also requested the development of a number of additional specifications for commodities not at present included in the existing specifications. The use of uniform specifications by all Government Departments for goods required for one and the same purpose is an advantage to suppliers in that they are not unnecessarily required to produce goods to varying specifications. It also establishes an equitable and sound basis for submitting tenders and generally results in more economic production and distribution of the necessary supplies. It is intended to issue these specifications as national standards, with a view to encouraging their use by public authorities and institutions throughout the country and so extending the advantages to be derived from adherence to the principle of standardization.

Standard Specifications adopted as New Zealand Standards.

Four original Standard Specifications and 62 British Standard Specifications were adopted during the year, and one standard was withdrawn, which increases the total number of New Zealand Standard Specifications to 345.

Specifications received from other Countries.

	Standard Specifications.	Draft Specifications.
British Standards Institution	104	92
Standards Association of Australia	134	16
Canadian Engineering Standards Association	21	..
South African Standards Institution	..	1
American Standards Association	118	..
American Society for Testing Materials	292	..
U.S. Treasury Department (Federal Standards)	249	..
U.S. Department of Commerce (National Bureau of Standards)	40	..
National Electrical Manufacturers' Association (U.S.A.)	2	..
Society of Automotive Engineers (U.S.A.)	38	..
Total	998	69
Grand total	1,067	

Other publications received, including reports and other data relevant to standards activity—many of which afford valuable assistance to standardization and related activities in this country—number 233.

The total number of publications, including specifications, received therefore amounts to 1,300.

Circulations and Exchange of Specifications and related Documents.

In accord with the reciprocal relationship existing between standards bodies throughout English-speaking countries, draft New Zealand Standard and Standard Specifications have been circulated to these bodies for comment. Library copies of standard specifications and relevant reports have also been exchanged. The circulation and exchange of documents ensures, as far as practicable, the co-ordination of requirements within the specifications of the respective countries in a way that represents a common advantage and benefit to all the countries concerned.

During the past twelve months the various committees of the Standards Institute, after circulation of the draft specifications to all interests which it was thought likely could offer useful comments, have reviewed the provisions of 69 draft British, Australian, and South African Standard Specifications. A summary of the comments received has in each case been sent to the originating

standards organization. These organizations have reciprocated by supplying technical and other comments upon the provisions of original New Zealand Draft Standard Specifications. Thus, after circulation of any draft, the standardizing body concerned receives the benefit of the comment forwarded through all those standards organizations which have circulated the draft to affected interests within their respective countries. Both draft and comments are subsequently reviewed by competent representative committees before despatch to the country of origin. This practice ensures that when the draft is authorized for publication as a standard it will have a wider acceptance.

British, Australian, and South African Draft and Standard Specifications to a total number of 307 were received during the year, and action was taken thereon as shown in the tables set out hereunder :—

Draft Standard Specifications.

	Great Britain.	Australian.	South African.	Totals.
Draft Standards received	52	16	1	69
Draft Standards circulated for comment by affected interests	46	11	1	58
Deferred pending consideration of final documents	12	1	..	13
Considered unsuitable for adoption as New Zealand Standards	6	2	..	8
Still under consideration	28	11	1	40
Totals	52	16	1	69

Standard Specifications.

	Great Britain.	Australian.	Totals.
Standards received (including war emergency issues)	104	*134	238
Standards circulated for comment by affected interests ..	58	22	80
Adopted as New Zealand Standards	15	..	15
Recommended for adoption but not yet approved	4	..	4
Recommended for adoption with amendment but not yet approved	1	..	1
Considered unsuitable for adoption as New Zealand Standards	8	6	14
Received for information only	5	15	20
Still under consideration	71	*113	184
Totals	104	134	238

* Includes British Standard Aircraft Specifications and (Imperial) Air Ministry D.T.D. Specifications adopted as Australian Standards.

Thirteen original Draft New Zealand Standard Specifications were also circulated for comment. Of these, one was abandoned and the remaining twelve are proceeding towards completion. Four original New Zealand Standards have been adopted. Particulars of the specifications referred to will be found under the headings of the respective committees in a later section of the report, which reviews committee activities. Eight existing standards were revised in order to bring these into accord with changing practice and needs.

ACKNOWLEDGMENTS TO OVERSEAS STANDARDS ORGANIZATIONS.

Full acknowledgment and appreciation are due to the following overseas institutions for their continued collaboration and assistance, and for the valuable documents, publications, and general information supplied :—

British Standards Institution.
Canadian Engineering Standards Association.
Standards Association of Australia.
South African Standards Institution.
Council of Scientific and Industrial Research (Australia).
American Standards Association.
American Society for Testing Materials.
U.S. Department of Agriculture (Consumers' Counsel Division).
U.S. Treasury Department (Procurement Division).
National Electrical Manufacturers' Association (U.S.A.).
Pacific Coast Building Officials Conference.
Society of Automotive Engineers (U.S.A.).
American Petroleum Institute.

Sales of Standard Specifications.

Copies of specifications to a value of £1,426 0s. 1d. were sold during the year, as detailed in the following table :—

	Copies.	£	s.	d.
Original New Zealand Standard Specifications (including special reprints of the Standard Code of Building By-laws)	13,478	1,054	8	0
New Zealand Standard Specifications being British Standards adopted (with or without amendment)	1,310	181	3	9
Total sales, New Zealand Standard Specifications ..	14,788	1,235	11	9
British Standard Specifications (not adopted as New Zealand Standards)	1,005	148	12	6
British Standard Aircraft Specifications	510	31	16	9
British Emergency Standard Specifications	40	0	15	10
Australian Standard Specifications	162	9	3	3
Total sales	16,505	1,426	0	1

New Zealand Standard Code of Building By-laws.

The value which the local authorities attach to the standardization of building by-laws is soundly evidenced by the readiness with which they have adopted Parts I–VI of the New Zealand Standard Code of Building By-laws which have been issued. Cities and boroughs which, according to advice, have adopted Parts I–VI of the Building By-laws, or are in process of so doing, are: Auckland, Balclutha, Bluff, Christchurch, Dannevirke, Dargaville, Devonport, Dunedin, Ellerslie, Feilding, Gisborne, Greymouth, Hamilton, Hawera, Inglewood, Invercargill, Lower Hutt, Masterton, Matamata, Mosgiel, Mount Albert, Napier, Nelson, New Lynn, Newmarket, New Plymouth, Northcote, Onehunga, Ohakune, Otaki, Palmerston North, Papakura, Picton, Raetihi, Rangiora, Riccarton, Stratford, Takapuna, Taumarunui, Tauranga, Te Kuiti, Thames, Timaru, Waipukurau, Wanganui, Wellington, and Whangarei.

The forty-seven local authorities listed above represent more than five hundred thousand inhabitants, or more than two-thirds of the urban population of New Zealand ; in fact, it is believed that these standard provisions are being adopted by all the municipal authorities in the Dominion with a population of 5,000 or over (as at 1st April, 1934) with ten exceptions.

Forty-five local authorities have placed orders, in the aggregate, for 12,200 special reprints, which, by arrangement with the Government Printer, are being supplied with the addition of the introductory, enactment, and attestation clauses of each local authority.

Value of Standardization.

The growing use of standard specifications and codes, as indicated by the volume of sales and the requests for their development, clearly indicates that their value is increasingly appreciated. This is in accord with the fast-developing trend in other countries which serves to establish that a better utilization of economic resources, on a basis of better commercial and trading relationships, is secured in degree to which the principle of standardization is soundly related to the activities and needs of the people of the Dominion.

Economic Stabilization Conference.

The findings of the Economic Stabilization Conference, which sat last year, offers further support for the conclusions stated above. This representative conference found that considerable savings could be effected by the adoption of standards, and that the present machinery for standardization should be improved and extended. By direction of the Hon. the Minister of Industries and Commerce, some steps have been taken, and other are in process of being taken in order to give effect to these findings.

War Emergency Standards.

The Standards Council, at its last meeting of the period under review, decided to institute an Emergency Standards Divisional Committee to direct the action to be taken in connection with War Emergency Standards coming to hand from overseas standards organizations. One hundred and fifty such standards had been received. While it is possible that some of these may not be of advantage to New Zealand, a considerable number will be very valuable.

The provision that has been made by the institution of this Committee for the proper consideration, adoption, and use of such standards as will assist the war emergency will avoid the necessity of undertaking work here that has already been completed overseas. Moreover, it will aid the general efforts to secure a greater degree of co-ordination of the war activities of the English-speaking countries, relating to the type of equipment and the nature of supplies to be produced for given purposes.

The Committee will also give attention to the development of any original emergency specifications which may be required in this country, in addition to those received from overseas. The confusion and waste that must arise from the use of different specifications by different interests and in different locations within New Zealand for one and the same purpose will thereby be avoided. The

existence of such specifications should also greatly facilitate war emergency administration in its various phases, as it will enable the authorities concerned to cite specifications by title and number instead of being required to enter into detailed particulars attendant upon the various phases of administrative activity.

The Standards aspect of the war emergency administration will almost certainly become more important in New Zealand, particularly in relation to supplies. Sources of supply of essential materials, equipment, and commodities are undergoing changes which must result in confusion unless the specifications in use in this country are co-ordinated in order to limit their diversity to the practicable minimum. They must also be reconciled, as far as possible, with those in use by the trading interests and users of corresponding goods in those countries which are becoming the new sources of supply of the different groups of commodities. Failure to bring about such co-ordination will make definition and consolidation of orders impossible, and this can result only in prejudicing our position in regard to supplies.

Standardization assists War Effort.

Standardization activity has been greatly increased in all English-speaking countries in order to bring into being the vastly increased and properly defined production of the most suitable type and quality necessary to satisfy the war emergency needs. During the present war exigency it has been established on the most competent authority that the full application of the principle of standardization is cardinal and basic to the successful prosecution of every phase of the war effort. In this connection it is of interest to note that 150 War Emergency Standards have been received from England and Australia.

Some excerpts from reports received from the Standards organization of England, the other Dominions, and the United States of America, quoted hereunder, provide striking evidence of the important contribution which standardization is making towards the effective prosecution of the war:—

From Great Britain.

"In response to direct requests from industry, the" [British Standards] "Institution has prepared and issued a number of War Emergency Specifications to meet the conditions resulting from the restriction in the supply of materials, and the demands for new and revised standards to meet these contingencies are increasing.

"Although war conditions have given an impetus to the development of standards, it must not be assumed that they are only a wartime measure."

War Conditions Increase the Necessity for Standards.—"A factor which has contributed to the urgency for standards in distribution arises from the new conditions brought about by the war. The need for conserving stocks and for using available supplies only in those ways which are most likely to give the greatest economic advantage; the urgency for ensuring that superfluity of choice should give place to informed and regulated purchasing; the need for economy in manufacture, distribution, and consumption; these immediate requirements all point towards a reduction in the number of types and sizes of a large range of household goods, thus eliminating many redundant sizes and types which add at every stage to the cost to the consumer, and give rise to wasteful methods in production and distribution."

From the United States of America.

"The Secretary of the Research Institute of America has given his views of the steps which would be taken by America in relation to distribution if that country became involved in war. Among the steps which he suggested the Government would take were the following:—

"(1) Secure all possible reduction in the number of styles, varieties, sizes, colours, finishes, &c., of the several products of the industry in question:

"(2) Eliminate styles and varieties of articles that violate the principle of economy in the use of constituent materials. Standardize sizes, lengths, widths, and the like in such a way as to preserve sufficient strength and durability while achieving economies in materials and labour:

"(3) Economize in containers by eliminating smaller and odd sizes."

Other reports state that the cost of steel has been reduced by 8·8 dollars per ton when rolled in 100-ton lots as compared with 5-ton lots. Two instances are quoted of the cost per ton rising by 12·95 dollars and 15 dollars respectively where the orders for rolled steel were outside the accepted standard, thereby necessitating production in smaller lots.

Summarizing the vital importance of standization, the following passages appear in a further report:—

> "Under present-day conditions standards have become a key factor in every programme of large-scale production.
>
> "The integration of the Government's purchasing programme and industry's manufacturing programme into a smooth flow of production is an enormous undertaking. Shortcomings in the standards which control the products ordered, or in the manufacturers' methods in working to those standards, result in bottle-necks which cut down the flow of goods."

The above excerpts are relevant, as the benefits derived from standardization in U.S.A., England, and the other Empire countries are also obtained in this Dominion in degree to which the New Zealand Standards Institute succeeds in correlating the work of those standards organizations to our commercial and industrial activities here.

Work of Committees.

During the year 13 additional committees were instituted, bringing the total number in existence at the close of the year to 72, with a total membership of 580. The activities of these committees are summarized later in this report. Where the words "in recess" appear opposite the name of a committee in this summary they indicate that the committee has had no occasion to meet during the year, either because it has completed its work or because it has been unable to proceed until necessary information, test results, &c., have been obtained. The word "inactive" indicates that it has not been possible to call the committee together on account of demands made by more urgent work.

Meetings.

One hundred and thirty two meetings took place during the year.

Acknowledgments to Members of Committees.

The members of these committees have been appointed by the interests they represent to undertake this work because of their special competency in their particular professions and avocations. Consequently they have many other responsibilities and activities which make heavy demands upon their time and energies. Notwithstanding these heavy demands, rendered still more exacting by war conditions, the members of these committees have continued to make their valuable time, knowledge, and experience available with no thought of reward other than the satisfaction of assisting to advance the welfare of the Dominion.

It would be difficult to overestimate the cumulative benefit which accrues to the Dominion from this large-scale voluntary service. It is much regretted that the necessity to economize in the use of paper renders it necessary to omit from this report the names of the members of the committees responsible for such signal service. It is felt, however, that each member will appreciate the necessity, and under existing circumstances will fully endorse every effort to conserve supplies.

Executive Committee.

During the year seven meetings of the Executive Committee took place, at which 127 reports of committees were examined and the general work of the organization kept under review. This has greatly facilitated the deliberations of the Standards Council associated with the general direction and supervision of all activities, including consideration of the development and adoption of standard specifications, the circulation of drafts, and the review of committee activities, to which reference is made in other sections of the report.

Civil Engineering Divisional Committee.

(Four meetings.)

Fencing Wire Sub-committee	Inactive.
Steel Sub-committee	In recess.
Bridge Loads and Stresses Sub-committee	In recess.
Cement and Concrete Sub-committee	1 meeting.

Parent Committee.—In collaboration with the Standard Conditions of Contract Committee of the New Zealand Institution of Engineers and a representative of the New Zealand Federated Builders' and Contractors' Industrial Association of Employers, this committee has completed the formulation of New Zealand Standard Conditions of Tender and General Conditions of Contract for Civil Engineering Works. These standard conditions have now to be subjected to legal scrutiny before they are forwarded to the Standards Council as suitable for adoption as New Zealand Standards. The need for standard conditions of this scope has long been felt and the promulgation of a national standard will do much to eliminate the disputes which frequently arise when vague and inadequate conditions are in force. It will also provide the means whereby the principal, on the one hand, may have available reliable conditions which are generally accepted, while the contractor, on the other hand, will be relieved of the necessity of assimilating a different set of conditions for each contract entered into.

In addition, two draft and four standard specifications from overseas have been referred to the committee for consideration. The following British Standard Specification has been recommended by the committee for adoption as a New Zealand Standard:—

B.S.S. 329–1939: Round Strand Steel Wire Ropes for Lifts and Hoists.

Cement and Concrete Sub-Committee.—This sub-committee has completed the formulation of a New Zealand Standard Specification for Reinforced Concrete Pressure Pipes, which has been recommended to the Standards Council as being suitable for adoption as a New Zealand Standard, and has turned its attention to the development of a similar specification for reinforced-concrete drainage-pipes, which will shortly be circulated in draft form to the interested parties for review and comment. These two standards will provide local authorities and other purchasers of reinforced-concrete pipes with reliable specifications to which these pipes may be bought. In addition, by laying down uniform test requirements and conditions, they will enable manufacturers to know in advance the requirements of the users, and so achieve valuable economies in production.

During the year two draft and two standard specifications received from overseas have been referred to the sub-committee for examination. The following British Standard Specification has been recommended for adoption as a revision of the existing New Zealand Standard of the same scope:—

B.S.S. 12–1940: Ordinary Portland and Rapid Hardening Portland Cement. (*Amended to suit New Zealand conditions.*)

MECHANICAL ENGINEERING DIVISIONAL COMMITTEE.

(Four meetings.)

Fire-extinguishers Sub-committee	6 meetings.
Mild Steel Dustbins Sub-committee	1 meeting.

Parent Committee.—This committee has completed the formulation of a New Zealand Standard Specification for Road Grader Blades and Tynes (N.Z.S.S. 307) which has been adopted by the Standards Council as a New Zealand Standard. By specifying standard designs and qualities this New Zealand Standard will do much to ensure better and more economic service from this type of equipment. In particular it will be instrumental in reducing to a reasonable range the existing unnecessary and confusing variation of sizes and shapes of blades and tynes and the spacings of the bolt-holes for the attachment of blades.

Thirty-three draft and forty-six standard specifications from overseas have been referred to the committee during the year for examination. The following twenty-nine British Standard Specifications have been recommended for adoption as New Zealand Standards:—

B.S.S.	
796–1938	Long Length Moulded Rubber Hose with Braided Cotton Reinforcement.
210–1939	Lubricating Oils, Classification of.
799–1938	Fully Automatic Oil Burning Equipment for Central Heating and Hot Water Supply, Code for. (*Amended to suit New Zealand conditions.*)
382–1940	88/10/2 Bronze (Gun-metal) Ingots.
383–1940	88/10/2 Bronze (Gun-metal) Sand and Chill Castings.
218–1940	Brass Bars and Sections (suitable for Forgings) and Drop Forgings.
821–1938	Iron Castings for Gears and Gear Blanks (Ordinary, Medium, and High Grades).
852–1939	Toolmakers' Straightedges.
856–1939	Wing Nuts.
857–1939	Safety Glass for Land Transport.
859–1939	Fuel Fired Furnaces for Heating and Heat Treatment Purposes.
860–1939	Approximate Comparison of Hardness Scales, Table of.
863–1939	Steel Straightedges of Rectangular Section.
864–1939	Capillary Joints for Copper Tubes—not for mechanical work. (Internal Dimensions of Sockets.) (*Amended to suit New Zealand conditions.*)
869–1939	Toolmakers' Flats and High Precision Surface Plates.
871–1939	Abrasive Papers and Cloths for General Purposes.
872–1939	Abrasive Papers and Cloths (Technical Products).
870–1939	Micrometers (External).
876–1939	Hand Hammers.
879–1940	Steel Tubes for Water Well Casing.
885–1940	Hard Drawn Seamless Brass Tubes (Ultimate Tensile Stress 25 to 30 tons per sq. in.).
886–1940	Annealed Seamless Brass Tubes.
887–1940	Vernier Callipers.
906–1940	Engineers' Parallels (Steel).
858–1939	"Best Yorkshire" Wrought Iron.
897–1940	85/5/5/5 Leaded Gun-metal Ingots.
898–1940	85/5/5/5 Leaded Gun-metal Castings.
329–1939	Round Strand Steel Wire Ropes for Lifts and Hoists.
275–1937	Dimensions of Rivets ($\frac{1}{2}$ in. to $1\frac{3}{4}$ in. diameter), (excluding Boiler Rivets).

In addition, the following revisions of British Standard Specifications have been recommended for adoption as revisions of the existing New Zealand Standards of the same scope:—

B.S.S.	
21–1938	Pipe Threads, Part 1, Basic Sizes and Tolerances.
84–1940	Screw Threads of Whitworth Form (combining original B.S.S. 84–1918 and B.S.S. 92–1919).
250–1940	High Tensile Brass Bars and Sections (Grades A and B).
251–1940	Naval Brass (Admiralty Mixture) Bars and Sections (suitable for Machining and Forging) and Forgings.
252–1940	Naval Brass (Special Mixture) Bars and Sections (suitable for Machining and Forging) and Forgings.
249–1940	Brass Bars (High Speed Screwing and Turning).

Fire-extinguishers Sub-committee.—This sub-committee has completed the preparation of the following original New Zealand Standard Specifications:—

Portable Chemical Fire-extinguishers of the Foam Type.
Portable Chemical Fire-extinguishers of the Carbon-tetrachloride Type.

These two standard specifications supplement N.Z.S.S. 246—Portable Fire-extinguishers of the Soda-acid Type, to form a series of national standards for the three types of fire-extinguishers most widely used in the Dominion. When this work is completed the sub-committee will have performed a valuable service to the community, by making available authoritative and generally accepted provisions designed to ensure the economic manufacture of efficient and safe fire-extinguishers. The sub-committee has now turned its attention to a revision of N.Z.S.S. 246—Portable Fire-extinguishers of the Soda-acid Type, with a view to bringing its provisions into line with those of the two new standards mentioned above.

Mild Steel Dustbins Sub-committee.—This sub-committee has completed the development of a New Zealand Standard Specification for Mild Steel Dustbins, which has been adopted by the Standards Council as a New Zealand Standard. This specification provides for two sizes of dustbins of the type considered to be most satisfactory for domestic and similar use. In the course of its preparation full attention has been given to such essential matters as handling, durability, public health, and manufacturing conditions.

ELECTRICAL ENGINEERING DIVISIONAL COMMITTEE.

(In recess.)

Heating Elements Sub-committee	2 meetings.
Plugs and Sockets Sub-committee	In recess.
Wallplates and Flush Switches Sub-committee	1 meeting.
Ceiling Roses and Fuses Sub-committee	1 meeting.

Parent Committee.—There has been no occasion for this committee to meet during the year. It has, however, been active in so far as it has reviewed the reports of its sub-committees and directed their work by post.

Heating-elements Sub-committee.—This sub-committee completed the preparation of a draft New Zealand Standard Specification for the Ratings and Methods of Test for Heating Elements for Hot-water Cylinders, which was circulated to the interested parties for review and comment. By laying down standard methods of test and specifying standard wattage ratings, this standard specification will prove of value to the manufacturers, who will know in advance of the requirements of the purchaser: to the electric supply authorities, who will benefit from adherence to the standard ratings specified; and to the users, who will be assured that the elements will give efficient and economic service.

Wallplates and Flush Switches Sub-committee.—This sub-committee has prepared a draft New Zealand Standard Specification for Flush Mounting Wall Switches, Wallplates, and Outlet Boxes, which has been circulated to the affected interests for review and comment. This draft specification, which covers both physical requirements and the mechanical and electrical performances of the materials used, is designed to allow the interchange of switches, plates, and outlet boxes, while allowing freedom for the manufacturer and the user to produce and obtain any variations of design which do not affect the essential dimensions. The draft specification also deals adequately with matters affecting safety and performance.

Ceiling Roses and Fuses Sub-Committee.—This sub-committee has formulated a draft New Zealand Standard Specification for Ceiling Roses made of Synthetic Resin Moulding Materials, which has been circulated to the interested parties for comment. While leaving the details of design to each individual manufacturer, this draft specification covers fully all such matters as essential dimensions, safety requirements, and quality of materials. It also includes adequate tests which will ensure that ceiling roses will prove safe and efficient in use.

The sub-committee has also examined the position concerning fuses and fuse holders, and steps are being taken to prepare a draft New Zealand Standard Specification for the domestic type of fuse and its holder.

CHEMICAL DIVISIONAL COMMITTEE.

(Seven meetings.)

Meal Sub-committee	In recess.

Dry-cleaning Solvent.—This committee has prepared an original New Zealand Standard Specification for Petroleum Dry-cleaning Solvent, which has been adopted by the Standards Council as a New Zealand Standard. This standard specification will distinguish an efficacious cleanser that will not damage the materials to which it is applied from products the claims of which are not supported by reliable facts or established tests.

Tinning of Dairy Equipment.—Further attention has been given to the question of Standards for the Tinning of Dairy Equipment, but before proceeding further with this work the Committee is awaiting the results of investigations which are being carried out concerning the purity of the tin used in tinning baths throughout the Dominion.

Regenerated Lubricating Oil.—The committee has prepared an original New Zealand Standard Specification for Regenerated Lubricating Oil, which will be published shortly. In view of the economy to be derived from the reclamation of waste oil, the regeneration of oil is becoming increasingly important in New Zealand. It is therefore necessary that some means should be provided whereby it may be ensured that the regeneration process will result in the maximum restoration of the lubricating properties of the oil. The New Zealand Standard Specification is designed to achieve this object.

Pumice Sandsoap.—The formulation of an original New Zealand Standard Specification for Pumice Sandsoap has been undertaken by the committee, and a draft specification has been circulated to the interested parties for review. When issued, this standard specification will provide an equitable basis for agreement between suppliers and users concerning the quality of the product.

Alkaline Cleansers. Consideration has been give by the committee to the question of standards for mixed alkaline cleansers in respect of which there is at present no means whereby the purchaser may relate quality to price and so ascertain the value of the product.

Creosote for the Preservation of Timber.—A New Zealand Standard Specification for Creosote for the Preservation of Timber has been completed by the committee and has now to be submitted to the Timber Committee for examination before being recommended for adoption as a New Zealand Standard.

Chemical Lead. In view of the importance of chemical lead to the fertilizer industry in New Zealand the committee has considered the question of developing a standard specification for this metal with a view to devising a satisfactory method of testing its acid-resisting qualities. As a preliminary step in this direction samples have been collected and are now ready for testing.

During the year four draft and ten standard specifications received from overseas have been referred to the committee for attention. The following British Standard Specifications have been recommended to the Standards Council as being suitable for adoption as New Zealand Standards:—

B.S.S.	
515–1938	Carbolic Acid 60's.
517–1938	Cresylic Acid of High Orthocresol Content.
521–1938	Cresylic Acid.
524–1938	Refined Cresylic Acid.
522–1938	Orthocresol, Metacresol, and Paracresol.
523–1938	Phenol.
756–1939	Apparatus for the Determination of Water by Distillation with an Immiscible Liquid.
823–1938	Density Composition Tables for Aqueous Solutions of Sodium Chloride and Calcium Chloride for Use in conjunction with British/New Zealand Standard Density Hydrometers.
824–1938	Density Composition Tables for Aqueous Solutions of Caustic Soda for use in conjunction with British/New Zealand Standard Density Hydrometers.
783–1938	Japanese and/or Korean Sardine Oil (Pale).
875–1939	Silica Basins, Crucibles, and Capsules.
850–1939	Definition of Cinematograph "Safety" Film.
878–1939	Code for Comparative Commercial Tests on Coal or Coke and Appliances in Small Steam-raising Plants.
813–1939	Chemical Symbols and Abbreviations.
658–1936	Distillation Apparatus.
210–1939	Classification of Lubricating Oils.

Dairy Products and Requisites Committee.

(One meeting.)

Reductase Test Sub-committee .. .. 1 meeting.

Although the prevailing emergency conditions have seriously curtailed the activity of this committee it continues to meet once a year at the same time as the New Zealand Dairy Science Association holds its annual conference. In addition, substantial progress has been made by postal communication, both with the interested parties in New Zealand and with the corresponding committees in Australia and Great Britain.

Babcock and Gerber Methods of Test.—After a lengthy period of investigation in New Zealand and collaboration with the British Standards Institution, the committee is now in a position to forward to Great Britain recommendations for the amendment of the existing British Standards for the apparatus and methods used in the Babcock test, so that the British Standards Institution may issue revised British Standards which will be suitable for use in both Great Britain and New Zealand. In this way a worthwhile contribution will be made towards Empire standardization of the methods and equipment used for routine testing in the dairy manufacturing industry.

Protected Type Dairy Thermometers.—At the request of the committee the British Standards Institution has issued for comment a draft British Standard Specification for Protected Type Dairy Thermometers based upon information forwarded to Great Britain from this country, and as soon as the period set aside for the receipt of comment has closed the appropriate committees in both countries will collaborate in finalizing the provisions of a British Standard Specification which can be adopted as a New Zealand Standard. This procedure has been preferred to the development of an original New Zealand Standard in order that the manufacturers in Great Britain might be fully consulted concerning the tolerance, &c., to which they will be required to work. The value of this proposed standard lies in the fact that this type of dairy thermometer is designed to prevent the risk of glass fragments from broken thermometers finding their way into the dairy products in which the thermometers are used. It is of paramount importance to prevent the possibility of any such accident occurring, as this would irreparably damage the high repute of our produce on the overseas market.

Solutions and Methods for the Estimation of Acidity in Cream, Milk, and Whey.—Although the New Zealand Standard Solutions and Methods for the Estimation of Acidity in Cream, Milk, and Whey, prepared by the committee, were adopted by the Standards Council over a year ago, the promulgation of this standard has been deferred until conditions become more normal, as it calls for a stronger solution of phenolphthalein than at present in use, and it is doubtful whether sufficient supplies for the use of the stronger solution will be available during the war period.

The Determination of Visible Dirt in Milk.—After examining the British Standard Specification for Centrifuge Tubes and Sedimentation Vessels for the Determination of Visible Dirt in Milk, the committee came to the conclusion that, although this apparatus would be useful for certain specialized laboratory work, it was not suitable for the routine examination of milk in New Zealand. Consequently it was recommended that the British Standard should not be adopted as a New Zealand Standard.

The Coagulating Strength of Rennet. During the past year a number of laboratories throughout the Dominion have been carrying out confirmatory tests of the application of the provisions of a proposed New Zealand Standard Specification for the Coagulating Strength of Rennet which has been prepared with the object of providing a reliable method of standardizing the strength of rennet for cheesemaking. When these tests have been completed, the draft proposals will be reviewed and a decision will be made concerning their suitability for adoption as a New Zealand Standard.

Chemical Analysis of Butter and Cheese.—Draft New Zealand Standard Methods for the Chemical Analysis of Butter and Cheese based extensively upon the corresponding British Standards have been circulated for review and comment to the interested parties in this country and overseas. When completed, the New Zealand Standard will prove a valuable guide and reference for those concerned with the laboratory examination of these dairy products.

Detergents for Use in the Dairy Industry.—The committee has examined the practicability of drawing up New Zealand Standards for Detergents for use in the Dairy Industry, but has come to the conclusion that the time is not yet ripe for action along these lines.

Salt for Dairy Purposes.

Tubular Woven Cheese Bandages and Bleached and Stiffened Cheese Caps.

Sampling and Analysis of Casein.

Coated Tinfoil for Use in the Dairy Industry.

Vegetable Parchment for Wrapping Dairy Products.

The committee has exchanged views with the corresponding committees of the British Standards Institution concerning the above matters which are the subjects of draft British Standard Specifications, and has submitted comments thereon from the point of view of the Dairy Industry in New Zealand for consideration by the British Committees before the draft proposals are finalized for publication as British Standards. In this way the requirements of this Dominion are related to manufacturing conditions in Great Britain with the result that the standards when issued are completely acceptable to all concerned.

Reductase Test.—A special sub-committee has given preliminary consideration to the preparation of standards for the Methylene Blue Reductase Test and has decided to cover dye-strength and methods of test in a New Zealand Standard Specification. As this is a basic test for milk used for the manufacture of dairy products and for human consumption, the promulgation of the proposed standard will prove a valuable contribution towards the maintenance of the quality of these foods.

Plumbing Committee.

Plumbing Supplies Sub-committee	18 meetings.
Plumbing By-laws Sub-committee	9 meetings.

Parent Committee.—While this committee has not met during the year, it has reviewed the reports of its sub-committees and directed their work by post.

Plumbing Supplies Sub-committee.—This sub-committee has been engaged upon the formulation of original New Zealand Standards for plumbing materials. A draft New Zealand Standard Specification for water-closet pans has been circulated to the interested parties for review and comment, and the sub-committee is now engaged in an examination of the comments which have been received. The sub-committee has also continued with the preparation of an original New Zealand Standard Specification for household water-taps, and is revising its original tentative proposals in this regard in the light of comments received from the manufacturers to whom they were sent for preliminary review.

Endorsement of the standardization of plumbing supplies and equipment has been expressed in resolutions carried at the annual conferences of the responsible trade organizations from time to time. This is a sphere of activity in which the duplication of types and sizes of equipment and parts inevitably manifests itself on a scale that incurs heavy increases in costs, and resulting general inconvenience, confusion, and waste. Hence the value of the work of this committee.

During the year one draft specification received from overseas has been referred to the sub-committee for attention. The following British Standard Specification has been recommended to the Standards Council as being suitable for adoption as a New Zealand Standard :—

B.S.S.
539–1937 Dimensions of Drain Fittings, Salt-glazed Ware and Salt-glazed Glass (Vitreous) Enamelled Fireclay.

Subsequently it was found that this standard specification did not provide for the Buchan type of trap which is used in New Zealand, and it was decided that suitable provisions in this regard should be prepared for inclusion as an Appendix to the New Zealand Standard. Draft proposals for this appendix have been prepared and will be examined by the committee shortly.

Plumbing By-laws Sub-committee.—This sub-committee has commenced the preparation of a New Zealand Standard Code of Plumbing and Drainage By-laws, taking as a basis an amended form of the regulations administered by the Department of Health. With the full concurrence and co-operation of the Department these proposals have been completely reviewed and entirely rearranged, and it is anticipated that they will soon be circulated to the interested parties for review and comment.

Timber Committee.

Hardwoods Sub-committee	1 meeting.

Parent Committee.—This committee has had no occasion to meet during the year.

Hardwoods Sub-committee.—This sub-committee has completed its consideration of the comments received from the affected interests upon the draft New Zealand Standard Specification for New South Wales Hardwoods, but has directed that before the amended provisions are recommended to the

Standards Council as suitable for adoption as a New Zealand Standard they should be compared in detail with the draft Australian Grading Rules for Structural Timbers with a view to ascertaining whether the two sets of provisions can be correlated from the point of view of both arrangement and detailed requirements. The sub-committee has also decided to proceed with the development of a New Zealand Standard for hardwoods imported from other Australian States, and steps are being taken to obtain necessary preliminary information in this regard.

Paints and Coatings Committee.

(Seven meetings.)

Having completed the preparation of New Zealand Standard Specifications for the paint ingredients generally used in the manufacture of paints, this committee is now devoting its attention to the development of standards for ready-mixed paints. This work is being undertaken in conjunction with a revision of the Stores Control Board specifications for the purchase of paints, varnishes, and enamels. A draft New Zealand Standard Specification for Ready-mixed Paint for Finishing Coats for Woodwork (White, Light, and Cream Tints) has been circulated to interested parties for comment, and will, in due course, be considered by the committee in the light of the comments received. A draft New Zealand Standard Specification for Pale Boiled Linseed Oil has also been completed and circulated for comment, while similar draft specifications for priming paint and white concrete and road traffic paint are at present in the course of preparation.

During recent years much valuable research and experimentation has been carried out both in this and other countries in relation to suitable base materials for paints, and formulas for relating these, in a way that will produce the most suitable and effective protective coatings according to the varying purposes and conditions for and under which the paint is to be used. The formulation of standards for these materials and products relates the value of the work that has been thus carried to the actual needs of the Dominion. It also reduces the number of specifications and formulas to which paint need be manufactured and thereby greatly reduces overhead, production, and distribution costs.

During the year four draft standard specifications received from overseas have been referred to the committee for examination. The following British Standard Specifications have been recommended to the Standards Council as being suitable for adoption as New Zealand Standards:—

(*a*) *Pigments for Paints*—

B.S.S.	
272–1936	Natural Red Oxides of Iron, Grades A and B. (*Amended to suit New Zealand conditions.*)
305–1936	Manufactured Red Oxides of Iron, excluding Venetian Red— Type 1: Indian and Turkey Reds. Type 2: Other Manufactured Oxides. (*Amended to suit New Zealand conditions.*)
694–1936	Blended Red Oxides of Iron. (*Amended to suit New Zealand conditions.*)
851–1939	Chemically Prepared Oxides and Hydrated Oxides of Iron (Marigold, Maroon, and Yellow) Pure and Reduced. (*Amended to suit New Zealand conditions.*)
282–1938	Lead Chromes for Paints.
389–1938	Zinc Chromes for Paints.
311–1936	Gold Size.

(*b*) *Oil Pastes*—

B.S.S.	
390–1938	Oil Pastes for Paints (excluding White Lead Zinc Oxide) and Lithopone Oil Pastes.
241–1935	Genuine White Lead Oil Paste.
273–1935	Zinc Oxide Oil Paste. (*Amended to suit New Zealand conditions.*)
297–1935	Lithopone Oil Paste.

(*c*) *Vehicles for Paints*—

B.S.S. 391–1936 Tung Oil, Type F.

Building Code Committee.

(No meetings.)

Building Code Technical Sub-committee	9 meetings.
Structural Welding Sub-committee	1 meeting.
Heating and Ventilation Sub-committee	Inactive.
Fire Prevention Sub-committee	7 meetings.
Indoor Fire Prevention Equipment Panel	8 meetings.
Flats and Apartment House By-laws Sub-committee	5 meetings.
Trade Headings Sub-committee	7 meetings.

Parent Committee.—Although this committee has not had occasion to meet during the year, it has continued to review the reports of its sub-committees, and to directly control the work carried out by them, by post.

Building Code Technical Sub-committee.—This sub-committee has continued with the drafting of Part VII, Steelwork, of the New Zealand Standard Code of Building By-laws, which is in the nature of a revision and amplification of Section VII, Steelwork, of the Standard Model Building By-law, Sections I–X, issued by the New Zealand Standards Institution in 1936. The revised provisions will cover all the matters previously dealt with, together with provisions in respect of the design of welded structures, which are being included in view of the increasing use which is being made of this method of fabrication.

In association with this work, the following British Standard Specifications have been examined and have been recommended for adoption as New Zealand Standards which can be cited in this part of the Standard Code :—

B.S.S.	
15–1936	Structural Steel for Bridges, &c., and General Building Construction.
275–1927	Dimensions of Rivets.
548–1934	High Tensile Structural Steel for Bridges, &c., and General Building Construction.

The sub-committee has also given attention to the revision of Section IV, Masonry Buildings of Bearing Wall Construction, of the original Model Building By-law, Sections I–X, but as yet this work has not progressed beyond the initial stages. In addition, the sub-committee has decided to prepare standard provisions in respect of lubricants, water-proofing substances, and colouring materials used in concrete.

Structural Welding Sub-committee.—This sub-committee has completed its consideration of the comments made by the interested parties upon the draft proposals for Part VII, The Application of Metallic Arc Welding to Building Construction, of the New Zealand Standard Code of Building By-laws. This part of the Standard Code has now to be formally approved by the sub-committee and subjected to legal scrutiny before it is forwarded to the Standards Council as being suitable for adoption as a New Zealand Standard.

Fire-prevention Sub-committee.—This sub-committee has made good progress with its consideration of the comments offered by the interested parties upon the draft proposals for Part XIV, Means of Egress, of the New Zealand Standard Code of Building By-laws, which will deal with the design, construction, and maintenance of exits from all types of buildings. As this is the first time that detailed by-law requirements in respect of this matter have been prepared in New Zealand, this work has entailed a considerable amount of careful investigation at all stages. The sub-committee has, however, now reached agreement upon the basic principles which should be adopted, and is thus able to proceed with the drafting of the detailed provisions. Preliminary attention has also been given to the preparation of Part XIII, Fire-resisting Construction, of the New Zealand Standard Code of Building By-laws and to the formulation of a New Zealand Standard Fire-prevention By-law.

Indoor Fire-prevention Equipment Panel.—This panel has been engaged in developing a New Zealand Standard Code of Practice for the Installation of Automatic Sprinkler Systems, which it is intended will deal with such matters as the method to be adopted in preparing buildings for the installation of sprinkler systems; the minimum requirements acceptable for various sources of water-supply that may be used for such systems; the general arrangement and the sizes of valves, fittings, and pipes; the location and spacing of the sprinkler heads; alarm systems; fire-engine connections; drencher systems; multi-jet systems; and special systems. When this work has been completed the panel will turn its attention to the formulation of standards for fire-resisting doors, wired glasses, indoor fire-hydrants, fire-hose couplings, and fire-hose.

Flats and Apartment House By-laws Sub-committee.—This sub-committee has completed its consideration of the comments offered by the interested parties upon the draft proposals for Part XV, Residential Buildings, of the New Zealand Standard Code of Building By-laws. These draft proposals originally included provisions in respect of the licensing and control of boardinghouses, which are considered to be an essential contribution towards the prevention of undesirable living-conditions and the elimination of unnecessary fire hazards. As these latter provisions would require legislation to be enacted, and as the licensing and control of boardinghouses and the design and construction of residential buildings are two entirely different matters, the sub-committee has decided that the original draft proposals should be divided into two parts of the New Zealand Standard Code of Building By-laws as follows :—

Part XV : Residential Buildings :
Part XVI : Licensing and Control of Boardinghouses and Similar Premises.

In each case the draft proposals have now to be formally approved by the sub-committee and subjected to legal scrutiny before they are forwarded to the Standards Council as being suitable for adoption as a New Zealand Standard.

Trade Headings Sub-committee.—This sub-committee has completed the preparation of a draft New Zealand Standard Sequence of Trade Headings and Specification Items for Building Work, which has been circulated to the interested parties for review and comment.

This proposed New Zealand Standard is designed to promote uniformity in the arrangement and presentation of architects' specifications for building work generally.

Town-planning Committee.

(Five meetings.)

Town Planning Sub-committee .. .. 1 meeting.

Parent Committee.—This committee has revised the provisional New Zealand Standard Code of Clauses for Town Planning Schemes (N.Z.S.S. 181P) promulgated in March, 1939, in the light of comments which have been made thereon since the date of issue. The revised provisions have now been published as the New Zealand Standard Code of Clauses for Town Planning Schemes (N.Z.S.S. 181), which forms a reliable and authoritative guide for town-planning authorities and others interested in town-planning schemes.

Town-planning Sub-committee.—The special sub-committee set up by the Town-planning Committee gave detailed consideration to the question of the courts necessary to provide adequate light and ventilation in buildings, and made recommendations in connection therewith to the main committee.

Ceramic Committee.

(One meeting.)

This committee has been called together to undertake the preparation of a New Zealand Standard Specification for Building Bricks which can be cited in the part of the New Zealand Standard Code of Building By-laws dealing with Masonry Buildings of Bearing Wall Construction. The committee decided that, as a preliminary step in this direction, representative samples of bricks manufactured in different parts of the country should be tested for porosity and crushing strength. When the results of these tests come to hand a draft standard specification will be drawn up and circulated to the interested parties for comment.

Timber Building Code Committee.

(Five meetings.)

This committee has completed its consideration of the comments received from the interested parties upon the draft proposals for Part XI, Light Timber Construction, of the New Zealand Standard Code of Building By-laws. This part of the Standard Code has now to be formally approved by the committee and subjected to legal scrutiny before it is forwarded to the Standards Council as being suitable for adoption as a New Zealand Standard. As soon as this work has been completed the committee will turn its attention to the completion of Part XII, Heavy Timber Construction, of the Standard Code.

Cost Accounting Terminology Committee.

(Six meetings.)

This committee has made good progress in the work of preparing a New Zealand Standard Code of Cost Accounting Terminology. The committee is examining and redrafting basic definitions published by the British Institute of Cost and Works Accountants as a guide, but also intends to include certain definitions for which experience has proved there exists a definite need. The code, when issued, will fill a recognized need of industry and will no doubt establish a firm step towards general uniformity of costing terms.

As a dictionary for use by students of cost accounting and others, the standard code will do much to remove the confusion and duplication which is at present demonstrated. Expressions of opinions concerning the work and progress of the committee have been obtained from authorities overseas and within the Dominion. In every case full approval and the desire to co-operate has been expressed.

Road Traffic Signals Committee.

(One meeting.)

After considering the comments received upon the draft New Zealand Standard Code of Practice for Road Traffic Control Signals during its circulation to the interested parties for review, this sub-committee has recommended the proposals in an amended form to the Standards Council as suitable for adoption as a New Zealand Standard. The committee is now investigating the possibility of developing further standard codes and specifications for such related matters as road markings, traffic lines, and parking indications.

Pram-tyres Committee.

(One meeting.)

After considering the relevant information available, this committee came to the conclusion that no further steps should be taken towards standardization of pram tires until supplies of wheels without tires became available.

Domestic Refrigerators Committee.

(Two meetings.)

From the circulation of a draft British Standard Specification for Domestic Electrical Refrigerators it was ascertained that although the British proposals were not entirely suitable for New Zealand conditions there was need for a similar standardization in this country. This committee accordingly proceeded to prepare a draft New Zealand Standard Specification of this scope, using the draft British Standard Specification as a basis, and circulated the New Zealand proposals to the interested parties for comment in the usual way. The period set aside for the receipt of comments has not yet expired.

Office Furniture Committee.

(One meeting.)

This committee has been established to prepare standards for the main items of office furniture used by Government Departments and similar organizations. From a survey of the various types of furniture recently installed in modern Government offices it was found that the use of standard equipment would effect considerable economies by avoiding the necessity for individual specifications and drawings in each case, thereby reducing special orders for furniture and fittings to a minimum with a proportionate reduction in costs.

Milk Committee.

(Two meetings.)

This committee was set up to investigate the practicability of developing a New Zealand Standard Specification for Market Milk and Cream which, it was considered, would facilitate the administration of milk-delivery-zoning schemes, and so contribute towards the conservation of petrol-supplies. A draft New Zealand Standard Specification was circulated in the usual way to the interested parties for review and comment. After examining the comments received the committee came to the conclusion that its project should be abandoned as it was not practicable to incorporate in a standard specificiaton provisions in excess of those already laid down by existing regulations, by-laws, &c., to an extent which would render such a standard useful.

Trailer Pumps Committee.

(Two meetings.)

This committee was set up for the purpose of developing a national standard for large motor-driven trailer-pump units, after it had been found that there were differences of opinion among the appropriate authorities concerning the respective merits of locally-manufactured units and imported equipment. After examining the position thoroughly the committee decided to proceed with the formulation of a New Zealand Standard Specification which would ensure that the local product would prove satisfactory in use. Suitable equipment has since been constructed locally.

Committees in Recess.

The following committees have not had occasion to meet during the year :—

Fibrous-plaster Committee.
Dairy Machinery and Plant Committee.
Woolpacks Committee.
Asbestos-cement Products Committee.
Hides Committee.
Statistical and Financial Return Forms Committee.
Illumination Committee.
Motor-spirit Committee.
Drum-plugs Committee.

Six of the above committees have completed the work allotted to them and remain as standing committees to be called together should the need arise to give consideration to any revision or relevant matter. The work of the other three committees has been held in abeyance pending the receipt of relevant information from overseas and the finalization of investigation of some aspects of the considerations involved.

Conclusion.

There is ample evidence of the increasing extent to which New Zealand Standards are being used—for instance, the sales of standard specifications during the past four years have been as follows :—

Year.	Number of Specifications.	Value.
		£ s. d.
1937–1938	1,444	201 14 9
1938–1939	4,791	450 13 6
1939–1940	5,322	674 2 9
1940–1941	16,505	1,426 0 1

Of the total number of 16,505 standard specifications sold during the current year, 13,478, or 82 per cent., were original New Zealand Standards prepared in this country. A further 1,310 were British Standards adopted as New Zealand Standards with or without local amendment, so that in all 90 per cent. of the sales were New Zealand Standards adopted through the standards procedure in this country.

Of the total of 2,315 British Standard Specifications sold, over one-half had been adopted as New Zealand Standards, although the British Standards so adopted number only one-third of the total number received from Great Britain. This indicates clearly the value of the work of examining British Standards, from the point of view of New Zealand requirements, before they are adopted as New Zealand Standards, with or without local amendments as may be found necessary.

A. R. Galbraith, M.Inst.C.E., F.R.S.E.,
Chairman, Standards Council.

APPENDIX.

LIST OF NEW AND REVISED NEW ZEALAND STANDARD SPECIFICATIONS ADOPTED FROM 1ST JANUARY, 1940, TO 31ST MARCH, 1941.

NOTE.

B.S.S. signifies that this standard is a BRITISH STANDARD.
Specifications indicated with an asterisk (*) are at present under revision.
[A.S.] signifies that this Standard has been adopted as an AUSTRALIAN STANDARD.
Local Amendment is shown : †
[S.A.] signifies that this Standard has been adopted as a SOUTH AFRICAN STANDARD.

New Standards. (N.Z.S.S.)	
286	Cast Iron Pipes (Vertically-cast) for Water, Gas, and Sewage, and Special Castings for use therewith ; being B.S.S. 78–1938.
287	Long-length Moulded Rubber Hose with Cotton-braided Reinforcement ; being B.S.S. 796–1938.
288	Pump Tests ; being B.S.S. 599–1939. [A.S.]
289–291 (1 vol.)	Red Oxides of Iron (Natural, Manufactured and Blended) for Paints :—
	*289 Natural Red Oxides of Iron (Grades A. & B) ; being B.S.S. 272–1936, *amended to suit New Zealand conditions.*
	290 Manufactured Red Oxides of Iron (excluding Venetian Red)—
	Type 1 : Indian and Turkey Reds.
	Type 2 : Other Manufactured Oxides ; being B.S.S. 305–1936, *amended to suit New Zealand conditions.*
	291 Blended Red Oxides of Iron ; being B.S.S. 694–1936, *amended to suit New Zealand conditions.*
292	Carbolic Acid 60's ; being B.S.S. 515–1938.
293	Cresylic Acid of High Orthocresol Content ; being B.S.S. 517–1938.
294	Cresylic Acid (50/55 per cent. Matacresol) ; being B.S.S. 521–1938.
295	Refined Cresylic Acid ; being B.S.S. 524–1938.
296	Orthocresol, Metacresol and Paracresol ; being B.S.S. 522–1938.
297	Phenol ; being B.S.S. 523–1938.
298	Apparatus for the Determination of Water by Distillation with an Immiscible Liquid ; being B.S.S. 756–1939.
299	Density-composition Tables for Aqueous Solutions of Sodium Chloride and of Calcium Chloride for Use in Conjunction with New Zealand Standard Density Hydrometers (N.Z.S.S. 133—B.S.S. 718–1936) ; being B.S.S. 823–1938.
300	Density-composition Tables for Aqueous Solutions of Caustic Soda for use in conjunction with New Zealand Standard Density Hydrometers (N.Z.S.S. 133—B.S.S. 718–1936) ; being B.S.S. 824–1938.
301	Oil Pastes for Paints (excluding White Lead, Zinc Oxide, and Lithopone Oil Pastes) ; being B.S.S. 390–1938.
302	Chemically-prepared Oxides and Hydrated Oxides of Iron (Marigold, Maroon, and Yellow), Pure and Reduced ; being B.S.S. 851–1939, *amended to suit New Zealand conditions.*
303, 304 (1 vol.)	Lead and Zinc Chromes for Paints :—
	*303. Lead Chromes for Paints ; being B.S.S. 282–1938.
	*304. Zinc Chromes for Paints ; being B.S.S. 389–1938.
305	Graduated Pipettes and Straight Pipettes ; being B.S.S. 700–1937.
306	Petroleum Dry-cleaning Solvent.
307	Road Grader Blades and Tynes.
308	Mild-steel Dustbins.
309	Structural Steel for Bridges, &c., and General Building Construction ; being B.S.S. 15–1936, *amended to suit New Zealand conditions.* [S.A.]
310	High Tensile Structural Steel for Bridges, &c., and General Building Construction ; being B.S.S. 548–1934. [S.A.]
311	Japanese and/or Korean Sardine Oil (Pale) ; being B.S.S. 783–1938.
312	Silica Basins, Crucibles, and Capsules ; being B.S.S. 875–1939.
313	Definition of Cinematograph "Safety" Film ; being B.S.S. 850–1939.
314	Comparative Commercial Tests of Coal or Coke and Appliances in Small Steam Raising Plants (Code for) ; being B.S.S. 878–1939.
315	Chemical Symbols and Abbreviations ; being B.S.S. 813–1939.
316	Distillation Apparatus ; being B.S.S. 658–1936.
317	Classification of Lubricating Oils ; being B.S.S. 210–1939.
318	Code for Fully Automatic Oil Burning Equipment for Central Heating and Hot Water Supply ; being B.S.S. 799–1938, *amended to suit New Zealand conditions.*
319, 320 (1 vol.)	Bronze (Gun-metal) Ingots and Castings for General Engineering Purposes :—
	319 88/10/2 Bronze (Gun-metal) Ingots ; being B.S.S. 382–1940.
	320 88/10/2 Bronze (Gun-metal) Sand and Chilled Castings ; being B.S.S. 383–1940.

New Standards—*contd.*

(N.Z.S.S.)

321 Brass Bars and Sections (suitable for Forgings) and Drop Forgings; being B.S.S. 218–1940.

322 Iron Castings for Gears and Gear Blanks (ordinary, medium, and high grades); being B.S.S. 821–1938.

323 Toolmakers' Straightedges; being B.S.S. 852–1939.

324 Wing Nuts; being B.S.S. 856–1939.

325 Safety Glass for Land Transport; being B.S.S. 857–1939.

326 Fuel Fired Furnaces for Heating and Heat Treatment Purposes; being B.S.S. 859–1939.

327 Table of Approximate Comparison of Hardness Scales; being B.S.S. 860–1939.

328 Steel Straightedges of Rectangular Section; being B.S.S. 863–1939.

329 Capillary Joints for Copper Tubes—not for Mechanical Work (Internal Dimensions of Sockets); being B.S.S. 864–1939, *amended to suit New Zealand conditions.*

330 Toolmakers' Flats and High Precision Surface Plates; being B.S.S. 869–1939.

331 Abrasive Papers and Cloths for General Purposes; being B.S.S. 871–1939.

332 Abrasive Papers and Cloths (Technical Products); being B.S.S. 872–1939.

333 Micrometers (External); being B.S.S. 870–1939.

334 Hand Hammers; being B.S.S. 876–1939.

335 Steel Tubes for Water Well Casing; being B.S.S. 879–1939.

336, 337 (1 vol.) Seamless Brass Tubes for General Purposes:—

336 Hard Drawn Seamless Brass Tubes (Ultimate Tensile Stress 25 to 30 tons per square inch); being B.S.S. 885–1940.

337 Annealed Seamless Brass Tubes; being B.S.S. 886–1940.

338 Vernier Callipers; being B.S.S. 887–1940.

339 Engineers' Parallels (Steel); being B.S.S. 906–1940.

340 "Best Yorkshire" Wrought Iron; being B.S.S. 858–1939.

341, 342 (1 vol.) Leaded Gun-metal Castings and Ingots:—

341 85/5/5/5 Leaded Gun-metal Ingots; being B.S.S. 897–1940.

342 85/5/5/5 Leaded Gun-metal Castings; being B.S.S. 898–1940.

343 Round Strand Steel Wire Ropes for Lifts and Hoists; being B.S.S. 329–1939.

344 Dimensions of Rivets ($\frac{1}{2}$ in. to $1\frac{3}{4}$ in. diameter) (excluding Boiler Rivets); being B.S.S. 275–1927.

345 Gold Size; being B.S.S. 311–1936.

346–348 (1 vol.) White Oil Pastes for Paints:—

346 Genuine White Lead Oil Paste; being B.S.S. 241–1935.

347 Zinc Oxide Oil Paste; being B.S.S. 273–1935, *amended to suit New Zealand conditions.*

348 Lithopone Oil Paste; being B.S.S. 297–1935.

*349 Tung Oil, Type F, for Paints; being B.S.S. 391–1936. [†S.A.]

350 Dimensions of Drain Fittings, Salt-glazed Ware and Salt-glazed Glass (Vitreous) Enamelled Fireclay; being B.S.S. 539–1937.

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181 Code of Clauses for Town Planning Schemes.

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(N.Z.S.S.)

26 Being B.S.S. 92–1919, *also withdrawn.* (See N.Z.S.S. 25.)

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